# The Stigma of Obesity: Does Perceived Weight Discrimination Affect Identity and Physical Health?

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### Abstract

*Obesity is widely recognized as a health risk, but it also represents a disadvantaged social position. Viewing body weight within the framework of stigma and its effects on life chances, we examine how perceived weight-based discrimination influences identity and physical health. Using national survey data with a 10-year longitudinal follow-up, we consider whether perceptions of weight discrimination shape weight perceptions, whether perceived weight discrimination exacerbates the health risks of obesity, and whether weight perceptions are the mechanism explaining why perceived weight discrimination is damaging to health. Perceived weight discrimination is found to be harmful, increasing the health risks of obesity associated with functional disability and, to a lesser degree, self-rated health. Findings also reveal that weight-based stigma shapes weight perceptions, which mediate the relationship between perceived discrimination and health.*

## Keywords

obesity, stigma, discrimination, health

The sense that one has been treated unfairly at work or in public places can have negative consequences for sentiment and health. When discrimination is perceived to be related to race or ethnicity (an ascribed status), it is often viewed as an overt form of racism, initiating a stress process that may compromise physical and mental health (Gee 2002; Williams, Neighbors, and Jackson 2003; Taylor and Turner 2002). Other forms of perceived discrimination, however, may be linked to attributes or conditions that are developed over time, such as the case with excess body weight (i.e., weight discrimination). Though less frequently studied, social reactions to body weight may be linked to opportunity structures and personal well-being, but the mechanisms for how this occurs are a matter of ongoing debate (Muennig 2008; Puhl and Brownell 2001).

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There is some evidence from studies of perceived ethnic discrimination that positive ethnic identity plays a protective role on mental health (Mossakowski 2003; Sellers et al. 2003), but it is unlikely that a parallel effect would be widely observed from weight-based discrimination. Despite social movements for self-acceptance among overweight people, relatively few people favorably identify themselves as overweight or obese. Rather, many feel that being fat is a stigmatizing experience, one that limits social and economic opportunities and operates as the "last acceptable basis of discrimination" (Puhl and Brownell 2001:788). As a basis of stigma, heavy body weight constrains or harms occupational chances, delivery of health services, educational attainment, family relations, self-concept, and various indicators of well-being (Carr and Friedman 2005; Carr and Friedman 2006; Crosnoe 2007; Crosnoe, Frank, and Mueller 2008; Puhl and Brownell 2001).

Increasingly, even medical researchers are acknowledging that excess body weight is harmful for health not solely on a physiological basis, but in part because of the stress associated with enduring an unfavorable social trait (Muennig 2008).[1] Implicit in this proposition are core sociological themes, including the internalization of stigma and interpretive self-identity processes borne out of social interactions.

To more clearly understand how perceived weight-based discrimination affects health, this study examines body weight, self-perceptions of weight status, perceived weight discrimination, and changes in health observed over 10 years. We posit that the social processes involved in identity formation and revision are critical to assessing how physiological factors such as excess body weight influence health. Missing from much of the previous literature is a consideration of how interpretive processes associated with body weight shape health outcomes. We therefore draw from studies of stigma to examine the antecedents and health consequences of identity as an overweight person.[2]

One expects that excess body weight is related to identification as an overweight person, but we ask whether perceived weight discrimination heightens identity as an overweight person. The analysis aims not only to document how discrimination may get "under the skin" in a medical sense (McEwen 1998), but also to examine whether perceived discrimination shapes the way people evaluate themselves in relation to a stigmatized condition. We anticipate that people do not interpret their body weight status on the basis of mere physiology, but rather through interaction with others. Thus, we approach the analysis from a sociological understanding of stigma.

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[1]The reasons for perceived discrimination's deleterious effects on health are many, including stress of repeated contact with antagonistic others, rejection or avoidance in social settings, negative self perceptions, and differential allocation of resources via social segregation (Campbell and Troyer 2007; Carr and Friedman 2005; Krieger 1999; Muennig et al. 2008).

[2]Throughout the paper, we use the term "overweight" when referring to identities, but speak of "obesity" only in terms of its official classification, which is a body mass index of 30 or more. A main reason that we do not mention "obese" identities owes to the wording of the survey questions that refer to "very overweight" and "somewhat overweight." Moreover, in colloquial discourse, people more commonly refer to being somewhat or very "overweight," rather than making refined, diagnostic categorizations of themselves and others.

## STIGMA AND BODY WEIGHT

In discussing distinctive features of the self, Goffman (1963) developed a nuanced depiction of stigma and articulated how it plays out in everyday social life. Stigmatized traits, or "deeply discrediting" characteristics, make people appear dangerous or unacceptable in the eyes of others, reduce their life chances, and isolate them (Goffman 1963:3). In his classic statement on the subject, Goffman (1963:3) argued that people are rejected and classified as undesirable on three accounts: (1) "tribal stigmata," (2) "abominations of the body," and (3) "blemishes of individual character." Not only do outsiders look down upon the stigmatized individual, but the victim him- or herself absorbs the discomfort and unease from social interaction into his or her own self-concept.

Soon after Goffman's book, other sociologists began to show that body weight—obesity in particular—is an attribute related to embarrassment and ultimately to life chances (Cahnman 1968; Maddox, Back, and Liederman 1968). Several classic studies showed that not only was corpulence seen as a physical blight, but also that body weight is thought to be under people's control; thus, obese people were frequently considered lazy, self-indulgent, and gluttonous (DeJong 1980; Maddox et al. 1968). These findings demonstrated the prejudiced manner in which obese people are treated, but as Carr and Friedman (2005) note, it is important to also consider whether obese people perceive that they have been mistreated. This subjective attribution of discrimination to one's weight is a key component of the stigmatization process and helps explain why a stigmatized trait would affect someone's life chances (Carr and Friedman 2005).

Most studies on stigmatization in sociology focus on "unusual conditions," such as severe mental illness (e.g., Schulze and Angermeyer 2003) or HIV/AIDS (e.g., Parker and Aggleton 2003). This interest in the "unusual" has been noted as an arbitrary boundary mechanism that sets apart stigma scholarship from its close intellectual cousins—prejudice and discrimination—which focus on usual traits such as race, gender, or religion (Stuber, Meyer, and Link 2008). Indeed, some scholars assert that prejudice and stigma stem from a singular theme, leading Phelan and colleagues (2008) to suggest the latter term be used as the unifying concept from which flow attitudinal and behavioral responses (i.e., prejudice and discrimination, respectively). Therefore, the experience of perceived weight discrimination will be treated in this paper as an indication of stigma.

