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Greater History of Weight-related Stigmatizing Experience is Associated with Greater
Weight Loss in Obesity Treatment

Janet D. Latner,¹ G. Terence Wilson,² Mary L. Jackson,³ & Albert J. Stunkard⁴

¹ Department of Psychology, University of Hawaii at Manoa, Honolulu, HI; 2430
Campus Road, Honolulu, HI 96822; Correspondence: jlatner@hawaii.edu.

² Department of Psychology, Rutgers University, Piscataway, NJ

³ Trevoze Behavior Modification Program, Trevoze, PA

⁴ Department of Psychiatry, University of Pennsylvania, Philadelphia, PA

Abstract

Experiences of obesity stigmatization and fear of fat, body image, and self-esteem, were examined in relation to weight loss and weight maintenance. Participants in obesity treatment (n=185) with more stigmatizing experiences had poorer body image and greater fear of fat. Higher initial BMI, more stigmatizing experiences, lower body dissatisfaction, and greater fear of fat predicted greater weight loss. Higher initial BMI and more stigmatizing experiences predicted greater weight maintenance after 6 months in treatment. These findings suggest that despite the negative psychological correlates of stigmatization, experience and fear of obesity's negative consequences may also be associated with improved treatment outcome.

Key Words: Obesity, Stigmatization, Weight loss, Weight maintenance, Body image

Bio-bibliographical note: Janet D. Latner is an Assistant Professor of Psychology at the Department of Hawaii at Manoa. Her areas of research are obesity and eating disorders.

Discriminatory practices against obese people have been well documented in a range of settings, including health care (Hebl & Xu, 2001; Teachman & Brownell, 2001), educational (Bell & Morgan, 2000; Latner & Stunkard, 2003; Neumark-Sztainer, Story, Evans, & Ireland, 1999), and employment settings (Gortmaker, Must, Perrin, Sobol, & Dietz, 1993; Roehling, 1999). However, the psychological and behavioral consequences of weight bias among obese individuals are not well understood (Puhl & Brownell, 2001). More frequent exposure to obesity stigmatization by others is associated with poor body image, low self-esteem, and greater psychological distress (Annis, Cash, & Hrabosky, 2004; Friedman et al., 2005; Myers & Rosen, 1999).

Overweight and obese people seem to view obesity as negatively as non-overweight people, on both implicit (Wang, Brownell, & Wadden, 2004) and explicit (Latner, Stunkard, & Wilson, 2005) measures of stigmatization. This suggests an ingroup devaluation, in contrast to the ingroup valuation that may occur among members of other stigmatized groups such as ethnic minorities (Crandall, 1994; Crocker, 1999; Wang et al., 2004). This devaluation may be affected by the perceived potential for mobility out of the group (Tiggemann & Anesbury, 2000) and the blame directed at obese individuals for their condition (Crandall, 1994), unlike groups based on race or sex. The presence of ingroup devaluation among obese individuals might increase their desire to escape from this stigmatized group. This may in turn lead them to further devalue or fear group membership and decrease their self-esteem. This could create a cycle of internalized stigmatization and self-deprecation (Grover, Keel, & Mitchell, 2003), body dissatisfaction, and strong desire to lose weight.

The global increase in obesity has reached epidemic proportions, with 65.1% of adults currently overweight and 30.4% of adults currently obese in the U.S. (Hedley et al., 2004). Weight loss treatment produces significant improvements in common obesity-related comorbid diseases, including cardiovascular disease, diabetes, hypertension, and sleep apnea (Blackburn, 2002). However, the major challenge in obesity treatment is maintaining weight that has been lost (Perri, 1998). Relapse following treatment is the norm (Jeffery et al., 2000), and only a small minority of the general overweight population appears to succeed in maintaining lost weight (Sarlio-Lahteenkorva, Rissanen, & Kaprio, 2000). Therefore, the search for predictors and correlates of success at weight loss and maintenance has become particularly important. Studying individuals who achieve weight maintenance can lead to a better understanding of the psychological principles behind it.

