

The Relation of Weight Stigmatization to Psychological Adjustment¹

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This study investigated weight stigmatization as a predictor of adjustment in samples of 100 undergraduates and 99 bariatric patients. Coping strategies (emotion-focused coping, problem-focused coping, disengagement coping) were tested as moderators of this relation. Weight stigmatization predicted depression, anxiety, and antisocial behavior when controlling for the effects of stressful life events. Problem-focused coping weakened the association between weight stigmatization and depression. Emotion-focused coping augmented the relation between weight stigmatization and antisocial behavior. The results support weight stigmatization as a meaningful predictor of adjustment difficulties. Engendering a problem-focused coping style over an emotion-focused coping style might benefit patients reporting weight stigmatization. Further work is necessary to understand what specific elements of these coping styles impact adjustment.

Studies comparing the psychological well-being of overweight and non-overweight individuals have resulted in inconsistent findings. Some studies have reported higher levels of psychopathology among people who are overweight (Rohrer, Pierce, & Blackburn, 2005; Simon et al., 2006). Other work has suggested that weight is not correlated with psychological adjustment (e.g., O'Neil & Jarrell, 1992; Stunkard & Wadden, 1992). The use of nonvalid clinical measures of psychological adjustment and lack of appropriate control groups might explain such inconsistent findings (Friedman & Brownell, 1995). Still, with more than half of the American population now overweight (Ogden et al., 2006), there is an urgent need to understand factors that are likely to place overweight people at risk for psychopathology.

Weight Stigma and Weight Stigmatization Experiences

In tandem with the rise in the prevalence of obesity, negative attitudes toward overweight people are increasingly evident (e.g., Andreyeva, Puhl, &

¹This manuscript utilizes data collected for a senior honors thesis completed at Rutgers University by the second author under the supervision of the third author with support from the first author.

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Brownell, 2008; Puhl & Heuer, 2009). Researchers have found evidence of weight-based stigmatization in the areas of health care, employment, education, and close relationships (Puhl & Brownell, 2006; Roehling, 1999; Schwartz, O'Neal, Brownell, Blair, & Billington, 2003). Survey research has suggested that in the United States, reports of weight-based discrimination have increased in the last decade (Andreyeva et al., 2008) and that bias against overweight people is stronger than bias against other groups (e.g., bias against people of the Muslim faith and people of bisexual or homosexual orientation; Latner, O'Brien, Durso, Brinkman, & MacDonald, 2008).

For someone who perceives himself or herself as overweight, sociocultural indicators of weight bias (e.g., media depictions) might be continuous reminders of the fact that he or she does not fit the mold of society's standards. Further, there is a pervasive belief that obesity is largely under the control of the individual (see DeJong, 1993). This belief, in combination with society's tendency to discriminate against those viewed as responsible for their stigma more than those not thought to be responsible for their stigma (e.g., people with physical disabilities), might account for the relative social acceptance of weight stigmatization (Crandall, 1994).

Laboratory and survey research supports a link between experiences with weight-related discrimination and both negative mood and low self-esteem (e.g., Crocker, Cornwell, & Major 1993; Myers & Rosen, 1999). Investigations of the link between experiences with weight stigma and psychological adjustment have been limited to internalizing symptoms and disordered eating symptoms (e.g., Friedman et al., 2005; Myers & Rosen, 1999; Puhl & Brownell, 2006). However, perceived rejection is also associated with aggression and reduced prosocial behavior (Garbarino, 1999; Twenge et al., 2007).

There is a need to expand the focus of research on weight stigmatization outcomes. The majority of previous work investigating psychological adjustment and weight stigmatization has supported associations between experience with weight stigma and less positive indicators of adjustment. Friedman et al. (2005) found that reports of weight stigmatization were positively associated with depression in a sample of treatment-seeking obese adults. Reports of weight stigmatization have been associated with higher levels of negative affect and lower levels of positive affect (Carr, Friedman, & Jaffe, 2007), and a notably wide range of indicators of psychological distress (e.g., interpersonal sensitivity, anxiety, depression, social isolation, hostility; Ashmore, Friedman, Reichmann, & Musante, 2008). In contrast, Puhl and Brownell (2006) reported nonsignificant correlations between frequency of stigmatization and current psychological functioning (i.e., self-esteem and depression).

These findings highlight the need for further exploration of the relation between experiences with weight stigmatization and psychological well-being in a more diverse sample. The range of psychological difficulties associated

with weight stigmatization suggests that this stressor's influence on adjustment may manifest in a variety of ways. Expanding investigation of correlates of weight stigmatization beyond the current focus on internalizing difficulties and eating problems could provide meaningful results to inform work with individuals who may respond to weight stigmatization in ways that are not expected. Broadly defined forms of interpersonal rejection are associated with aggression and reduced prosocial behavior (Garbarino, 1999; Twenge et al., 2007). Therefore, it seems appropriate to investigate antisocial behavior as an additional distress-related correlate of weight stigmatization experiences.