## OBESITY'S EFFECT ON HEALTH

Though we are mainly interested in how issues related to stigma are associated with health declines, it is useful from the outset to anticipate that the physiology of heavy weight will have its own direct effect on health problems. The general effects of excess weight on health have been enumerated at length (Andreyeva, Sturm, and Ringel 2004; Ferraro and Kelley-Moore 2003), and thorough reviews of the literature can be found elsewhere (e.g., Houston, Nicklas, and Zizza 2009; Kopelman 2007). In brief, excess weight has a pervasive effect on a host of bodily systems, affecting metabolism, endocrinology, respiration, and musculoskeletal integrity, among other aspects of health.

Perhaps not surprisingly, obese people tend to rate their health more pessimistically than do normal weight individuals, and this association persists even when accounting for the presence of disease and functional ability (Ferraro and Yu 1995; Goldman, Glei, and Chang 2004; Okosun et al. 2001). Ferraro and Yu (1995) suggest that obese persons' cognizance of the health risks associated with their body weight influences self-health ratings above and beyond what is captured with objective health measures.

One of the important considerations of studying weight's effect on health is the variability across levels of body mass. As the prevalence of obesity rises in a society, it is possible that the stigma associated with obesity will not be as acutely felt. Over a third of adults in the United States, for instance, are obese by medical standards and over another third are considered overweight (Flegal et al. 2010). Though American society has grown increasingly rotund over the past four decades, there is little evidence to suggest that weight-based discrimination is disappearing—particularly for those at the heaviest end of the weight spectrum.

Severe obesity may be the new threshold to distinguish excess weight and where stigma's effect may have the most import. The conventional cut-point for Class I obesity is a body mass index (BMI) of 30 to 34, whereas Class II obesity is a BMI from 35 to 40 and Class III is 40 and above. Past studies indicate that health complications are increasingly heightened for severely obese individuals, those persons with a BMI categorized as Class II or III (Andreyeva et al. 2004). One expects that severe obesity raises health risks, but this could be due *in part* to the social processes associated with interactions rather than just the physiological processes linked to adipose tissue. We therefore anticipate that severe obesity raises the risk of perceived weight discrimination and identification as an overweight person and that the effect of stigma on health associated with the stress of stigma would be observed most acutely in this group.

## PERCEIVED DISCRIMINATION, STIGMA, AND HEALTH

Moving beyond the issue of obesity per se, this paper also considers how stigma may get "under the skin" (McEwen 1998) and affects health. This position is concordant with a long line of research on the stress process, which argues that disadvantaged position in status hierarchies produce ill health effects (Thoits 1995). This issue has typically been studied with reference to the ascribed status of race. Self-rated health, chronic conditions, disability, depression, and blood pressure are affected by perceived racial discrimination (Schnittker and McLeod 2005). The stress consequences of perceived discrimination extend to even the *anticipation* of discrimination, suggesting that racial minorities often live in a chronic state of physiological arousal and "heightened vigilance" (Williams and Neighbors 2001).

A growing body of recent research supports the proposition that internalizing weight-related stigma has negative consequences. Muennig (2008) has recently advanced an intriguing proposition—that part of heavy weight's effect on morbidity owes to the stressful burden of enduring a stigmatized position in "body conscious" societies (Crossley 2004). Perceived mistreatment on the basis of one's weight explains, for instance, the higher prevalence of psychological

distress and lower self-acceptance among severely obese people (Carr and Friedman 2005; Carr, Friedman, and Jaffe 2007).[3] Weight is an interesting contrast to race in that the former is a primarily achieved status, whereas the latter is ascribed and practically immutable. Although both statuses are related to stratification processes, "fatness" offers far less leverage as a protective identity to buffer the stress of perceived mistreatment (Puhl and Brownell 2001).

## THE ROLE OF PERCEIVED WEIGHT STATUS

If perceived discrimination adds extra challenges to the already existing health threats posed by obesity, the process of stigma internalization may explain the exacerbation of this effect. Though to our knowledge this has not been empirically tested, past research makes such a thesis reasonable. Part of the explanation for why severely obese people show lower self-acceptance comes from evidence that obese people show levels of anti-fat bias that are similar to their leaner counterparts, as demonstrated by experimental evidence indicating that obese people themselves harbor implicit devaluations of "fat people" (Wang, Brownell, and Wadden 2004). There is also evidence to suggest that obese people's internalization of anti-fat sentiments shapes their health behaviors. Puhl and Brownell (2006) report that in a sample of over 2,000 overweight and obese women, 79 percent indicated that they coped with weight stigma by eating more food, and 75 percent refused to diet as a response to weight stigma. Recent findings even suggest that weight-related stress and dissatisfaction explain a large portion of obesity's effect on health (Muennig et al. 2008). We therefore expect that if perceived discrimination on the basis of body weight poses additional health risks to obese people, its effect will be reflected in people's interpretation of their weight status. That is, internalized perceptions about one's weight status will account for the damaging effects of perceived discrimination.

## HYPOTHESES: CONSEQUENCES OF PERCEIVED WEIGHT DISCRIMINATION

We generated several hypotheses for this analysis, and they are divided into expectations focused on identity or health. Drawing on Goffman's perspective of stigma, we view identity as a social process, influenced by one's perceptions of how he or she is viewed by others, especially when these perceptions involve pejorative aspects of the self. Because stigma involves a reflexive response to the behavior of others, our first hypothesis is:

> *Hypothesis 1:* Perceived weight discrimination increases the likelihood that a person self-identifies as being overweight.

We view the hypothesized influence of perceived weight discrimination on an overweight identity as above and beyond the effects of actual body weight.

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[3]It is important to emphasize that *perceived* discrimination is fundamentally about people's appraisal of their situation; two people may interpret the same situation very differently, one attributing ill will to the circumstances while the other considering the events benign. Presumably, the former individual would suffer worse consequences because of the stress induced by her negative appraisals of the situation (Lazarus and Folkman 1984). Indeed, studies of perceived racial discrimination show that such appraisals induce a health-compromising stress process (Sellers et al. 2003).

Based on prior research, we also expect that white adults and women will be more likely than black adults and men, respectively, to see themselves as belonging to a heavier body weight category (Schieman, Pudrovska, and Eccles 2007). We predict that perceived weight discrimination will influence weight identification net of these factors as well.

When perceived discrimination by others affects how people identify their weight status, we also anticipate that health will be compromised. This expectation guides our second and third hypotheses.