In other health disorders, fear of disease has been shown to be an important predictor of health-related behaviors. Among patients with gastrointestinal problems, anxiety caused by pain predicted more frequent utilization of primary health care in the past year. Fear of serious illness and fear of cancer were also associated with previous and frequent health care utilization in these patients (Howell & Talley, 1999). In contrast, health concerns or fears do not appear to predict or motivate dieting, exercise, weight loss initiation, or weight loss maintenance (Heinberg, Haythornthwaite, Rosofsky, McCarron, & Clarke, 2000). However, it may be the fear of obesity itself, rather than fear of obesity's health consequences, that is associated with weight loss and maintenance.

Rothman (2000) has hypothesized that the maintenance of lost weight is motivated by the desire to avoid negative consequences, such as the fear of returning to a previous heavier weight. Similarly, Heinberg, Thompson, and Matzon (2001) have proposed that ‘mild to moderate levels of distress may be beneficial for [individuals with] average to above-average BMIs because it serves as a constant motivator to continue a healthy lifestyle’ (p. 216). Greater fear of being or becoming obese distinguished women who are currently dieting from women who are not dieting (Goldfarb, Dykens, & Gerrard, 1985). In addition, normal-weight women who had previously been overweight (and thus were currently maintaining a reduced weight) expressed more body dissatisfaction and more anxiety while being weighed than normal-weight women who had not previously been overweight (Cash, Counts, & Huffine, 1990). However, previously overweight women did not differ significantly from women who had never been overweight on fear of fat or recent dieting frequency. Cash and colleagues (1990) speculated that successful weight loss may attenuate generalized fears of weight gain, while still leaving a residual disparagement of body image.

In contrast to Heinberg and colleagues’ (2001) and Rothman’s (2000) hypotheses that fear and distress play a motivating role in weight maintenance, Wilson (1996) argued that better maintenance of healthy eating and exercise behavior can be facilitated by enhancing self-acceptance, body image, and self-esteem. Self-acceptance would most likely reduce the fear of weight gain and the distress about body image that Heinberg et al. (2001) and Rothman (2000) predicted were important motivators of healthy behaviors. Some mixed evidence does suggest that in certain cases, elevated levels of body distress can hinder weight loss attempts (Teixeira, Going, Sardinha, & Lohman, 2005). Schwartz

and Brownell (2004) suggested that freedom from body image distress, anxiety, and depression might facilitate a stable psychological state needed for motivated healthy behaviors. Weight bias can lead to disordered eating behaviors (Neumark-Sztainer et al., 2002), overeating, and avoidance of dieting (Myers & Rosen, 1999; Puhl & Brownell, 2006). Schwartz and Brownell recommended that research is needed to identify the relationships between weight stigmatization, body dissatisfaction, and behavior change.

The present study examined whether experience with and fear of the negative consequences of obesity are associated with relatively greater success at weight loss and maintenance. Participants included members of a continuing-care treatment program for obesity. We assessed the relationships of stigmatizing experiences and fear of fat with three psychological variables, body image, self-esteem, and negative attitudes towards obesity, as well as with two behavioral variables, weight loss and weight maintenance. Based on the findings of Myers and Rosen (1999) and Annis et al. (2004), it was predicted that a history of more frequent stigmatizing experiences would be associated with greater fear of fat, lower self-esteem, and more negative body image.

In addition, this study tested two competing hypotheses. The first hypothesis, based on Rothman (2000) and Heinberg et al. (2001), predicted that more weight-related distress (stigmatization experiences, fear of fat, and negative body image) would be associated with greater relative success at weight loss and maintenance. In contrast, the second hypothesis, based on Wilson (1996) and Schwartz and Brownell (2004), predicted that greater freedom from such weight-related distress would be linked to greater relative success at weight loss and maintenance.