A smaller number of studies have investigated weight stigma in undergraduate samples (e.g., Vartanian & Shaprow, 2008), compared to those that have included samples from weight-loss support groups and clinics (e.g., Ashmore et al., 2008; Puhl & Brownell, 2006). While research has shown that stigma is associated with body mass index (BMI), with higher BMI relating to more frequent stigma encounters (Myers & Rosen, 1999), health-risking responses to weight stigmatization are reported by non-overweight, overweight, and obese individuals (e.g., eating more food; Puhl & Brownell, 2006). Having a healthy weight status, therefore, does not appear to protect an individual from experiences that can be perceived as weight stigmatization. The selective nature of samples of individuals who enroll in support groups or weight-loss programs could skew the results. Studying correlates of weight stigmatization in an undergraduate sample is an important step in determining the generalizability of existing findings in this area.

Coping With Stigma

Prejudice and discrimination may be stressful if they result in educational or economic barriers or other social disadvantages (Miller & Major, 2000). Stigmatized people can also be threatened by the stereotypes and negative attitudes that others hold (e.g., Baumeister & Leary, 1995). Individuals generally perceive threats to the self as stressful when those threats exceed coping resources (Lazarus & Folkman, 1984). It is important to consider coping when studying the relation between weight stigmatization and adjustment. Effective coping can buffer the effects of stress on psychosocial functioning, whereas ineffective coping might exacerbate these effects (Folkman, 1997; Pargament et al., 1998), and specific strategies might lead to improvements in some outcomes but not others (Folkman, 1992).

Myers and Rosen (1999) measured coping methods aimed at dealing with weight stigmatization and found that one method of coping (i.e., avoiding or leaving the situation) was associated with negative body image and negative

self-esteem, but none were significantly associated with more positive body image or mental health outcomes. Coping strategies such as positive self-talk, self-acceptance, and seeing the situation as others' problem were associated with higher levels of self-esteem, suggesting that these emotion-focused coping strategies have the potential to mitigate or even reverse the effects of weight stigmatization on self-esteem. Puhl and Brownell (2006) observed that coping with weight stigmatization through social support positively correlated with increased self-esteem, and that coping by engaging in positive self-talk correlated with lower levels of depression. They did not report any observation of coping strategies that predicted higher scores of depression or lower self-esteem. Previous work has implicated choice of coping strategies as an important factor in determining not only the degree of maladjustment associated with a stressor, but the type of maladjustment.

Researchers categorize coping strategies according to the person's goals. A coping strategy is considered *problem-focused* if the goal of the strategy is to make adjustments to troubling elements of the person-environment relationship, and it is considered *emotion-focused* if the goal of the strategy is to reduce negative emotions (Lazarus & Folkman, 1984). Researchers have also made a distinction between coping strategies that are aimed at engagement with a stressor and coping strategies that involve disengagement from a stressor or domains in which the stressor exists (e.g., Carver et al., 1993; Crocker & Major, 1989). For example, Carver et al. reported that the use of acceptance coping strategies was associated with lower levels of psychological distress among breast cancer patients, whereas the use of disengagement strategies was associated with higher levels of distress. Understanding the type of coping strategies that people use in dealing with stress in general may be useful in understanding how weight stigmatization influences psychological well-being. The kind of strategies an individual uses to cope may differentially influence pathways between weight stigmatization and different forms of maladjustment.

The Present Study

The primary goal of this study is to test the hypothesis that experiences with weight stigmatization will be positively associated with psychological distress (i.e., depressive symptoms, anxiety symptoms, antisocial behavior). Because we collected data from participants living in or near urban, inner-city areas, we assessed stressful events commonly experienced in these conditions (Attar, Guerra, & Tolan, 1994). There is a large body of research that supports stressful life events as predictors of poor psychological adjustment (e.g., Boardman, Finch, Ellison, Williams, & Jackson, 2001). Therefore, we

took the opportunity to test the contribution of weight stigmatization to the prediction of psychological distress beyond the contribution made by stressful life events, a demonstrated predictor of maladjustment.

A secondary goal is to test the hypothesis that the use of different types of coping strategies will moderate the relation between experience with weight stigmatization and psychological distress. Previous work has linked disengagement coping to higher levels of psychological distress (e.g., Carver et al., 1993; Myers & Rosen, 1999). More recent work has implicated disengagement coping as a differential predictor of aggression in young adults coping with exposure to violence (e.g., Scarpa & Haden, 2006).

For individuals who experience weight stigmatization, choosing disengagement coping behavior over problem-focused coping behavior may signify a broader disregard for interpersonal difficulty. If this type of detachment eliminates a desire to solve problems effectively, it also has the potential to increase risk for antisocial behavior. We expected, therefore, that the association between weight stigmatization and antisocial behavior would be especially strong for participants who choose disengagement coping.

Problem-focused coping, if effective, may make it possible for an individual to experience a sense of mastery or control (Folkman & Moskowitz, 2004). Gaining a sense of mastery or control may decrease negative affect experienced as a result of stigmatization and may bolster self-efficacy for handling stigmatizing situations in the future. Emotion-focused coping strategies may not have this same benefit. Strong positive associations between passive acceptance and emotional distraction oriented strategies (e.g., denial, seeking emotional support, venting, self-distraction) and internalizing difficulties have been observed among individuals coping with perceived discrimination (e.g., Noh & Kaspar, 2003). Therefore, we expect that problem-focused coping strategies will buffer the negative effect of weight stigmatization on psychological functioning (depression, anxiety, antisocial behavior) and that emotion-focused coping will amplify the negative effect of weight stigmatization on depression and anxiety, but not antisocial behavior.