> *Hypothesis 2:* Perceived weight discrimination increases the likelihood of health problems, exacerbating the effect due to body weight alone.

The second hypothesis provides a general expectation drawn from the extant literature on the effects of perceived discrimination on health (Gee 2002; Krieger 1999; Williams et al. 2003) and the damning effects of stigma on life chances (Link and Phelan 2001). Although most previous studies identify the health consequences of excess weight as driven largely by physiological processes, the significance of this hypothesis is to determine if unfair treatment aggravates the health problems of persons with excess weight.

> *Hypothesis 3:* Weight perceptions mediate the exacerbating effect of perceived weight discrimination on health.

Our final hypothesis specifies that when weight discrimination is internalized and shapes weight identification, such identification explains the exacerbating effect that perceived discrimination has on health. When testing Hypotheses 2 and 3, we also predict that severe obesity will pose the greatest health risk.

## METHODS

Data are drawn from two waves of phone and self-administered questionnaire data from the National Survey of Midlife Development in the United States (MIDUS). Initial data were collected from 1995 to 1996 by the MacArthur Foundation's Network on Successful Midlife Development. The survey first used random digit-dialing to obtain a sampling frame of all English-speaking, non-institutionalized adults aged 25 to 74 in the contiguous 48 states. The investigators then used disproportionate stratified sampling to oversample males between 65 and 74. The response rate from these initial telephone interviews was 70 percent. The final stage included a questionnaire mailed to those who participated in the telephone interview, yielding an 86.6 percent response rate. Thus, the overall response rate for Wave I was 61 percent ($.70 \times .87 = .61$), producing a total sample of 3,034 participants who completed both the telephone and mail interview.

Respondents were then recontacted to secure their participation for Wave II (2005). Of the complete Wave I sample, 2,103 individuals (69 percent) were followed up on the telephone. Cases with missing data on variables collected at baseline were dropped from the analyses, leaving a final study sample of 1,856 for the majority of analyses.[4] For one set of analyses, however, the sample shrank to 1,560 because questions about functional disability at Wave II were in the mailed questionnaire and some

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[4] Of the missing Wave I variables, BMI data were the most prevalent (96 missing cases). BMI was gathered from respondents' height and weight reports. It is worth noting that those who did not provide their height and weight were very similar to the study sample in terms of other health status variables and in regard to reports of discrimination.

respondents did not return this questionnaire. Post-stratification weights are available for the second wave of the data and are used in all multivariate analyses in order to draw generalizeable conclusions to the adult U.S. population.

One of the important considerations for using more than one wave of survey data is the potential biasing effect due to attrition (Winship and Mare 1992). This is especially a concern because the key study variables measure health status, which is clearly related to the chance of attrition, particularly from mortality. Because attrition may lead to specification error and bias in the results, we followed the Heckman (1979) method of correcting for nonresponse bias.

### Outcome Variables

*Health status* is operationalized with two variables, each measured at Wave I and Wave II. Our first measure is *functional disability*, which was assessed with nine questions about how much a respondent is limited in activities such as transporting groceries and walking over a mile ($\alpha$ = .87). Disability is an important health outcome for obesity studies because of the ways that excess weight limits mobility and the negative implications this has for social interaction (Ferraro and Kelly-Moore 2003). Our second health indicator is an indicator of *self-rated health* ranging from 1 (poor) to 5 (excellent). This global evaluative health measure is a strong predictor of mortality and morbidity and has long been used in the social psychology of health (Seeman, Seeman, and Sayles 1985). For both health outcome variables, we created a change score between the two waves (i.e., Wave II disability–Wave I disability; Wave II self-rated health–Wave I self-rated health).

### Mediating Variables

*Perceived weight status* is based on a question in which respondents were asked, "Which of the following do you consider yourself? (1) very overweight, (2) somewhat overweight, (3) about the right weight, (4) somewhat underweight, or (5) very underweight." Given that small percentages of respondents identified as categories 4 (2.95 percent) and 5 (.20 percent), we collapsed and re-ordered so that very overweight was the high category, somewhat overweight was the middle category, and not overweight was the lowest category. Each category was coded as a dummy variable; for multivariate analyses, the not-overweight category serves as the reference group.

### Independent Variables

Body weight was measured by asking respondents to report their height and weight. Self-reported weights are widely acknowledged as valid instruments, but provide slight underestimates of weight distribution extremes (Bowman and DeLucia 1992). *Body mass index* (BMI) was calculated by the formula kilograms/meters$^2$, and two binary variables were created to differentiate between people of *Class I obesity* and *severe obesity* (Class II and Class III; see National Heart, Lung, and Blood Institute 1998). We specified models with the categorical or continuous measure of body weight based on the aims of each analysis.

To measure *perceived weight discrimination*, we used a set of questions about appraisals of discriminatory experiences. This unit of the survey first asked respondents if they have experienced any interpersonal offenses, including instances in which (1) people act as if you are inferior; (2) people act as if you are not smart; (3) people act as

if they are afraid of you; (4) you are treated with less courtesy than others; (5) you are treated with less respect than others; (6) you receive poor services in stores/restaurants; (7) people act as if you are dishonest; (8) you are called names or insulted; and (9) you are threatened or harassed. Next, respondents were asked if they had ever faced discrimination in a host of social settings (e.g., workplace, school). Respondents who answered affirmatively to any of these scenarios were then asked to identify the reason for the perceived discrimination, including race, age, gender, ethnicity, religion, disability, sexuality, weight/ height, and other aspects of physical appearance. Respondents could select more than one reason for the perceived discrimination. About seven percent of the sample reported any type of perceived weight discrimination and we coded this as a binary variable.[5]

Testing Hypothesis 2 involved an interaction between body weight and perceived weight discrimination. Although we tested product terms from two binary variables in preliminary analyses, we elected to create separate binary variables to represent the cross-classification of the two variables (because of the ease of interpretation). In other words, Class I and severely obese respondents were differentiated by whether or not they perceived any discrimination based on weight. This resulted in a series of dummy variables. The omitted reference category in regression models is non-obese respondents who did not perceive discrimination.[6]

Analyses include controls for a number of variables associated with both self-rated health and body weight, all of which were measured at Wave I. First, for health-related indicators, we incorporate a summary of *chronic conditions at Wave I* (e.g., heart trouble, thyroid problems, arthritis) as well as self-rated health at Wave I. Another health-related indicator includes whether the respondent lives a *sedentary lifestyle* (little or no exercise). Mental health and well-being was assessed with a six-item scale measuring negative affect ($\alpha = .87$), and we used an averaged score. Examples of the items include feeling "restless or fidgety" and "hopeless" (mood was assessed for the past 30 days). Finally, we include a binary variable for current smoking status.