Methods

Participants. Participants included 185 members (83.7% women, 96.4% Caucasian) of a self-help, continuing-care, behavioral group treatment program for obesity, the Trevoze Behavior Modification Program. Criteria for entry into the program at the time of data collection were that applicants must be between 20 and 100 pounds overweight and must not have diabetes. Treatment groups in this program are facilitated by volunteer leaders and assistant leaders, and 30.3% of the sample was comprised of such group leaders. Participants' mean age was 55.5 years (SD = 13.7). As the most recent new group had begun two months prior to data collection, participants included individuals involved in the program for at least two months. Although attrition data were not available, previous research has demonstrated attrition rates comparable to those in other treatment programs: 61-70% remained in treatment at 1 year, 44-47% at 2 years and 22-23% at 5 years (Latner et al., 2000; Latner, Wilson, Stunkard, & Jackson, 2002).

The Trevoze program uses traditional behavior modification techniques (e.g., moderate caloric restriction, self-monitoring, stimulus control, increasing physical activity), but it also employs two sets of unusual strategies. First, it offers continuing care throughout the lifetime of its members. Second, participants are required to attend weekly meetings regularly and to lose a prescribed minimum amount of weight each month until reaching their weight loss goal (derived from insurance industry standards for healthy height and weight; Metropolitan Life Insurance Company, 1949). Members not meeting these standards are subject to dismissal from the program. Once program members have lost at least 90% of their weight loss goal, they are considered to have reached their goal and are strongly encouraged to continue regular attendance at

meetings, to volunteer as leaders, assistant leaders, or program staff, and to maintain their goal weight. In the current sample, 31.40% of participants had reached 90% of their weight loss goal; the mean goal in the entire sample was 22.24% of initial body weight (20.54 kg). Therefore, within a range of variability (reported below), many of the participants in the present sample represented relatively successful weight losers.

Measures. All participants who were currently enrolled in the program's main location (in Trevoze, PA; n = 66) and all participants at 19 randomly selected satellite groups (in localities throughout Pennsylvania and New Jersey; n = 158) were invited to participate by the program director (MLJ). Thus, the response rate was 82.59%. Questionnaire packets (completed at home) assessed demographic information and participants' perceived current success in the weight loss program, on a 5-point scale (1 = *very unsuccessful*, 5 = *very successful*). Participants also completed the following questionnaires:

The Stigmatizing Situations Inventory (SSI; Myers & Rosen, 1999) assesses the lifetime frequency of 50 weight-related stigmatizing experiences (that occurred while the respondent was overweight). Items are rated on a 10-point frequency scale ranging from *never* to *daily* (sample item: 'Friends, acquaintances, co-workers, etc. making fun of your appearance'). Higher scores indicate more stigmatizing experiences. It has demonstrated good internal consistency ($\alpha = 0.95$) and content validity (Myers & Rosen, 1999). The measure's internal consistency (Cronbach's alpha) in the current sample was 0.92.

The 10-item Goldfarb Fear of Fat Scale (GFF; Goldfarb et al., 1985) assesses fear of fat and weight gain using a 4-point response format ranging from *very untrue* to *very true* (sample item: 'My biggest fear is of becoming fat'). Higher scores indicate greater

fear of fat. It has demonstrated internal consistency ($\alpha = 0.85$), test-retest reliability ($r = 0.88$), and validity in differentiating non-dieting women, repeat dieters, and women with repeated bingeing and purging (Goldfarb et al., 1985). Its internal consistency in this sample was 0.78.

The 36-item Body Shape Questionnaire (BSQ; Cooper, Taylor, Cooper, & Fairburn, 1987) is a commonly used reliable and valid measure of satisfaction and concern with body shape using a 6-point response format ranging from *never* to *always* (sample item: 'Have you felt excessively large and rounded?'). Higher total scores are an index of greater body dissatisfaction. Its internal consistency in this sample was 0.95.

The 10-item Rosenberg Self-Esteem Scale (RSE; Rosenberg, 1979) assesses attitudes of global self-worth and self-esteem on a 4-point scale ranging from *strongly agree* to *strongly disagree* (sample item: 'At times, I think I am no good at all'). Negative items were reverse coded, such that higher total scores indicated higher self-esteem. It has demonstrated reliability and validity (Demo, 1985). Its internal consistency in the current sample was 0.86.

