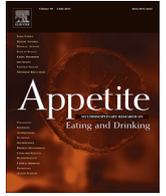


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Weight discrimination and unhealthy eating-related behaviors

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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

food, and fast food; $\alpha = .58^1$). The scale scores for these two factors were correlated modestly ($r = .15$).

Participants were also asked about when and how much they eat. Specifically, participants were asked about their meal rhythms (i.e., “eat at regular intervals throughout the day” and “eat meals at the same time each day”), the frequency of snacking (i.e., “snack in between meals”) and how often they overate (i.e., “eat so much that you felt sick”). Participants rated how often they engaged in these behaviors over the past 30 days on a scale that ranged from 1 (*never*) to 6 (*everyday*).

1.2.3. Body mass index

Participants reported their height and weight. Although there can be discrepancies between reported and measured height and weight, there is a high correlation between reports and measurements ($r_s > .90$; Sutin, 2013; Sutin & Terracciano, in press). BMI was derived as kg/m^2 and dummy coded into underweight ($\text{BMI} < 18.50$; 3%), overweight (BMI between 25 and < 30 ; 31%) and obese ($\text{BMI} \geq 30$; 32%) with normal weight as the reference group (BMI between 18.50 and < 25 ; 34%).

1.3. Statistical overview

To examine the association between weight discrimination and the eating patterns, we used linear regression to predict each food consumption behavior from weight discrimination controlling for age, sex, race/ethnicity, and education. We next included the BMI categories as an additional covariate to test whether the associations between weight discrimination and the eating behaviors were independent of adiposity. We then tested whether weight discrimination mediated the association between BMI and the eating behaviors. To test whether the associations varied by sex, age, race, or BMI category, we entered an interaction between discrimination and each of these factors in the regression for each behavior. Finally, we repeated the regressions with all of the attributions for discrimination as predictors of the eating behaviors to determine whether the attributions had independent associations with the behaviors and whether the associations were specific to discrimination based on weight or generalized to other forms of discrimination. The attributions for discrimination were entered simultaneously; the results thus reflect the independent association of each of the attributions with the eating behaviors. Since participants could endorse more than one attribution for discrimination, we repeated the regression analyses with participants who only reported one attribution for discrimination compared to those who reported no experiences with discrimination.

2. Results

Descriptive statistics for all variables are shown in Table 1; the bivariate correlations between the attributions for discrimination and the eating behaviors are in the supplemental table. We first examined the association between weight discrimination and the eating behaviors controlling only for the demographic variables (Table 2). Similar to previous research on binge eating, participants who reported having experienced discrimination based on their weight were more likely to report that they often ate until they felt sick. Weight discrimination was also associated with less regular meal rhythms – participants who experienced weight discrimination were less likely to eat at regular intervals and at the same

Table 1
Descriptive statistics for all study variables.

Study variable	Mean (SD) or percentage
Demographic factors	
Age	44.59 (15.30)
Sex (Female)	50.0
Education (years)	15.57 (2.57)
Ethnicity (African American)	19.0
Ethnicity (Hispanic)	16.0
Ethnicity (Other)	11.0
Eating behaviors	
Overeat	1.84 (1.19)
Eat regular intervals	4.39 (1.58)
Eat same time	4.08 (1.58)
Snack	4.02 (1.40)
Healthy food	3.63 (1.00)
Convenience food	2.93 (1.01)
Attributions for discrimination	
Weight	13.2
Ancestry	7.7
Gender	15.1
Race	15.0
Age	16.2
Religion	3.2
Physical disability	4.8
Appearance	8.0
Sexual orientation	2.7
Financial status	10.7
No reported discrimination	18.3

Note. $N = 5129$.

time each day. Interestingly weight discrimination was associated with eating more convenience food, such as fast food and sugar sweetened beverages, but was unrelated to consumption of healthy food; it was also unrelated to snacking in between meals. The pattern of results was similar when the BMI categories were included as covariates; all associations remained significant. These results suggest that the association between weight discrimination and eating behavior was not due entirely to BMI.