Method

Participants

Participants ($N = 199$) were recruited from two separate populations. To ensure variability in weight status and potential weight stigmatization experiences, we recruited samples from a bariatric weight-control clinic in a major metropolitan region of the Northeast ($n = 99$; M age = 35.4 years, $SD = 8.7$; 93 females, 6 males; 9% White/Caucasian, 48% Black/African American, 38%

Latino/Latina/Hispanic, 4% Other) and from the introductory psychology subject pool of a medium-sized university in the Northeast ($n = 100$; M age = 20.0 years, $SD = 3.7$; 77 females, 23 males; 20% White/Caucasian, 16% Black/African American, 14% Latino/Latina/Hispanic, 50% Other). Most of the participants in the clinic sample had some college education (45%) or were college graduate/post college (34%). Most students were in their first or second year of college.

BMI scores computed from participants' self-reported height and weight confirmed that the clinic sample (M BMI = 33.51, $SD = 7.30$) was significantly more overweight than was the student sample (M BMI = 24.01, $SD = 4.29$), $t(193) = 11.15$, $p < .001$.³ The mean age for the clinic sample was significantly higher than the mean age for the student sample, $t(196) = 16.13$, $p < .001$. The proportion of females was higher in the clinic sample than in the student sample, $\chi^2(2, N = 199) = 13.26$, $p < .001$. Educational level, $\chi^2(2, N = 199) = 38.49$, $p < .001$, and ethnicity, $\chi^2(2, N = 199) = 70.43$, $p < .001$, were also unevenly distributed across the two samples.

Measures

Experiences of weight stigma. Participants completed Myers and Rosen's (1999) Stigmatizing Situations Inventory. This measure assesses experiences of weight stigma and includes 50 items covering a range of different stigmatization experiences (e.g., inappropriate comments from doctors, social exclusion, perceived discrimination, encountering physical barriers). Each question is answered according to how often each situation has happened on a 10-point scale ranging from 0 (*never*) to 4 (*several times a year*) to 6 (*several times a month*) to 9 (*daily*).

As has been the case in previous studies that have used this measure (e.g., Friedman et al., 2005; Myers & Rosen, 1999), item means were low, relative to the broad span of the scale. Therefore, we chose to recode all items using a smaller range of scores: 0 = *never*, 1 = *once in your life*, 2 = *several times in your life*, or 3 = *once a year or more*. This recoding is based on a modified version of the scale used by other researchers (e.g., Puhl & Brownell, 2006). A principal components analysis using varimax rotation yielded three factors, one that we interpreted as relatively low-level stigmatization likely to be reported by both patients and students (e.g., "A parent or relative nagging you to lose weight," "Being unable to get a date because of your size," "Having people assume you have emotional problems because you are

³Because of missing weight or height data for 5 participants from the clinical sample, the t test included data from only 194 participants.

overweight”). We computed a total weight stigmatization composite as the mean of all 12 items that loaded onto this factor (see the Appendix for a list of these isolated low-level items). This weight stigmatization composite produced an internal reliability estimate Cronbach’s alpha of .90.

Stressful life events. Participants completed the Stressful Urban Life Events Scale (Attar et al., 1994), which measures stressful experiences over the prior year, with 12 items sampling events that usually occur within urban populations (e.g., “During the last year, did your family have to move to a new home or apartment?”; “Has a family member become seriously ill, injured badly, and/or had to stay at the hospital?”). Responses were coded as to whether or not these events occurred (1 = *Yes*, 0 = *No*). A total score was derived from the sum of the events experienced. This composite produced a satisfactory internal reliability estimate for an event checklist (Kuder–Richardson Formula 20 = .56).

Coping mechanisms. Participants completed items from the Brief COPE (Carver, 1997), a 28-item measure that assesses various methods of coping with stress. We analyzed scales representing a mix of conceptually distinct coping styles described by coping researchers (Carver, Scheier, & Weintraub, 1989; Miller & Major, 2000). The scales assess problem-focused coping (e.g., active coping, planning, seeking instrumental support), emotion-focused coping (e.g., acceptance, positive reframing, humor, self-distraction, denial, seeking emotional support, turning to religion, venting), and disengagement (e.g., behavioral disengagement, substance use). Responses were rated on a 4-point scale (1 = *I haven’t been doing this at all*, 2 = *I’ve been doing this a little bit*, 3 = *I’ve been doing this a medium amount*, or 4 = *I’ve been doing this a lot*).

For each of the scales, we created a proportional composite score (scale sum divided by sum for all items; see Connor-Smith & Compas, 2002). Scores for each coping style represent the extent to which participants engage in one style, relative to the others. We chose to calculate the composite score in this way in order to ensure that we were assessing coping style and not just level or degree of each coping strategy. Internal consistency was acceptable for each of the scales (problem-focused coping, $\alpha = .80$; emotion-focused coping, $\alpha = .78$; disengagement, $\alpha = .72$). Maximum and minimum composite scores for each of the scales appear in Table 1.