Second, the demographic characteristics of race and gender are coded as binary variables (1 for *black*; 1 for *female*), and *age* is a continuous variable. An age-squared term was explored, but since it did not improve model fit for the models presented herein, it was removed from the final analyses. Two variables tapping socioeconomic status are incorporated. *Education* is an

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[5]Whereas the wording of the question actually probes weight or height discrimination, we examined the percent of persons in each BMI classification who reported this type of discrimination. The pattern is highly indicative of a weight-centered approach to understanding the survey question; among the respondents, 33 percent of the severely obese, 18 percent of the obese, 4 percent of overweight, 2 percent of normal weight, and 5 percent of underweight report this type of discrimination.

[6]Because only two underweight respondents perceived weight discrimination, we created only one dummy variable for underweight, not differentiating on the basis of discrimination. Thus, the full set of nine binary variables reflecting the weight class/discrimination categories are: (a) underweight, (b) normal weight and no discrimination, (c) normal weight and discriminated against, (d) overweight and no discrimination, (e) overweight and discriminated against, (f) Class I obese and no discrimination, (g) Class I obese and discriminated against, (h) severely obese and no discrimination, and (i) severely obese and discriminated against.

ordinal variable ranging from 1 (some grade school) to 12 (doctoral or professional degree). *Household income* is a logged continuous variable (which in raw form has a mean of $58,427 with a standard deviation of $49,188).

### Nonresponse Selection and Missing Data

To apply Heckman's (1979) method of correcting for potential nonresponse bias in longitudinal data, we began by first estimating a probit model predicting the likelihood of Wave II response, using a variety of demographic and psychosocial variables as predictors. The next step was to calculate a nonresponse hazard score ($\lambda$), based on the inverse Mills ratio of the function derived from the probit model. This score is considered the hazard of nonresponse and included as a control variable in regression estimates.

The second complexity of using the MIDUS data is that the survey consists of two parts (i.e., telephone interview and mailed questionnaire). Although 2,103 respondents who completed Wave I were followed up at Wave II, a total of 355 responded only to the telephone interview and did not return the mailed questionnaire. To preserve Wave II subjects who were followed up but did not complete the second portion of the survey, we imputed missing Wave II data on perceived weight status, which was measured in the mailed questionnaire. Imputation for missing data consisted of estimating equations for the missing variables with demographic, psychosocial, and health information and using predicted scores for missing values. In sensitivity analyses, we also replicated our models without imputation and with multiple imputation, and the conclusions were similar to those presented here.

### Analytic Strategy

After presenting descriptive sample statistics and showing basic comparisons in our key variables across body weight classifications, we proceed in two main analytic stages. Our overall approach is to examine weight identification as a mediating factor in the relationship between perceived weight discrimination, obesity, and health status. To that end, we will first show the initial path in the proposed process—the association of perceived discrimination and self-perceptions of weight status. Although weight perceptions are an ordered categorical variable, preliminary analyses using the likelihood ratio test of proportionality of odds across response categories indicated that using an ordinal logistic regression model would violate the model's parallel lines assumption (Long and Freese 2006). Because of this violation, we elected to use a multinomial logistic regression model that makes no assumptions about order of the categories. We will present relative risk ratios, which are the change in probability of being in the specified category versus the baseline category across adjacent levels of an independent variable.[7]

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[7] In order to rule out a reverse explanation—that weight perceptions make the perception of discrimination more likely—we also estimated logit models predicting the probability of Wave II perceived discrimination. Weight perceptions at Wave I, however, did not have a significant association with perceptions of discrimination. This finding is distinct from those reported in the literature on racial identity and perceived discrimination, suggesting that centrality of racial identity increases the likelihood of reporting discriminatory behavior (Sellers et al. 2003). We tested but could not find any evidence to support the notion that weight perceptions increase perceived weight discrimination (or weight, for that matter).

If perceived weight discrimination affects weight perceptions, we can proceed to test the second half of the proposed process. The second portion of the analyses therefore will examine the effects of perceived weight discrimination on disability and self-rated health with and without including perceptions of weight status. An initial model will show the simple, unadjusted relationship of weight classification on health change to ascertain that a basic association exists. These analyses will utilize OLS regression.

The models we will estimate use two waves of panel data, with independent and control variables measured at Wave I predicting change in the outcome variables between waves. It is advantageous to use longitudinal data for our research question, because using a lagged measure of body weight and perceived discrimination on health reduces the risk of problems associated with potential reverse causality. That is, with cross-sectional data, it would be more difficult to rule out that poor health is actually leading to perceived weight discrimination. Rather, our approach is to use body weight and perceived weight discrimination at Wave I to predict change in health from Wave I to Wave II.

## RESULTS

As shown in Table 1, the change score for functional disability between waves reveals that the average level of disability was slightly higher at Wave II. Most respondents increased at least slightly in functional disability, though some participants had lower levels of Wave II disability than they did at Wave I. As Table 1 also indicates, self-rated health declined slightly on average between waves. Most respondents also

reported that they were "somewhat overweight," though a sizeable minority reported being "very overweight" or not being overweight. In addition, about a quarter of the sample was obese (BMI $\geq$ 30).

Table 2 highlights the differences in perceived weight discrimination across weight classifications. Whereas fewer than 5 percent of non-obese respondents perceived such discrimination, almost 11 percent of Class I obese respondents and 33 percent of severely obese respondents did.