We further examined whether weight discrimination was one mechanism through which BMI was associated with the eating behaviors. There was an indirect effect between BMI and the eating behaviors through weight discrimination for the consumption of convenience food (point estimate = .009 [SE = .001]; 95% CI = .007–.012, $p < .01$), overeating (point estimate = .012 [SE = .001]; 95% CI = .009–.014, $p < .01$), and eating at regular intervals throughout the day (point estimate = $-.008$ [SE = .002]; 95% CI = $-.012$ to $-.005$, $p < .01$). That is, weight discrimination accounted for part of the association between BMI and eating convenience food, overeating to the point of feeling sick, and irregular meal rhythms.

We next examined whether the association between weight discrimination and the eating behaviors was moderated by BMI category, sex, age, or race. The association between weight discrimination and overeating and consumption of convenience food varied by BMI category such that these associations were weaker among participants with obesity ($\beta_{\text{interaction}} = -.09$ and $-.07$, respectively, both $ps < .01$). In addition, although there was no main effect of weight discrimination on snacking, sex moderated this association such that men who experienced weight discrimination also tended to snack more, an association not apparent among women ($\beta_{\text{interaction}} = -.06$, $p < .01$). Finally, the negative association between weight discrimination and eating meals at regular times throughout the day was slightly stronger among white participants than African American participants ($\beta_{\text{interaction}} = .04$, $p < .01$). The demographic factors and BMI categories did not moderate any of the other associations between weight discrimination and the eating behaviors.

¹ Although the alpha reliability for convenience food was somewhat low, the correlations were virtually identical across the four individual items of this factor. Thus, the convenience food factor was retained.

Table 2
Association between weight discrimination and eating behaviors.

	Overeat	Eat regular intervals	Eat same time	Snack	Healthy food	Convenience food
Age	-.32**	.12**	.12**	-.08**	-.01	-.22**
Sex (female)	-.06**	.04**	-.03*	.06**	.07**	-.12**
Education	.05**	.21**	.19**	.03*	.22**	.01
Ethnicity (Black)	-.05**	-.08**	-.11**	.00	-.01	.00
Ethnicity (Hispanic)	.02	-.03*	-.02	-.03*	.03*	.00
Ethnicity (Other)	.02	-.03*	-.02	.00	.03*	.00
Weight discrimination	.13**	-.07**	-.06**	.02	.00	.12**

Note. $N = 5129$. Coefficients are standardized betas from linear regression.

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

Finally, we were interested in whether these associations were specific to weight discrimination or whether other attributions for discrimination shared similar behavioral patterns (Table 3). The relations between weight discrimination and the eating behaviors were similar when the other attributions for discrimination were included in the model. In addition to weight discrimination, discrimination based on ancestry, race, gender, age, religion and a physical disability were all associated positively with overeating to the point of feeling sick. Discrimination based on a physical disability was further associated with less regular eating patterns as was discrimination based on sexual orientation, appearance, and financial status. Surprisingly, ancestry, gender, age, and religious discrimination were associated with consumption of healthier foods; discrimination based on age, ancestry, and religion were also associated with consumption of more convenience food. Only age discrimination was associated with snacking in between meals.

Table 4 presents the results of the analysis that was limited to those who reported only one attribution for discrimination (those who did not report discrimination). A similar pattern of associations was found in this more selective sample as compared with the full sample. Of note, weight discrimination was associated with the same eating behaviors as in the full sample, but more attributions for discrimination were associated with overeating and fewer were associated with the two measures of meal rhythmicity.

3. Discussion

The present research examined the association between weight discrimination and several eating-related behaviors in a large national sample of American adults. Consistent with previous

research with patient (Ashmore et al., 2008) and community (Durso et al., 2012) samples, discrimination was associated with overeating. To this consistent finding we add that unfair treatment on the basis of body weight is also associated with what and when individuals eat. That is, those who experience weight discrimination eat more convenience foods and eat more irregularly than those who have not experienced discrimination. Such disruption in diet and meal rhythms may be one pathway through which weight discrimination increases risk for obesity.