Psychological distress. Participants completed three subscales of Achenbach and Rescorla’s (2003) Adult Self Report, a broadband screen for psychopathology in adults ages 18 to 59. Subscales administered measured depressive symptoms (11 items; e.g., “I cry a lot,” “I don’t eat as well as I should,” “I feel worthless or inferior”), anxiety symptoms (7 items; e.g., “I worry about my future,” “I am afraid of certain animals, situations, or places,” “I am too fearful or anxious”), and antisocial behaviors (19 items; e.g., “I do things that may cause me trouble with the law,” “I fail to pay my

Table 1

Descriptive Statistics and Sample Differences for Study Variables

Variable	Patient sample			Student sample			<i>t</i> (195)	Cohen's <i>d</i>
	<i>M</i>	<i>SD</i>	Range	<i>M</i>	<i>SD</i>	Range		
Stressful urban life events	2.08	1.74	0.00–7.00	1.71	1.68	0.00–9.00	1.51	.22
Depression	0.49	0.38	0.00–1.67	0.47	0.34	0.00–1.75	0.34	.06
Anxiety	0.48	0.43	0.00–1.86	0.71	0.41	0.00–1.57	–3.75**	.55
Antisocial behavior	0.13	0.14	0.00–0.55	0.15	0.13	0.00–.70	–0.89	.15
Stigmatization experiences	0.81	0.69	0.00–2.67	0.58	0.76	0.00–3.00	2.20*	.32
Problem-focused coping	0.27	0.05	0.15–0.41	0.28	0.04	0.17–0.38	–0.63	.22
Emotion-focused coping	0.61	0.04	0.50–0.74	0.63	0.04	0.52–0.73	–3.22**	.50
Disengagement coping	0.12	0.04	0.04–0.28	0.10	0.03	0.05–0.23	4.30**	.57

Note. Statistics were computed for the proportional composite coping scores.

* $p < .05$, ** $p < .01$.

debts or meet other financial responsibilities,” “I steal”). Responses were rated on a 3-point scale (0 = *not true*, 1 = *sometimes or somewhat true*, or 2 = *very or often true*) to evaluate behavior over the prior 3 months. Composite scores were derived from the raw mean of items on each scale (internal reliability via Cronbach's $\alpha = .84$, $.80$, and $.82$, respectively, for depression, anxiety, and antisocial behavior).

Weight status. Weight status classifications were based on BMI. Participants with a BMI of 30 or greater were considered obese ($n = 74$). Participants with a BMI less than 30 but greater than or equal to 25 were considered overweight ($n = 56$). Participants with a BMI less than 25 were considered non-overweight ($n = 70$). Weight status was coded as an ordinal variable (0 = *not overweight or obese*, 1 = *overweight*, 2 = *obese*).

Procedure

The university Institutional Review Board and the director of the bariatric weight-control clinic from which about half of the sample was drawn reviewed and approved all procedures. Recruitment of the undergraduate sample was conducted via a subject pool maintained by the psychology department at the authors' university. Students in the pool were enrolled in introductory psychology courses and were required to participate in research studies as part of their course requirements (alternatives to research participation were available to students who did not wish to serve as research participants). Students signed up to participate through an online study portal and came to a private lab space in the psychology department at an

appointed time to provide informed consent and complete the survey, after which they received research credit in partial fulfillment of their course requirements.

Recruitment of the clinic sample occurred onsite at the host clinic. Once the study began, clinic patients were offered participation when they arrived for their regularly scheduled appointments. The second author (a part-time employee of the clinic) provided information about the survey to patients in the clinic waiting room. At this time, it was made clear to patients that their choice to participate would have no impact on the services they received at the clinic. All patient participants provided their informed consent and were assured that their survey responses would remain anonymous and separate from their clinic records. As an incentive, two \$25 cash prizes were offered via random lottery drawing to patient participants.

Results

Sample Characteristics and Demographic Differences in Major Study Variables

Table 1 shows descriptive statistics (means and standard deviations) for all study variables separately by sample group (patients vs. students). Independent-sample *t* tests were computed to examine group differences (patients and students) in these variables. Table 2 presents the intercorrelations of study variables. Because there were some differences by sample group, we present separate statistics for each group here as well.

Based on correlations between continuous demographic variables (i.e., age, education) and major study variables (i.e., stigmatization experiences, weight status, depression symptoms, anxiety symptoms, antisocial behavior), we determined that age and education produced potentially confounding relations. Age was related positively to weight status, $r(196) = .49, p < .01$; and disengagement coping strategies, $r(196) = .25, p < .01$; and negatively to anxiety symptoms, $r(196) = -.26, p < .01$. Education was related negatively to anxiety symptoms, $r(197) = -.21, p < .01$; and antisocial behavior, $r(197) = -.26, p < .01$.