After determining that severity of obesity is related to the likelihood that one will perceive discrimination due to his or her weight, the importance of separately examining Class I obese and severely obese respondents becomes apparent. Not only may severe obesity affect perceived discrimination, but as shown in Table 3 it also affects weight perceptions. The bottom several rows of Table 3 confirm this expectation, as the likelihood of reporting being very overweight is highest for severely obese respondents and less likely for Class I obese respondents. Unsurprisingly, non-obese respondents are much less likely to feel very overweight; none of the underweight participants and fewer than 2 percent of all normal weight respondents reported such a status. More relevant for our purposes, however, is the effect of perceived weight discrimination on weight perceptions across the groups. In the middle rows of Table 3, for instance, we observe that 7 percent of overweight subjects who did not perceive weight discrimination felt very overweight, but this figure was elevated to 20 percent for overweight respondents who perceived discrimination. Likewise, although only about a quarter of Class I obese respondents felt very overweight if they had not perceived weight

**Table 1.** Descriptive Sample Statistics for Variables Used in the Full Study Sample, MIDUS (*n* = 1,856)

|  | Range | Mean | Standard Deviation |
|---|---|---|---|
| **Dependent Variables (WII)** |  |  |  |
| *Functional disability change (WI–WII)*[a] | −3–2.78 | .27 | .65 |
| *Self-rated health change (WI–WII)* | −4–3 | −.04 | .93 |
| **Mediating Variables (WII)** |  |  |  |
| *Perceived weight status* |  |  |  |
| Feel not overweight | 0–1 | 30.60% |  |
| Feel somewhat overweight | 0–1 | 55.50% |  |
| Feel very overweight | 0–1 | 13.90% |  |
| **Independent Variables** |  |  |  |
| *Weight discrimination* | 0–1 | 6.84% |  |
| *Body weight* |  |  |  |
| BMI (kg/m$^2$) | 9–61 | 26.69 | 5.30 |
| Underweight (BMI < 18.5) | 0–1 | 2.10% |  |
| Normal (BMI 18.5–24.9) | 0–1 | 35.18% |  |
| Overweight (BMI 25–29.9) | 0–1 | 38.85% |  |
| Class I obese (BMI 30–34.9) | 0–1 | 16.11% |  |
| Severe obese (BMI 35+) | 0–1 | 7.76% |  |
| **Control Variables** |  |  |  |
| *Health status* |  |  |  |
| Self-rated health (WI) | 1–5 | 3.57 | .96 |
| Count of chronic conditions | 0–32 | 2.57 | 2.60 |
| Sedentary lifestyle | 0–1 | 1.24% |  |
| Negative affect | 1–5 | 1.55 | .63 |
| Functional disability (WI) | 1–4 | 1.43 | .64 |
| Smoking | 0–1 | 20.42% |  |
| *Demographic controls* |  |  |  |
| Age | 20–74 | 46.56 | 12.69 |
| Black | 0–1 | 4.96% | — |
| Female | 0–1 | 51.62% | — |
| Education | 1–12 | 7.02 | 2.44 |
| Household income (ln) | 6.21–12.21 | 10.67 | .85 |

*Note:* [a]*n* = 1,560 for Functional disability change between Wave I and Wave II

discrimination, the likelihood of feeling very overweight nearly tripled (67 percent) if they had perceived weight discrimination. In fact, Class I obese respondents who perceived discrimination were about as likely to see themselves as very overweight as were severely obese respondents who had not perceived discrimination. Even those in the most extreme BMI category, whose self-weight evaluations may be thought to be impervious to others' behaviors, were 12 percent more likely to see themselves as very overweight if

**Table 2.** Prevalence of Perceived Weight Discrimination by Weight Classification, MIDUS (*n* = 1,856)

|  | Study sample | Faced weight discrimination* |
|---|---|---|
| Underweight | 2% (*n* = 39) | 5% (*n* = 2) |
| Normal weight | 35% (*n* = 653) | 2% (*n* = 14) |
| Overweight | 39% (*n* = 721) | 4% (*n* = 30) |
| Class I obese | 16% (*n* = 299) | 11% (*n* = 81) |
| Severe obese | 8% (*n* = 144) | 33% (*n* = 48) |

*Notes:* *Comparison of perceived weight discrimination prevalence across five weight classes, *p* < .001 ($\chi^2$ = 197.71, 4 *df*).

**Table 3.** Perceived Weight Status by Weight Classification and Perceived Weight Discrimination, MIDUS (*n* = 1,856)

| | Do not feel overweight | Feel somewhat overweight | Feel very overweight |
|---|---|---|---|
| Total Sample | 31% (*n* = 568) | 56% (*n* = 1030) | 14% (*n* = 258) |
| *Underweight* | | | |
| No weight discrimination | 86% (*n* = 32) | 14% (*n* = 5) | 0% (*n* = 0) |
| Faced weight discrimination | 50% (*n* = 1) | 50% (*n* = 1) | 0% (*n* = 0) |
| *Normal* | | | |
| No weight discrimination | 58% (*n* = 369) | 40% (*n* = 255) | 2% (*n* = 15) |
| Faced weight discrimination | 43% (*n* = 6) | 57% (*n* = 8) | 0% (*n* = 0) |
| *Overweight** | | | |
| No weight discrimination | 20% (*n* = 142) | 73% (*n* = 501) | 7% (*n* = 48) |
| Faced weight discrimination | 7% (*n* = 2) | 73% (*n* = 22) | 20% (*n* = 6) |
| *Class I obese*** | | | |
| No weight discrimination | 5% (*n* = 16) | 69% (*n* = 214) | 26% (*n* = 132) |
| Faced weight discrimination | 0% (*n* = 0) | 33% (*n* = 24) | 67% (*n* = 57) |
| *Severe obese* | | | |
| No weight discrimination | 3% (*n* = 3) | 32% (*n* = 31) | 65% (*n* = 62) |
| Faced weight discrimination | 0% (*n* = 0) | 27% (*n* = 13) | 73% (*n* = 35) |

*Note:* *Comparison of perceived weight status between no weight discrimination and perceived weight discrimination, $p < .01$ ($\chi^2$ = 9.32, 2 *df*).
**Comparison of perceived weight status between no weight discrimination and perceived weight discrimination, $p < .001$ ($\chi^2$ = 32.13, 2 *df*).

they perceived weight discrimination (73 percent versus 65 percent).

Table 4 builds on these findings, showing the results of a multinomial logistic regression model predicting perceived weight. Because all obese subjects who perceived discrimination saw themselves as at least somewhat overweight, we could not estimate the three-response category model with the obesity variables coded as they were in Table 3. Rather, we hold BMI constant, add a BMI-squared term to capture potential non-linear relationships, and examine whether perceived weight discrimination has any added effect on weight perceptions, controlling for other relevant variables.[8] The significant effects of perceived weight discrimination show that appraisals of unfair

treatment by others shape weight perceptions above and beyond the effects of one's weight category. To be sure, the relative risk ratios of feeling very overweight vary according to one's actual weight status, as each unit increase in BMI is associated with a 1.89 increase in the likelihood of reporting that one feels "very overweight" compared to "not overweight." But the chief finding is that perceived discrimination contributes to one's identified weight status (Relative Risk Ratio [RRR] = 2.58 for perceptions of feeling somewhat overweight versus not overweight; RRR = 4.08 for perceptions of feeling very overweight versus not overweight). This finding confirms Hypothesis 1, and the findings for the other variables are largely consistent with recent research on the predictors of weight perceptions (Schieman et al. 2007). Specifically, women and those of

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[8]Adding the BMI-squared term significantly improved model (likelihood ratio test, $p < .01$).

