



Weight discrimination and unhealthy eating-related behaviors



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ABSTRACT

Individuals with obesity often experience unfair treatment because of their body weight. Such experiences are associated with binge eating, but less is known about its association with other eating-related behaviors and whether these relations are specific to discrimination based on weight or extend to other attributions for discrimination. The present research uses a large national sample ($N = 5129$) to examine whether weight discrimination is associated with diet and meal rhythmicity, in addition to overeating, and whether these associations generalize to nine other attributions for discrimination. We found that in addition to overeating, weight discrimination was associated with more frequent consumption of convenience foods and less regular meal timing. These associations were generally similar across sex, age, and race. Discrimination based on ancestry, gender, age, religion, and physical disability were also associated with overeating, which suggests that overeating may be a general coping response to discrimination. Unfair treatment because of body weight is associated with unhealthy eating-related behaviors, which may be one pathway through which weight discrimination increases risk for weight gain and obesity.

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Negative attitudes about individuals with obesity are pervasive and have implications across many settings (Carr & Friedman, 2005). It is not uncommon, for example, for physicians and other healthcare professionals to hold negative attitudes about individuals with obesity (Sabin, Marini, & Nosek, 2012; Wolf, 2012), job candidates with obesity are perceived as less capable than candidates of normal weight (Levine & Schweitzer, 2015), and in the courtroom, body weight can have an effect on jurors' perceptions of responsibility and guilt (Schvey, Puhl, Levandoski, & Brownell, 2013; White, Wott, & Carels, 2014).

In addition to the negative societal attitudes toward overweight and obesity, many people have had the personal experience of being treated unfairly because of their body weight (Puhl & Brownell, 2006). These interactions are not just unpleasant but have significant consequences for the individual's mental and physical health. Individuals who experience weight discrimination, for example, have greater declines in well-being and greater increases in loneliness over time than those who have not had such

experiences (Sutin, Stephan, Carretta, & Terracciano, 2015). The negative correlates of weight discrimination also extend to physical health. Individuals who perceive discrimination based on their weight, for example, decline in mobility (Schafer & Ferraro, 2011) and have greater increases in disease burden (Sutin et al., 2015). Such experiences may even culminate in reduced life expectancy (Sutin, Stephan, & Terracciano, 2015).

There is growing evidence that these types of experiences are also associated specifically with obesity risk. Although often justified as a motivator for weight loss, weight discrimination is associated with increased risk of obesity (Sutin & Terracciano, 2013) and weight gain (Jackson, Beeken, & Wardle, 2014). This association starts at least as early as adolescence (Hunger & Tomiyama, 2014) and continues through old age (Sutin & Terracciano, 2013). The stigmatization of body weight is stressful and sets off a cascade of emotional, cognitive, and biochemical changes that increase the likelihood of subsequent weight gain (Tomiyama, 2014).

Individuals who experience weight discrimination tend to be more likely to engage in behaviors conducive to obesity. Such behavior, particularly eating-related behavior, may be one pathway through which discrimination increases obesity risk. Disordered eating, in particular, is one common correlate of weight

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discrimination (Puhl, Moss-Racusin, & Schwartz, 2007). Among adults who seek treatment for obesity, for example, those who report more stigmatizing experiences based on their weight report more binge eating-related behavior (Ashmore, Friedman, Reichmann, & Musante, 2008). The association between weight discrimination and problematic eating is not limited to patients seeking treatment: Community-dwelling individuals who experience discrimination also report more emotional eating as well as more binge eating behavior (Durso, Latner, & Hayashi, 2012).

Experimental evidence provides further support that weight stigma increases the consumption of calories. In laboratory settings, individuals who are shown stigmatizing messages about obesity subsequently consume more calories than individuals shown neutral messages (Major, Hunger, Bunyan, & Miller, 2014; Schvey, Puhl, & Brownell, 2011). Similar effects have been found when participants watched a video that portrayed individuals with obesity in a stereotypic way (e.g., clumsy, lazy; Schvey et al., 2011) and with stigmatizing content from a news article (Major et al., 2014). Experimental manipulations of weight bias also indicate that stigmatizing content increases the stress response and reduces cognitive control (Major, Eliezer, & Rieck, 2012), which may contribute to less effective regulation of food intake. This evidence suggests a cyclical model such that the stress of weight discrimination promotes subsequent weight gain and hinders weight loss through unhealthy eating patterns (e.g. Tomiyama, 2014).