We computed ANOVAs to assess the relation between categorical demographic variables (i.e., sex, race, weight status) and major study variables. Weight status was the only categorical variable that related to more than one of the major study variables. Participants who were more overweight reported more depressive symptoms, $F(2, 196) = 3.12, p < .05$; more stigmatization experiences, $F(2, 196) = 12.82, p < .01$; and the use of more disengagement coping strategies, $F(2, 196) = 5.25, p < .01$.

Table 2
Intercorrelations for Study Variables

Measure	1	2	3	4	5	6	7	8	9	10	11
1. Age	—	.28**	.18	.24*	.08	.13	-.12	-.07	-.05	.07	-.02
2. Education	.22*	—	.20*	.13	-.08	.05	-.17	.09	.11	-.06	-.08
3. Stressful urban life events	-.23*	-.17	—	.04	.09	.08	-.04	.04	-.01	.11	-.13
4. Weight status	-.13	-.12	.06	—	.13	.14	.10	.54**	-.03	-.13	.20
5. Depression	-.34**	-.01	.26*	.24*	—	.68**	.42**	.36**	-.04	-.01	.06
6. Anxiety	-.26*	-.20*	.28**	.14	.70**	—	.38**	.24*	-.04	.06	-.03
7. Antisocial behavior	-.20*	-.08	.13	.02	.42**	.49**	—	.21*	-.02	-.04	.08
8. Stigmatization	-.31**	.05	.22*	.30**	.51**	.39**	.21*	—	-.02	-.13	.21*
9. Problem-focused coping	-.17	.09	.09	.02	.07	.04	.11	.19	—	-.73**	-.45**
10. Emotion-focused coping	.08	-.01	-.02	.09	.07	.04	.06	.00	-.58**	—	-.28**
11. Disengagement coping	.12	-.09	-.09	-.20	-.15	-.08	-.19	-.23*	-.61**	-.30**	—

Note. Statistics were computed for the proportional composite coping scores. Correlations for the student sample are presented above the diagonal, and correlations for the patient sample are presented below the diagonal.
 * $p < .05$. ** $p < .01$.

In the regression analyses, we controlled for age, weight status, and education because based on the aforementioned analyses, these were the only variables that had potentially confounding relations with our study variables. We chose not to include sample group as a control variable because it was highly correlated with another control variable; that is, weight status, $r(197) = -.64$, $p < .01$. Patients were more likely than were students to be categorized as overweight (i.e., 94% vs. 36%), $\chi^2(1) = 72.54$, $p < .0001$; and more likely to be categorized as obese (i.e., 62% vs. 12%), $\chi^2(1) = 53.68$, $p < .0001$. We included stressful urban life events as an additional control variable because this variable demonstrated association with our outcome variables. The data on 3 participants were removed from all analyses reported here because they reported antisocial behavior at levels that were more than 3 standard deviations above the mean.

Unique Contribution of Weight Stigmatization to Adjustment Problems

We tested the strength of weight stigmatization as a predictor of the three adjustment indicators while controlling for the effects of stressful urban life events. A regression was run for each adjustment indicator. Each of the analyses included age, education, and weight status as control variables in Step 1. Stressful urban life events were entered in Step 2. Weight stigmatization was entered separately in Step 3 to determine whether this stressor accounted for incremental variance in the adjustment indicators. After controlling for age, weight status, and education in Step 1, and stressful urban life events in Step 2, weight stigmatization accounted for an additional 11% of variance in depression symptoms, $F_{\text{change}}(1, 188) = 26.77$, $p < .001$; 6% of variance in anxiety symptoms, $F_{\text{change}}(1, 188) = 13.10$, $p < .01$; and 3% of variance in antisocial behavior, $F_{\text{change}}(1, 188) = 6.21$, $p < .05$. Weight stigmatization was related positively to depression symptoms ($\beta = .39$), anxiety symptoms ($\beta = .28$), and antisocial behavior ($\beta = .21$).

Coping Strategies and Weight Stigmatization

To examine the different coping strategies as moderators of the relation between stigmatization and psychological adjustment, we ran separate sets of regressions for each coping strategy. To increase variability in the indicators used for inferential analysis and to enhance the statistical power of our tests for moderation, we chose to include both patient and student data in each analysis, rather than running separate regressions for each sample. Age, education, weight status, and stressful urban life events were entered as

control variables in Step 1. Next, the predictor variables of weight stigmatization experiences and coping were entered together in Step 2. As suggested by Aiken and West (1991), the continuous predictor variables were centered to reduce multicollinearity between predictor variables and product variables. To test the buffering effect of coping, we entered a multiplicative term representing the interaction between weight stigmatization and coping in Step 3. We followed Holmbeck's (2002) recommendations for probing significant interaction effects.

Problem-focused coping. Table 3 shows the results of the hierarchical multiple regression analyses testing problem-focused coping as a moderator of the relations between stigmatization and each adjustment indicator. After taking into account the effects of the control variables at Step 1 and the effects of problem-focused coping and stigmatization in Step 2, the interaction term for problem-focused coping and stigmatization did not account for significant incremental variance in anxiety or antisocial behavior. However, the interaction term did account for significant incremental variance in depression.