The Antifat Attitudes Test (AFAT; Lewis, Cash, & Bubb-Lewis, 1997) is a 47-item measure assessing negative attitudes towards fat people, on a 5-point Likert scale ranging from *definitely disagree* to *definitely agree* (sample item: 'Fat people are unclean'). Higher total scale scores indicate greater weight bias. It has demonstrated good reliability ($\alpha = 0.95$) and discriminant validity (Lewis et al., 1997). Its internal consistency in this sample was 0.93.

Participants' height, current weight, weight loss goal, and weight at treatment initiation ("initial weight") were assessed through self-report at the same time that

questionnaires were completed. Prior to weekly meetings, Trevoze members are weighed by their program leaders/co-leaders on a balance-beam scale. After this weighing, leaders tell members their weight and record it on their personalized weight information card. Members' weight cards contain their weekly weights and weight changes recorded throughout the year. This card also lists members' height, weight loss goal, and initial weight. Their frequent contact with these cards provided participants with accurate information about their current weight, initial weight, weight loss goal, and height.

Statistical Analysis. Participants' initial weight and current weight were used to compute the percentage of their body weight that they had lost in treatment (hereafter referred to as percentage weight loss). Pearson product-moment correlations were computed to assess the associations between stigmatization experiences, fear of fat, body dissatisfaction, self-esteem, and antifat attitudes, initial BMI, percentage weight loss, and perceived success in treatment. For all correlations except those involving initial BMI, partial correlations were run that controlled for initial BMI. Multiple linear regression analyses, with all variables entered simultaneously, were used to identify predictors of weight loss. An additional regression analysis including only those participants who had been in treatment for at least 6 months was used to identify predictors of the maintenance of weight loss.¹

Results

Participants' mean initial body mass index (BMI; kg/m^2) at the time of treatment initiation had been 33.24 ($\text{SD}=4.13$), and their current mean BMI was 27.74 ($\text{SD}=3.36$) ($t(170)=26.34$, $p<.001$; range of loss: 0.18-15.62 BMI points). Participants had lost an

average of 16.41% ($SD=6.84\%$) of their initial weight (range: 0.55%-36.71%). They had participated in treatment for a mean of 36.71 months to date (median: 23 months), with a range of 2.50 to 232.00 months. Leadership status did not influence overall findings.²

Means and standard deviations of the psychological measures are shown in Table 1.

As shown in Table 2, more frequent stigmatizing experience was associated with higher initial BMI. (All correlations which did not include the variable of initial BMI controlled for this variable.) Stigmatization experience was associated with poorer body image and with increased fear of fat, and greater fear of fat was associated with poorer body image and stronger antifat attitudes.

 Insert Tables 1 and 2 about here

As shown in Table 2, more stigmatization experience was correlated with greater percentage weight loss. Greater stigmatization experience was also correlated with participant perceptions of greater success in treatment. Fear of fat was not significantly correlated with percentage weight loss.³

¹ Because of the continuing care structure of this treatment, maintenance was defined here as continued weight loss after a specified time in treatment, rather than as weight loss at a specified time after the termination of treatment.

² Independent-samples t-tests showed no differences between group leaders (including assistant leaders) and non-leaders in self-esteem, stigmatizing experiences, body dissatisfaction, or anti-fat attitudes, but there was a group difference in fear of fat ($t(176) = 2.57, p < .05$); means on the GFF were 23.78 and 25.94 for leaders and non-leaders, respectively. Including leadership status as a predictor variable had no impact on regression analyses and was not a significant predictor of weight loss. Thus, leadership status did not have an effect on the main findings. This was the case in both regression analyses.

³ The correlational findings in Table 2 remained the same when a partial correlation was run controlling for length of time spent in the program in addition to initial BMI. Although time in the program was not a primary question of the present study, we also examined the possible relationships between the length of time in the program and other variables. Time in the program was not significantly related to self-esteem, fear of fat, body dissatisfaction, or anti-fat attitudes, but it was modestly related to stigmatizing experiences ($r(174) = -.15, p < .05$). However, this finding was no longer significant when a partial correlation was performed that controlled for the effects of initial BMI. Time in the program was also not significantly correlated with percentage weight loss for either the entire sample or for participants who had been in the program for 6 or more months.