**Table 4.** Multinomial Logistic Regression Predicting Perceived Weight Status, MIDUS (*n* = 1,856)

| | Feel Somewhat Overweight vs. Not Overweight RRR, 95% CI | *p* | Feel Very Overweight vs. Not Overweight RRR, 95% CI | *p* |
|---|---|---|---|---|
| **Independent Variables** | | | | |
| BMI | 1.55 (0.79–3.02) | ns | 1.89 (0.92–3.88) | <.10 |
| BMI$^2$ | 1.00 (0.98–1.01) | ns | 1.00 (0.98–1.01) | ns |
| Faced weight discrimination | 2.58 (1.02–6.52) | <.05 | 4.08 (1.35–12.34) | <.05 |
| *Perceived weight status (WI)* | | | | |
| Feel somewhat overweight | 7.61 (5.17–11.01) | <.001 | 12.67 (4.86–33.05) | <.001 |
| Feel very overweight | 2.49 (0.93–6.68) | <.10 | 39.46 (9.84–158.29) | <.001 |
| **Control Variables** | | | | |
| *Health status* | | | | |
| Self-rated health (WI) | 0.96 (0.78–1.19) | ns | 0.99 (0.69–1.42) | ns |
| Count of chronic conditions (WI) | 1.08 (0.99–1.19) | <.10 | 1.05 (0.93–1.19) | ns |
| Negative affect | 0.75 (0.56–1.01) | <.10 | 0.89 (0.54–1.48) | ns |
| Sedentary lifestyle | 0.25 (0.05–1.26) | <.10 | 0.14 (0.01–3.42) | ns |
| Functional disability | 1.11 (0.80–1.53) | ns | 1.58 (1.01–2.46) | <.05 |
| Smoking | 1.03 (0.66–1.59) | ns | 1.00 (0.50–1.99) | ns |
| *Demographic factors* | | | | |
| Age | 0.99 (0.97–1.00) | ns | 0.97 (0.94–1.00) | <.05 |
| Black | 1.03 (0.36–2.88) | ns | 0.78 (0.17–3.53) | ns |
| Female | 3.23 (1.96–5.32) | <.001 | 9.32 (4.53–20.89) | <.001 |
| Education | 1.02 (0.92–1.12) | ns | 0.96 (0.82–1.12) | ns |
| Household income (ln) | 1.23 (1.02–1.48) | <.01 | 1.88 (1.30–2.72) | <.001 |
| Nonresponse hazard | 3.51 (0.52–24.04) | ns | 9.75 (0.39–242.19) | ns |
| −2 Log-likelihood | | −1082.54 | | |
| Pseudo R$^2$ | | .40 | | |

*Note:* RRR = Relative risk ratio. CI = Confidence interval. Tests are two-tailed.

higher household incomes were more likely to report being somewhat overweight or very overweight. The gender effect was particularly strong (e.g., RRR = 9.32 for feel very overweight versus not overweight). We did not, however, observe a difference between black and non-black respondents. All results presented in Table 4 control for baseline weight perceptions, thus reflecting any change in weight perceptions between Wave I and Wave II.

The remainder of the analyses considers whether perceived weight discrimination exacerbates health decline over a decade and to what extent the weight identification processes identified above

explain this relationship. The first three columns of Table 5 show the results of three models predicting change in functional disability. Model I shows the simple effect of weight class on functional disability change. Models II and III disaggregate weight classes into those who perceive discrimination and those who do not. The omitted reference group for weight class and discrimination is normal weight subjects who did not perceive weight discrimination. (Because only two underweight respondents perceived weight discrimination, we do not differentiate such participants on the basis of weight discrimination.) Model II is specified to first ask whether

**Table 5.** OLS Regression Predicting Functional Disability Change (*n* = 1,560) and Self-Rated Health Change (*n* = 1,856), MIDUS

| | Functional Disability | | | | | | Self-Rated Health | | | | | |
| | Model I | | Model II | | Model III | | Model I | | Model II | | Model III | |
| | b, S.E. | p | b, S.E. | p | b, S.E. | p | b, S.E. | p | b, S.E. | p | b, S.E. | p |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Independent Variables** | | | | | | | | | | | | |
| *Underweight* | −.03 (.09) | ns | .07 (.09) | ns | .10 (.09) | ns | .17 (.13) | ns | .12 (.12) | ns | .08 (.12) | ns |
| *Normal* | | | | | | | | | | | | |
| Faced weight discrimination | | | −.08 (.10) | ns | −.07 (.09) | ns | | | −.01 (.19) | ns | −.02 (.19) | ns |
| *Overweight* | −.01(.04) | ns | −.02 (.04) | ns | −.06 (.04) | ns | −.09 (.05) | <.10 | −.04 (.05) | ns | .00 (.06) | ns |
| No weight discrimination | | | | | | | | | | | | |
| Faced weight discrimination | | | .11 (.12) | ns | .07 (.13) | ns | | | −.11 (.11) | ns | −.04 (.11) | ns |
| *Class I obese* | .26 (.06) | <.001 | | | | | −.23 (.07) | <.001 | | | | |
| No weight discrimination | | | .07 (.07) | ns | .01 (.07) | ns | | | −.10 (.08) | ns | .01 (.09) | ns |
| Faced weight discrimination | | | .32 (.16) | <.05 | .20 (.16) | ns | | | −.24 (.15) | ns | −.12 (.15) | ns |
| *Severe obese* | .26 (.08) | <.001 | | | | | −.39 (.09) | <.001 | | | | |
| No weight discrimination | | | .01 (.10) | ns | −.10 (.11) | ns | | | −.23 (.12) | <.05 | −.03 (.12) | ns |
| Faced weight discrimination | | | .38 (.13) | <.01 | .27 (.13) | <.05 | | | −.33 (.13) | <.01 | −.11 (.14) | ns |
| *Perceived weight status* | | | | | | | | | | | | |
| Feel somewhat overweight | | | | | .05 (.04) | ns | | | | | .05 (.05) | ns |
| Feel very overweight | | | | | .20 (.07) | <.01 | | | | | −.36 (.09) | <.001 |
| **Control Variables** | | | | | | | | | | | | |
| *Health status* | | | | | | | | | | | | |
| Self-rated health (WI) | −.22 (.04) | <.001 | −.06 (.02) | <.01 | −.06 (.02) | <.01 | −.45 (.02) | <.001 | −.60 (.03) | <.001 | −.61 (.03) | <.001 |
| Functional disability (WI) | | | −.36 (.05) | <.001 | −.37 (.05) | <.001 | | | −.21 (.05) | <.001 | −.19 (.05) | <.001 |
| Negative affect | | | .03 (.03) | ns | .03 (.03) | ns | | | −.08 (.04) | <.05 | −.07 (.04) | <.10 |
| Count of chronic conditions | | | .04 (.01) | <.001 | .04 (.01) | <.001 | | | −.01 (.01) | <.10 | −.01 (.01) | ns |