To understand better the interaction between problem-focused coping and stigmatization, the relation between stigmatization and depression was tested at high and low levels of problem-focused coping (high = 1 *SD* above the mean, low = 1 *SD* below the mean). Relations between stigmatization and depression were significant for those using high levels of problem-focused coping, unstandardized $b = .13$, $p < .01$; and for those using low levels of problem-focused coping, unstandardized $b = .25$, $p < .05$. Plots of the simple slopes for each group suggest that high levels of problem-focused coping may buffer the impact of weight stigmatization on depression (see Figure 1).

Emotion-focused coping. Table 4 presents the results of the hierarchical multiple regression analyses testing emotion-focused coping as a moderator of the relations between stigmatization and each adjustment indicator. After taking into account the effects of the control variables at Step 1 and the effects of emotion-focused coping and stigmatization in Step 2, the interaction term for emotion-focused coping and stigmatization did not account for significant incremental variance in depression symptoms or anxiety symptoms. However, the interaction term did account for significant incremental variance in antisocial behavior.

To understand better the interaction between emotion-focused coping and stigmatization, we tested the relation between stigmatization and antisocial behavior at high and low levels of emotion-focused coping (high = 1 *SD* above the mean, low = 1 *SD* below the mean). Relations between stigmatization and antisocial behavior were significant for those using high levels of emotion-focused coping, unstandardized $b = .07$, $p < .01$; but not for those using low levels of emotion-focused coping, unstandardized $b = .01$,

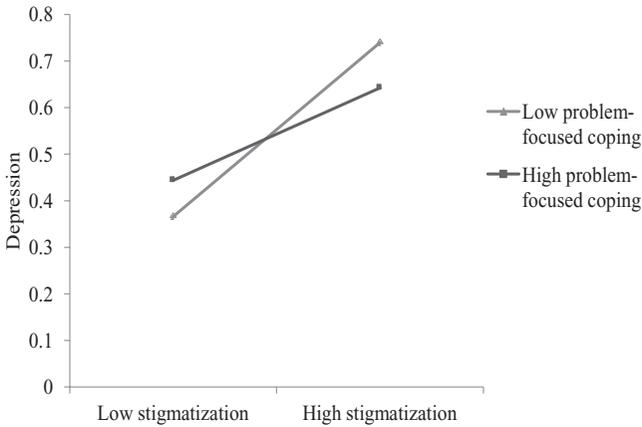


Figure 1. Depression as a function of stigmatization and problem-focused coping.

$p = .34$, suggesting that this type of coping amplifies the negative impact of weight stigmatization on antisocial behavior (see Figure 2).

Disengagement coping. Table 5 presents the results of the hierarchical multiple regression analyses testing disengagement coping as a moderator of the relations between stigmatization and each adjustment indicator. After controlling for the effects of age, weight status, education, and stressful urban life events in Step 1 and the effects of disengagement coping and stigmatization in Step 2, the interaction term for disengagement coping and stigmatization did not account for significant incremental variance in depression symptoms, anxiety symptoms, or antisocial behavior.

Discussion

The primary goal of the present study was to test the hypothesis that experiences with weight stigmatization would be positively associated with psychological distress (i.e., depressive symptoms, anxiety symptoms, antisocial behavior). A secondary goal of the study was to test the hypothesis that the use of different types of coping strategies would moderate the relation between experience with weight stigmatization and psychological distress. In support of our primary hypothesis, participants who reported more experiences with weight stigmatization also reported higher levels of depressive symptoms, anxiety symptoms, and antisocial behavior. With respect to our secondary hypothesis, problem-focused coping strategies buffered the negative impact of weight stigmatization on depression, whereas emotion-focused coping augmented the relation between weight stigmatization and antisocial

Table 4

Hierarchical Multiple Regressions of Adjustment Variables on Stigmatization Experiences and Emotion-Focused Coping

Predictor variable	Depression symptoms		Anxiety symptoms		Antisocial behavior	
	SE	β	Unstandardized beta	SE	β	Unstandardized beta
Step 2						
Stigmatization	.04	.40**	0.20**	.05	.29**	0.17**
Coping	.57	.05	0.46	.70	.09	0.89
ΔR^2		.12			.07	.03
$F_{\text{change}}(2, 187)$		13.91**			7.40**	3.14*
Step 3						
Stigmatization \times Coping	.75	.09	1.03	.92	.12	1.61
ΔR^2		.01			.01	.03
$F_{\text{change}}(1, 186)$		1.91			3.07	5.61*

Note. Step 1 is not presented in this table because this step included the same predictor variables as those presented in step 1 of Table 3. The corresponding statistical values for each term in this step are thus equivalent to those listed in Table 3.

* $p < .05$. ** $p < .01$.