Multiple regression analysis was used to model the predictors of percentage weight loss. In addition to the psychological variables tested (stigmatizing experiences, body dissatisfaction, and fear of fat), initial BMI was also included as a potential predictor, as it has been shown to predict percentage weight loss in different samples drawn from the same population (Latner et al., 2000; 2002). These four variables were found to significantly and independently predict percentage weight loss ($R^2=.23$, $F(4,166)=12.62$; $p<.001$): initial BMI ($\beta=.29$, $p<.001$), stigmatizing experiences ($\beta=.25$, $p<.001$), body dissatisfaction ($\beta=-.24$, $p<.005$), and fear of fat ($\beta=.15$, $p<.05$). There were no significant interaction effects between these variables.⁴

This first regression analysis included all participants. Thus, for some participants, it reflected weight lost only recently, while for other participants, it reflected weight lost and maintained over time. Furthermore, for newer participants whose weight losses were recent, small weight losses may indicate a lack of opportunity rather than a less successful treatment outcome. Therefore, a second regression analysis was conducted to identify predictors of weight maintenance, including only the 72.4% of participants who had been in treatment for at least 6 months. This narrowed the sample to those who had most likely reached a phase of weight maintenance, since weight loss typically slows and stops at 6 months after treatment initiation (Jeffery et al., 2000). Among these 126 participants, 41.5% had reached 90% of their weight loss goal. This group of participants included a proportion of group members who were currently volunteering as leaders (25.6%) and assistant leaders (13.2%).

⁴ When entered as an additional independent variable, age was not a significant predictor of weight loss and did not affect the main findings. This was the case in both regression analyses.

Among these longer-term participants, mean percentage weight loss maintained was 18.41% ($SD=6.67$, range = 5.45%-36.71%) and mean duration of treatment to date was 49.42 months. In a regression analysis with these participants ($R^2=.29$, $F(4,115)=11.91$; $p<.001$), fear of fat and body dissatisfaction were not found to be significant predictors ($\beta=-.05$ and $-.10$, respectively; n.s.). However, maintenance of percentage weight loss was significantly and independently predicted by two variables: initial BMI ($\beta=.40$, $p<.001$) and stigmatizing experiences ($\beta=.23$, $p<.01$).⁵

Discussion

The present findings provide preliminary evidence that history of weight-based stigmatization was associated with worse psychological functioning in two respects: poorer body image and increased fear of fat. These results are consistent with those of Myers and Rosen (1999), who also found decreased self-esteem in those with more weight stigmatization experiences, a finding that was not replicated here. Other recent studies using the same measures employed here have also shown no significant relationship between stigma experiences and self-esteem (Puhl & Brownell, 2006; Vartanian & Shaprow, in press). Despite these negative psychological correlates of stigma, more frequent stigmatizing experiences also predicted a positive behavioral outcome, greater weight loss. Other predictors of greater weight loss included higher initial BMI, greater fear of fat, and less body dissatisfaction. Only two variables independently predicted maintenance of weight loss after 6 months in treatment: higher initial BMI and more frequent stigmatizing experiences.

⁵ Running this regression analysis using only participants active in treatment for 12 months or more yielded very similar results. Their mean percentage weight loss maintained was 18.75% ($SD = 6.65$, range = 5.45%-36.71%) and mean duration of treatment to date was 52.24 months. Maintenance of percentage

The association between stigmatizing experiences and weight maintenance is consistent with the prediction of Rothman (2000) that the maintenance of lost weight may be motivated in large part by the desire to avoid negative consequences. Individuals with histories of more stigmatizing experiences may have greater awareness of the negative psychosocial consequences of obesity, or their awareness may be more acutely salient. Heinberg and colleagues (2001) also proposed that the presence of distress, in the form of body dissatisfaction, may be beneficial to weight loss and maintenance. Contrary to their prediction, the present study found that while greater body dissatisfaction was associated with more stigmatizing experiences and greater fear of fat, lower body dissatisfaction was also a significant predictor of greater weight loss. This study did not address whether body dissatisfaction is an initial impetus for engaging in weight loss efforts. However, the findings do suggest that ongoing body dissatisfaction is not necessary for the continuation of weight loss and maintenance over time.