*(continued)*

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**Table 5. (continued)**

| | Functional Disability | | | | | | Self-Rated Health | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Model I | | Model II | | Model III | | Model I | | Model II | | Model III | |
| | b, S.E. | p | b, S.E. | p | b, S.E. | p | b, S.E. | p | b, S.E. | p | b, S.E. | p |
| Sedentary lifestyle | | | −.32 (.18) | <.10 | −.31 (.16) | <.05 | | | .33 (.27) | ns | .31 (.24) | ns |
| Smoking | | | .07 (.05) | ns | .07 (.05) | ns | | | −.21 (.06) | <.001 | −.21 (.06) | <.001 |
| *Demographic factors* | | | | | | | | | | | | |
| Age | | | .01 (.00) | <.05 | .01 (.00) | <.05 | | | −.01 (.00) | <.05 | −.01 (.00) | <.05 |
| Black | | | .05 (.09) | ns | .05 (.09) | ns | | | −.35 (.12) | <.01 | −.35 (.12) | <.01 |
| Female | | | −.08 (.07) | ns | −.11 (.07) | ns | | | .09 (.08) | ns | .14 (.08) | <.10 |
| Education | | | −.04 (.01) | <.001 | −.04 (.01) | <.001 | | | .05 (.01) | <.001 | .05 (.01) | <.001 |
| Household income (ln) | | | −.01 (.02) | ns | −.02 (.02) | ns | | | .04 (.03) | ns | .05 (.03) | <.10 |
| Nonresponse hazard | | | −.98 (.50) | <.10 | −.96 (.51) | <.10 | | | .40 (.52) | ns | .37 (.51) | ns |
| $R^2$ | .06 | | .20 | | .21 | | .20 | | .29 | | .30 | |
| N | 1560 | | 1560 | | 1560 | | 1856 | | 1856 | | 1856 | |

*Note:* OR = Odds ratio. CI = Confidence interval. B = Unstandardized coefficient. S.E. = Standard error. Tests are two-tailed. Normal weight and no perceived weight discrimination is the reference group. Brackets represent coefficients that were tested for equality with joint Wald tests (no weight discrimination coefficients tested for equality with perceived weight discrimination coefficients). An asterisk denotes significant difference between weight class and no weight discrimination and weight class with perceived weight discrimination.

perceived weight discrimination aggravates weight-related increases in disability, and Model III includes weight perceptions as mediating variables. Model I indicates that obese and severely obese respondents fared the worst in regard to functional disability between survey waves, as would be expected.

Turning to Model II, the unstandardized change coefficient was largest for those who were severely obese and perceived weight discrimination ($b$ = .38, $p < .01$). Interestingly, those who were Class I obese and perceived discrimination faced greater increases in disability ($b$ = .32, $p < .05$) than severely obese people who did *not* perceive discrimination ($b$ = .01, nonsignificant). Joint Wald tests for a comparison of effect sizes reveal that the coefficients for weight class and discrimination are greater than the weight classes and no discrimination ($F$ = 4.73, $p < .01$) These findings support Hypothesis 2. Not surprisingly, those with higher self-rated health at Wave I did not increase in disability between waves, whereas a higher number of chronic health conditions were associated with increasing disability.

When including the weight perceptions variable in Model III, the coefficient for severely obese and perceived weight discrimination was attenuated somewhat ($b$ = .27, down from .38 in Model I) and the effects for Class I obesity became nonsignificant, supporting Hypothesis 3. Though the effect of feeling only somewhat overweight was nonsignificant, respondents who felt very overweight experienced an increase in disability between Wave I and Wave II ($b$ = .20, $p < .01$).

The three rightmost columns in Table 5 undertake a parallel analysis but with change in self-rated health as the outcome variable. In the fourth column (Model I), results show that Class I obese and severely obese respondents have worse self-rated health a decade later than do normal weight persons. Just as in the functional disability models, the health effects of obesity appear more severe for those who perceived weight discrimination. Results from Model II indicate that there was not a statistically significant effect of Class I obesity—whether accompanied by perceived discrimination or not—on health decline. Similar to the models' prediction of change in disability, however, the consequence of severe obesity coupled with perceived weight discrimination produced worse health declines than did severe obesity without weight discrimination, as reflected by the size of the coefficients ($b$ = −.33 versus −.23). However, the difference in the size of the coefficients fails to reach significance when comparing effect sizes with the Wald tests, thus failing to directly support Hypothesis 2.

In support of the idea that weight perceptions are consequential for health decline, however, the findings from Model III show that the influence of weight status on self-rated health among severely obese persons becomes nonsignificant when weight perceptions are included as mediating variables, though other variables significant in Model II retain their significance. Thus, there is mediation of actual weight status (accompanied or not by perceived discrimination) by heavier weight identities, which are shaped by perceived discrimination. Given the absence of the hypothesized exacerbation effect (Hypothesis 2), Hypothesis 3 cannot be fully confirmed; nevertheless, the results are consistent with its essence. The perception that one is only somewhat overweight is not significantly associated with decreasing self-rated health, but perceiving one's self

as being extremely overweight is related to a .36 unit decrease in self-rated health relative to perceiving that one is not overweight.

## DISCUSSION

In modern, body-conscious societies, heavy weight—obesity in particular—may imply some level of reprehensibility (Crossley 2004), or what Goffman (1963) referred to as a "deeply discrediting" trait producing a "spoiled identity." National survey data indicate that obese people are at risk of perceived maltreatment (Carr and Friedman 2005), but the health consequences of such discrimination have heretofore not been examined. With longitudinal data, this study examines the antecedents of perceived weight status and whether obesity stigma exacerbates health problems, net of baseline health and demographic factors. We find that obesity stigma affects health, particularly in regard to change in functional disability, and that weight perceptions are key to understanding this relationship.