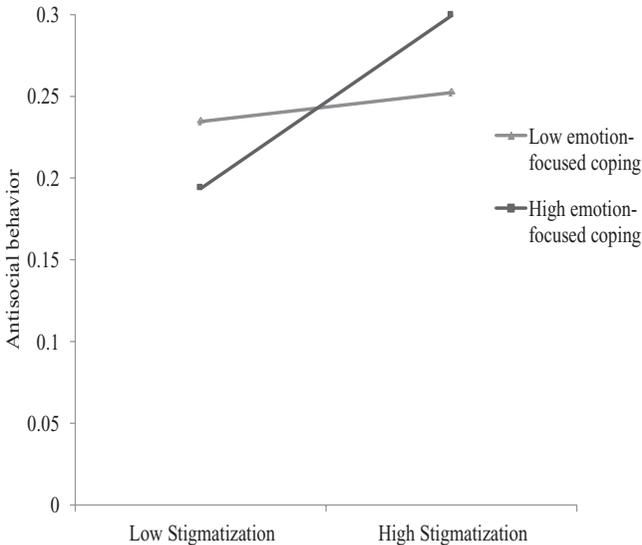


Figure 2. Antisocial behavior as a function of stigmatization and emotion-focused coping.

behavior. Disengagement coping strategies did not moderate the relation between weight stigmatization and psychological distress.

One very important feature of our results is that weight stigmatization still makes a significant contribution to the prediction of psychological distress (i.e., depressive symptoms, anxiety symptoms, antisocial behavior), even while controlling for stressful urban life events. These findings stress the importance of weight stigmatization as a construct and the crucial need to address weight stigmatization as a factor that might place people at risk for a range of indicators of adjustment. Given the relatively strong associations between stressful life events and these adjustment indicators that have been demonstrated in past research, it is significant that weight stigmatization adds unique information to our understanding of these problems.

We also observed that the relation between weight stigmatization and psychological distress was, to some extent, moderated by the use of various coping strategies. The relation between weight stigmatization and depression was moderated significantly by the use of problem-focused coping strategies. For participants who reported a higher proportion of problem-focused coping strategies, the association between weight stigmatization and depression symptoms was weaker. This finding provides partial confirmation of our hypothesis that problem-focused coping strategies will buffer the negative effect of weight stigmatization on psychological functioning. It may be that bolstered self-efficacy achieved by gaining mastery or control in a difficult situation is particularly helpful in

Table 5
Hierarchical Multiple Regressions of Adjustment Variables on Stigmatization Experiences and Disengagement Coping

Predictor variable	Depression symptoms			Anxiety symptoms			Antisocial behavior		
	SE	β	Unstandardized beta	SE	β	Unstandardized beta	SE	β	Unstandardized beta
Step 2									
Stigmatization	.04	.40**	0.19**	.05	.28**	0.17**	.02	.21*	0.04*
Coping	.64	-.03	-0.26	.79	-.06	-0.67	.26	-.07	-0.23
ΔR^2			.12			.06			.04
$F_{\text{change}}(2, 187)$			13.63**			6.92**			3.49*
Step 3									
Stigmatization \times Coping	.72	.06	0.65	.89	-.01	-0.18	.30	-.12*	-0.48*
ΔR^2			.00			.00			.01
$F_{\text{change}}(1, 186)$			0.81			0.04			2.67

Note. Step 1 is not presented in this table because this step included the same predictor variables as those presented in step 1 of Table 3. The corresponding statistical values for each term in this step are thus equivalent to those listed in Table 3.
 * $p < .05$. ** $p < .01$.

restructuring depressive fixations and negative self-attitudes that develop among those who experience weight stigmatization.

We also observed that the use of emotion-focused coping strategies moderated the relation between weight stigmatization and antisocial behavior. Our results indicate that high levels of emotion-focused coping may amplify the negative impact of weight stigmatization on antisocial behavior. It is possible that focusing on emotional responses could increase angry responses to weight stigmatization that might motivate antisocial behavior. Perhaps those who are more likely to use emotion-focused coping strategies than problem-focused coping strategies spend time ruminating about how weight stigmatization experiences or other problems make them feel, and not on how they can improve or prevent these experiences.

Focusing attention on the emotional impact of weight stigmatization may breed anger, particularly in someone who does not have the motivation or foresight to avoid or solve the problems caused by this experience. For individuals who are not as concerned with solving the problem of weight stigmatization, it may not matter that acting on resulting anger through aggression or other disruptive behaviors could further complicate their experiences. Acting out with this type of behavior, therefore, might be perceived as a suitable response.

It is also worth noting that this measure also included items that are indicative of emotional disengagement from problems (e.g., self-distraction, denial). Denial or minimization of the extent to which one is experiencing a problem protects against an immediate decline in self-worth (Branscomb, Schmitt, & Harvey, 1999). However, denial is generally associated with poorer psychological adjustment over time (e.g., Weaver et al., 2005).

We proposed that a tendency to choose behavioral disengagement strategies over other types of coping strategies might indicate broader disregard for interpersonal difficulty. This type of indifference might increase the risk for behaviors that complicate interpersonal problems. However, our findings raise the question of whether it is actually emotional disengagement strategies that fit this pattern. Choosing denial over problem-solving strategies to cope could indicate low motivation to solve interpersonal problems. If motivation to solve interpersonal problems is low, desire to control disruptive or aggressive behavior may also be low. Our findings suggest that emotion-focused coping strategies may not necessarily be effective coping strategies. While people exposed to weight stigmatization might engage in moderate levels of these coping strategies with the intention of mood dampening, these behaviors instead might strengthen animosity toward people who engage in weight-biased behavior or society as a whole, making antisocial behavior more likely.