The current findings are consistent with Wilson's (1996) proposal that acceptance of one's shape and weight may enhance weight loss and maintenance. Weight loss and maintenance may be enhanced by the perception of positive rewards for behavior change (Jeffery, Kelly, Rothman, Sherwood, & Boutelle, 2004; Rothman, 2000). Valuing the positive changes caused by initial weight loss, including the changes in one's body image, may be necessary in order to create sufficient incentive to continue efforts at weight loss and maintenance (Cooper & Fairburn, 2001).

Despite participants' histories of obesity, women and men in the present study held attitudes about obesity that were nearly as negative as attitudes held by a college

weight loss was predicted ($R^2 = .30$, $F(2,117) = 23.05$; $p < .001$) by initial BMI ($\beta = .39$, $p < .001$) and stigmatizing experiences ($\beta = .27$, $p < .01$).

student sample (Lewis et al., 1997). The means of the AFAT in the present study were 2.28 for men and 2.11 for women, compared to 2.49 for men and 2.27 for women among college students. Previous literature has suggested that levels of weight bias in obese individuals are as high as levels in non-obese individuals (Latner et al., 2005; Wang et al., 2004), and the present study suggests that individuals who have lost weight, most of whom are no longer obese, are also stigmatizing of obesity. However, the small but significant negative correlation between antifat attitudes and initial degree of overweight suggests that more initially overweight individuals may be slightly more accepting of obesity than lighter individuals, as recently shown elsewhere (Schwartz, Vartanian, Nosek, & Brownell, 2006). Higher initial weight was also associated with more stigmatizing experiences.

It is possible that the cultural denigration of fat leads to the internalization of weight stigma (Grover et al., 2003), fear of fat, poor body image, and low self-esteem (Myers & Rosen, 1999) in obese individuals. This self-disparagement may lead these individuals to wish to escape from the stigmatized group (Wang et al., 2004) and to attempt doing so by losing weight (one form of coping with stigma; Myers & Rosen, 1999.) Those who are eventually able to successfully remove themselves from the stigmatized group may experience improved self-esteem and body image (Adami et al., 1998; Foster & Matz, 2002; Schwartz & Brownell, 2004), as well as reduced discrimination by others (Rand & MacGregor, 1990). However, these improvements may not ameliorate previous fears of obesity and weight gain, memories of stigmatizing experiences, or antifat attitudes. Rather, having successfully escaped the unpleasant state of membership in a stigmatized group, participants may be negatively reinforced for their

weight maintenance behaviors, and the potency of these negative reinforcers may remain high. Losing weight may also strengthen the belief that obesity is controllable, a belief associated with greater stigma (Tiggemann & Anesbury, 2000). Thus, the individual's escape from the stigmatized group may help perpetuate beliefs in the negative consequences of overweight and prevent them from being disconfirmed. Indeed, in today's discriminating society, perhaps they cannot be disconfirmed.

A limitation of the present study was the concurrent assessment of variables, limiting conclusions about the direction of causality. For example, although the SSI assessed history of stigmatizing experiences during the period when participants were overweight, it is possible that participants who had recently lost and maintained more weight were more likely to recall or report their stigmatizing experiences. As in other studies examining the factors associated with successful weight maintenance (e.g., Klem, Wing, McGuire, Seagle, & Hill, 1997; Ogden, 2000), this study included participants who had lost and maintained weight. The sample may also be unusual in that typical dieters may often not achieve or maintain the amount of weight they aim to lose (Foster, Wadden, Vogt, & Brewer, 1997). In addition, individuals willing to tolerate the consequences imposed by the program rules (such as the threat of dismissal) may also have a higher than average tolerance of potentially anxiety-provoking or stigmatizing experiences. Furthermore, treatment seeking samples have been shown to differ from non-treatment seeking samples, with greater psychopathology and more binge eating (Fitzgibbon, Stolley, & Kirschenbaum, 1993). These factors may limit the generalizability of results. This study could not determine the association between the variables studied here and persistent weight loss failure, because of the attrition among

members who do not meet their weight loss goals over time and the unavailability of data on these individuals. Finally, small numbers of men and ethnic minorities in the current sample prevented the investigation of sex or ethnic differences.