Previous research on weight discrimination and eating has focused primarily on behaviors related to binge eating. In addition to overeating, other eating-related behaviors are important for weight that may be sensitive to the experience of weight discrimination. Regular meal rhythms, for example, are associated with maintaining a healthier weight: Individuals who eat at about the same time each day and at regular intervals throughout the day tend to have a healthier BMI and gain less weight over time (Ekmekcioglu & Touitou, 2011). Irregular energy intake has likewise been associated with increased risk of metabolic syndrome, especially increased waist circumference (Pot, Hardy, & Stephen, 2014). What people eat is also an important component of effective weight management. A diet higher in fruits and vegetables and lower in processed food and sugar-sweetened beverages helps promote a healthier body weight (Mozaffarian, Hao, Rimm, Willett, & Hu, 2011). Stress tends to disrupt these processes, such that higher stress can induce both under and over eating (Torres & Nowson, 2007). Since weight discrimination may be associated with eating behavior by impairing cognitive control, it is also possible that it may also interfere with the ability to sustain healthy eating habits, as well as promoting unhealthy eating habits like binge eating.

Similar to weight discrimination, discrimination based on other personal characteristics, such as race, gender, or age, is stressful (Pascoe & Smart Richman, 2009). To regulate this stress and negative affect, individuals who experience discrimination may engage in health-risk behaviors, including eating, in response to stress and sadness (Johnson, Risica, Gans, Kirtania, & Kumanyika, 2012). As such, the association between unhealthy eating habits and discrimination may not be limited to discrimination based on weight, but may be a general mechanism for coping with such experiences.

The purpose of the present research is to examine the association between weight discrimination and several eating-related behaviors. Specifically, we test whether weight discrimination is associated with the types of food people typically eat and also when and how much they eat. In addition, we examine whether weight discrimination accounts for some of the association between BMI and eating behaviors. We use a large, national sample of adults to test whether the associations are similar across sex, age, race, and

BMI category. Finally, we sought to determine if the associations between discrimination and the eating behaviors were specific to discrimination based on weight, or whether they generalize more broadly to other attributions for discrimination.

1. Method

1.1. Participants and procedure

A total of 5129 adults living in the United States (50% female) completed measures of discrimination and eating-related behaviors as part of a larger online study on psychological correlates of health. Participants, stratified by age (approximately 20% in each decade from 20 to 60+) and sex (50% female) and oversampled for African American participants, were recruited through Survey Sampling International and directed to a Qualtrics survey administered by the Florida State University College of Medicine. Participants were, on average, 44.59 ($SD = 15.30$; range = 18–91) years old, 50% female, 54% non-Hispanic white, 19% African American, 16% Hispanic White, and 11% multiracial/other/unknown.

1.2. Measures

1.2.1. Perceived discrimination

Perceived discrimination was measured with the version of the perceived everyday experiences with discrimination scale (Williams, Yu, Jackson, & Anderson, 1997) that is administered in the Health and Retirement Study (Smith et al., 2013). Participants were asked, "In your day-to-day life, how often have any of the following things happened to you?" Participants rated six items (e.g., "You are treated with less courtesy or respect than other people.") on a scale from 1 (*never*) to 6 (*almost everyday*). After responding to the six items, participants were asked to specify the reasons they believed they were treated unfairly (i.e., "If any of the above have happened to you, what do you think were the reasons why these experiences happened to you? Mark all that apply."). Participants could attribute unfair treatment to weight, ancestry, gender, race, age, religion, a physical disability, appearance, sexual orientation, and/or financial status. Participants could choose as few or as many attributions as necessary. The attributions for discrimination (coded 1 = yes, 0 = no) were used as the measure of discrimination in the analysis. This measure has been used successfully to track trends in weight discrimination over time (Andreyeva, Puhl, & Brownell, 2008) and to document the correlates of weight bias (Krukowski et al., 2009). Of the participants who endorsed any attribution for discrimination, 48.2% endorsed one attribution, 25.3% endorsed two attributions, and 26.5% endorsed 3 or more attributions. The percent of participants who reported weight discrimination was greater with each category increase in BMI: 6% of participants with normal weight, 10% of participants with overweight, and 24% of participants with obesity reported discrimination based on weight ($\chi^2 = 243.57, p < .01$).

1.2.2. Behavioral questionnaire

Participants reported on the frequency of a number of health-related behaviors in the last 30 days based on items from the annual Behavioral Risk Factor Surveillance System (CDC, 2015a). Nine items measured consumption of specific types of food in the last 30 days. The items in the BRFSS generally have good validity, with moderate correlations with related measures, such as detailed food questionnaires and 24-h dietary recalls (CDC, 2015b). Factor analysis of these nine items revealed two distinct factors: healthy food (consumption of fruit, beans, dark green vegetables, orange vegetables, and other vegetables; $\alpha = .81$) and convenience food (consumption of sugar-sweetened beverage, diet soda, snack

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