It is noteworthy that there was not a significant difference in rates of weight stigmatization for the two samples. This could be because some of the patients were not overweight or obese. Though weight is not a perfect predictor of

weight stigmatization, non-overweight individuals should not necessarily be expected to report weight stigmatization. There also may be factors—that determine risk for weight stigmatization experiences. For example, weight stigmatization might be less common in communities or social settings where obesity is prevalent or more familiar.

Reactions to interpersonal rejection and devaluation also vary as a function of the value one places on others' approval (Crocker & Lawrence, 1999). Inclination to remember and the report of weight stigmatization experiences could also depend on the degree to which one attends to the approval of others. The similar rates of weight stigmatization we observed in the college sample and the clinic sample support the need for continued inclusion of college students in studies of weight stigmatization. Our findings implicate a need to explore risk factors that are unique to this group and perhaps unrelated to weight status.

As noted, we observed significant positive relations between weight stigmatization and psychological distress. Research has suggested that people who encounter weight stigmatization may be more dissatisfied with their weight, binge-eat more frequently, and diet more frequently (e.g., Eisenberg, Neumark-Sztainer, & Story, 2003; Haines, Neumark-Sztainer, Eisenberg, & Hannan, 2006; Myers & Rosen, 1999). Negative self-evaluation or frustration as a result of body dissatisfaction, binge episodes, or dieting failures could each account for the psychological distress we observed as a correlate of weight stigmatization. Future research is needed to determine if this is the case. For those who do not internalize the negative messages transmitted through weight stigmatization experiences, distress may develop as a result of the negative consequences weight stigmatization has on other domains (e.g., strained relationships with others, professional barriers).

Our conclusions should be interpreted with caution for several reasons. First, because of the correlational nature of these data, causal inferences cannot be made. There is a need for longitudinal work investigating coping strategies in relation to weight stigmatization as a stressor. Second, we did not measure coping responses specific to weight stigmatization. Because we aimed to determine whether general coping style moderated the relation between weight stigmatization and psychological distress, and because there is some research that points to dispositional coping or cross-situational consistencies in coping strategies (Caussey & Dubow, 1992; Terry, 1994), we measured strategies used to cope with general stress. However, measuring strategies specifically targeting stress as a result of weight stigmatization could result in different findings.

Previous work has shown differential levels of distress associated with distinct strategies used to cope with weight stigmatization (e.g., Myers & Rosen, 1999; Puhl & Brownell, 2006). Further, empirical findings in support of stress mobilization (Bjorck & Cohen, 1993; Dubow, Pargament, Boxer, &

Tarakeshwar, 2000; Lindenthal, Myers, Pepper, & Stern, 1970) imply that specific stressors elicit attempts to select appropriately matched coping strategies. To develop a clear understanding of certain coping strategies that are effective or ineffective in dealing with weight stigmatization, future research should attend to the need for this distinction. Another limitation of our study is that the comparability of measures is low, given that the instructions for retrospective self-report vary in time span (e.g., lifetime, over the prior year, over the prior 3 months). Understanding relations between concurrent experience with weight stigmatization, coping, and psychological distress may be more meaningful.

Perhaps the most important message that our results support is that weight stigmatization should be recognized as a life stressor that places people at risk for experiencing psychological distress. Our data support weight stigmatization as a unique predictor not only of internalizing difficulties (e.g., anxiety symptoms, depression symptoms), but also of antisocial behavior. This should impress upon policymakers the critical need for stigma reduction efforts. This also points to the need for clinicians to be aware of weight stigmatization as a risk factor for antisocial tendencies and internalizing symptoms, rather than limiting their focus to symptoms and syndromes associated with eating disorders.

Our results also have implications for clinicians aiming to help patients cope with weight stigmatization. Replication of the coping style effects seen here will be necessary. If our findings are confirmed, engendering a problem-focused coping style over an emotion-focused coping style could be a preventive measure for patients who are struggling with weight stigmatization experiences. For patients who tend to use mostly emotion-focused coping strategies, suggestions of and guided practice with a range of different problem-focused coping strategies may deter later symptoms of depression. Further work is needed to understand what specific elements of these coping styles impact adjustment.

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Appendix

Items Isolated from Myers and Rosen's (1999) Stigmatizing Situations Inventory

1. A parent or other relative nagging you to lose weight
2. Being the only heavy person, or the heaviest person, at a family gathering
3. A doctor saying that your weight is a health problem, even when you are in good health
4. Being told, "All you really need is a little willpower"
5. Being unable to get a date because of your size
6. Having a doctor recommend a diet, even if you did not come in to discuss weight loss
7. Having family members feel embarrassed by you or ashamed of you
8. Having friends not notice weight loss, or not encourage your efforts to lose weight
9. Having people assume that you overeat or binge-eat because you are overweight
10. Not being able to find clothes that fit
11. Parents or other relatives telling you how attractive you *would* be, *if* you lost weight
12. People telling you that you will never find a partner if you don't lose weight