The clinical implications of the present findings are complex. On the one hand, the present study suggests that treatment participants who have had stigmatizing experiences might automatically or deliberately recall these events, and use them (at times effectively) to help motivate their weight loss efforts. On the other hand, these experiences may have been psychologically harmful, as found here. Stigmatizing experiences can detrimentally affect body image, self-esteem, and general psychological functioning (Friedman et al., 2005; Myers & Rosen, 1999). Childhood teasing about body weight, a specific type of stigmatizing experience, can increase the likelihood of body dissatisfaction in adulthood (Grilo, Wilfley, Brownell, & Rodin, 1994), and body dissatisfaction has been shown to mediate the relationship between the degree of obesity and depression (Friedman, Reichmann, Costanzo, & Musante, 2002). Another form of bias, racial discrimination, has even shown associations with physiological reactions that are detrimental to health (Guyl, Matthews, & Bromberger, 2001). Researchers and clinicians should be aware of these important detrimental effects of weight bias. Future research should aim to identify who is at greatest risk of harm from weight stigma and who may be protected from its effects. It is likely that many individuals are unable to positively use their discriminatory experiences to motivate behavior change; these individuals may react to stigma with potentially harmful eating-related behaviors including disordered eating, overeating, or unwillingness to diet (Neumark-Sztainer et al., 2002; Puhl & Brownell, 2006). Consistent with Schwartz and Brownell's (2004)

warning, we would emphasize that societal discrimination or stigma regarding obesity is never justified, even if it might motivate behavior change in certain individuals.

Future research should examine alternative methods of enhancing people's awareness of the negative consequences of obesity and motivate behavior change—methods that do not involve discrimination. For example, this knowledge could be increased through psychoeducation on the health-related and psychosocial risks of being overweight. More research is also needed on the effectiveness of weight loss as a means of ameliorating the negative psychological consequences of stigma in obese individuals, relative to other mechanisms for coping with stigma (Puhl & Brownell, 2007).

Among individuals in a self-help, continuing care treatment program for obesity, body dissatisfaction did not appear to facilitate or be necessary for the maintenance of weight loss. On the contrary, greater acceptance of shape and weight following weight loss may be associated with enhanced weight maintenance. However, awareness—and fear—of the negative psychosocial consequences of obesity were associated with improved weight loss and maintenance of lost weight. Sadly, such awareness may often come from memories of hurtful and stigmatizing treatment by others. It should be the goal of researchers and clinicians to try to reduce the stigmatization of obesity in our society, and to replace it with more positive incentives for achieving healthy weight.

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Table 1. Summary scores (sums) for psychological variables.

<u>Variable</u>	<u>Mean (SD)</u>
SSI	27.74 (26.79)
GFF	24.38 (5.22)
BSQ	89.11 (25.98)
RSE	17.29 (4.54)
AFAT	100.51 (23.23)

Table 2. Correlations between psychological variables and weight outcomes

<u>Variable</u>	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>	<u>6</u>	<u>7</u>	<u>8</u>
1. SSI	--	.17*	.25***	.01	.06	.34***	.23**	.16*
2. GFF		--	.42***	.37***	.25***	.04	.11	.12
3. BSQ			--	.42***	.09	-.01	-.09	.07
4. RSE				--	-.04	-.05	-.08	.26*
5. AFAT					--	-.17*	-.00	-.11
6. I-BMI						--	.38***	-.06
7. % Loss							--	-.19*
8. PTS								--

Note. All r values represent partial correlations controlling for initial BMI, except for correlations with initial BMI. I-BMI: Initial BMI; % Loss: Percentage weight loss; PTS: Perceived treatment success.

* $p < .05$, ** $p < .005$, *** $p < .001$.