Our main findings can be summarized around two main themes. First, we showed that people are likely to perceive themselves as heavier if they have perceived weight discrimination, an association that persisted even when controlling actual weight status. Body weight has the potential to be a discrediting trait (Cahnman 1968; Carr and Friedman 2006; DeJong 1980; Maddox et al. 1968; Puhl and Brownell 2001), and mistreatment on the basis of that characteristic is an important force on one's self-concept.

Drawing on Goffman (1963), we expected that an identity as an overweight person would pose constraints on life chances, and this organizes our second set of findings. Health outcomes interested us here for several reasons. For one, a growing body of research identifies that perceived discrimination poses a threat to health (e.g., Williams et al. 2003), but weight-based discrimination has been largely left out of this conversation. In addition, scores of research articles have documented how excess weight is harmful to the body, but the exacerbating contribution of social factors to the health risks of obesity are not clearly understood.

When we differentiate between obese persons who have perceived weight discrimination and those who do not, a clear picture emerges: perceived discrimination aggravates problems with mobility. Weight-based perceived discrimination nearly evened the differences between Class I and severe obesity in terms of functional disability; individuals in either weight category had increases in disability over 10 years, and Class I obese adults who perceived discrimination fared worse than severely obese adults who did not perceive discrimination. These findings challenge a medicalized absolutism positing that severe levels of weight pose threats only through direct physiological means. Our results reveal that the *social* processes of perceived weight discrimination are responsible, at least in part, for the deleterious effects of severe obesity on health.

The findings on self-rated health are somewhat less clear. Although the linear regression coefficients were larger for severely obese people if they perceived discrimination, the difference was not statistically significant, perhaps because of the relatively small number of severely obese people in the sample.

As we tie together these reports of discrimination with the more general concept of stigma and the far-extending damage that stigmatized traits pose for life chances (Phelan, Link, and Dovidio 2008), the results become more telling:

when perceived weight status is examined alongside actual weight status (accompanied or not by perceived discrimination), the latter no longer has a direct effect on self-rated health declines. For changes in disability, the effect of being Class I obese and perceiving discrimination is explained by weight perceptions brought on by perceived discrimination. The effect of being severely obese and perceiving discrimination is lessened, though not entirely explained by weight perceptions (effect size reduced by 29 percent).

Our findings are potentially important because they suggest that the sense of being marginalized because of one's weight can actually contribute to steeper health declines. In other words, social factors are implicated in health problems associated with obesity alongside the widely recognized physiologic causes. This adds to the growing body of literature showing how social factors get "under the skin" and affect disease processes (Ferraro and Shippee 2009; Glass and McAtee 2006; Muennig et al. 2008).

This study also builds on efforts to link discrimination and stigma, related concepts that have historically developed in parallel literatures (Phelan et al. 2008). Goffman's (1963) idea of stigma emphasized that prejudicial actions of *others*—particularly when enforcing the norms of desirable traits (e.g., thinness, beauty)—effectively exclude one from full participation in social life. Yet, at least in the case of obesity, a good part of what makes this exclusionary action harmful is its influence on self-perceptions. Discriminatory actions that are not perceived as such may simply be deflected, whereas perceived mistreatment understood to be related to a certain discrediting characteristic is absorbed into one's self-concept and limits life chances.

Interestingly, this picture of perceived discrimination, identity, and health runs counter to some recent findings involving race. Neblett et al. (2004), for instance, find that racial discrimination is *less* detrimental for health among people with salient racial identities. In light of other studies, however, this is rather unsurprising. Whereas strong racial identity is generally reported as a buffer to stress and health threats (Mossakowski 2003; Sellers et al. 2003), heavy weight is pervasively considered a negative aspect of self-concept, and a tiny proportion of heavy people embrace the "fat" identity (LeBesco 2004; Puhl and Brownell 2001). If people tend not to rally around a shared sense of feeling heavy, then having a "fat identity" would offer little consolation in the midst of perceived wrongdoing. The sense of camaraderie attached to ethnicity, on the other hand, can be empowering and more effectively stifle the insults of offenders.

Several limitations of the present analysis must be kept in mind. First, because this was a longitudinal study, the problem of sample attrition suggests that the results may be biased by the selective group who was successfully followed up 10 years after baseline. We accounted for this problem by employing the Heckman procedure, but there is the possibility that other selection factors may operate. Second, the way that questions about perceived discrimination were asked on the survey does not allow one to rule out the possibility that traits in addition to obesity may have contributed to the maltreatment. Respondents were able to identify numerous reasons for their discrimination, and so gender, race, age, or other factors could be conflated with weight, thus overestimating the influence of perceived weight discrimination. Although we believe caution is warranted in interpreting these

findings, it should also be recognized that only seven percent of the sample reported weight-based discrimination. Given the skewed distribution of the variable, we believe our conclusions are quite plausible. Third, additional health outcomes merit attention, but many of the health problems implicated by obesity and severe obesity were relatively rare in our data and thus proved challenging to include in analyses because of low statistical power. Finally, the 10-year study period was useful for observing changes in both overweight identity and health outcomes such as disability, but it is a fairly long time during which other important changes may have transpired. Future research may profit from using shorter study periods to replicate or refute the processes uncovered here.

These limitations considered, the current study offers new directions for the study of obesity and health. With the growing prevalence of obesity, it is becoming increasingly important to understand the ways in which social relationships and context exacerbate or minimize consequences for health. We also document a large effect of gender on weight perceptions, a finding that is consistent with recent research (Schieman et al. 2007) and that begs for further exploration as to whether stigma internalization processes generalize between men and women. Unfortunately our sample was too restricted in the number of severely obese respondents to make meaningful statistical comparisons across gender lines or with other important characteristics related to body image norms, such as race (Carr and Friedman 2005; Crosnoe et al. 2008; Schieman et al. 2007).

Finally, in an era when explanations for complex processes related to well-being are increasingly dominated by a reductionistic biomedical narrative, it is imperative that sociologists stake their ground and emphasize the irreducibility of social forces as the primary medium of personal fortunes (Duster 2006). Recent evidence suggests that those steeped in a worldview of reductionistic accounts of health often find the contribution of social scientists to be slight or nonexistent (Albert et al. 2008). It is our hope that sociologists do not grow disheartened by the dominance of a biomedical research paradigm, but continue to give attention to the intrinsically interpersonal and social dynamics of health in contemporary society.

## ACKNOWLEDGEMENTS

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