There is fairly consistent evidence that weight bias and discrimination are associated with binge-eating behavior. Both correlational (Puhl et al., 2007) and experimental (Major et al., 2014) research indicates that stigmatizing experiences are associated with increased consumption of calories. It is of note that in the current study, the association between weight discrimination and overeating did not vary by sex, age, or race, which indicates that the harmful association between weight discrimination and overeating holds across varied populations. In addition to the amount of food, what individuals eat (Mozaffarian et al., 2011) and their meal rhythmicity (Ekmekcioglu & Touitou, 2011) are important components of achieving and maintaining a healthy weight. The stress of discrimination may disrupt the physiological and cognitive resources needed to sustain such a healthy lifestyle (Major et al., 2012; Tomiyama, 2014).

The associations between weight discrimination and eating behaviors were independent of body weight. That is, all of the associations between weight discrimination and eating behaviors held when controlling for BMI. We did, however, find evidence that the link between weight discrimination and both overeating and consumption of convenience food varied somewhat by BMI

Table 3
Association between discrimination and eating behaviors.

	Overeat	Eat regular intervals	Eat same time	Snack	Healthy food	Convenience food
Age	-.31**	.12**	.12**	-.07**	.01	-.21**
Sex (female)	-.06**	.04**	-.03*	.05**	.07**	-.12**
Education	.04**	.20**	.18**	.03*	.21**	.00
Ethnicity (Black)	-.06**	-.08**	-.10**	.00	-.02	-.01
Ethnicity (Hispanic)	.01	-.03*	-.02	-.03*	.03	.00
Ethnicity (Other)	.01	-.03*	-.02	.00	.02	-.01
Discrimination						
Weight	.08**	-.06**	-.04**	.00	-.02	.08**
Ancestry	.05**	.00	.00	.00	.05**	.03*
Gender	.05**	.03	.03	.03	.06**	.02
Race	.00	.00	-.01	-.01	.00	.00
Age	.10**	.01	-.01	.03*	.04**	.08**
Religion	.06**	-.02	.00	.01	.05**	.03*
Physical disability	.05**	-.05**	-.05**	.01	-.01	.02
Appearance	-.01	-.03	-.03*	.00	-.03*	.01
Sexual orientation	-.01	-.02	-.04**	.00	-.02	-.01
Financial status	-.02	-.02	-.04**	.02	.00	.02

Note. $N = 5129$. Coefficients are standardized betas from linear regression.

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

Table 4

Association between discrimination and eating behaviors among those who reported a single attribution.

	Overeat	Eat regular intervals	Eat same time	Snack	Healthy food	Convenience food
Age	-.30**	.12**	.13**	-.08**	.04*	-.20**
Sex (female)	-.05**	.05**	-.02	.06**	.11**	-.11**
Education	.01	.21**	.19**	.03	.20**	-.04*
Ethnicity (Black)	-.04**	-.10**	-.11**	.00	-.01	.01
Ethnicity (Hispanic)	.00	-.04**	-.01	-.04*	.03	-.01
Ethnicity (Other)	.01	-.03	-.02	-.01	.02	-.02
Discrimination						
Weight	.09**	-.04*	-.04*	.00	.00	.08**
Ancestry	.07**	-.01	-.01	-.02	.02	.02
Gender	.08**	.01	.00	.02	.05*	.02
Race	.04*	.00	-.01	-.03	.01	.00
Age	.13**	.01	.01	.04*	.06**	.07*
Religion	.05**	-.01	-.01	-.02	.01	.00
Physical disability	.02	-.02	-.03*	.01	.02	-.01
Appearance	.05**	-.02	.00	-.01	.00	.04*
Sexual orientation	.01	-.02	-.04**	-.02	.01	.00
Financial status	.05**	-.02	.00	.00	.03	.04**

Note. $N = 3832$. Coefficients are standardized betas from linear regression.

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

category. Although weight discrimination was associated with more overeating and consumption of convenience food across all BMI categories, individuals with overweight who reported stigmatizing experiences based on their body weight tended to both overeat and eat more convenience food than individuals with overweight who did not report such experiences; this association was stronger than among individuals with obesity. Individuals with overweight experience weight discrimination more often than individuals of with normal weight (Dutton et al., 2014); for individuals with overweight, the experience of perceived discrimination may increase obesity risk, in part, through these unhealthy eating behaviors.

Higher BMI is associated with a number of eating behaviors. In the present study, we considered weight discrimination as one pathway through which BMI may be associated with poor eating behaviors. And indeed, individuals with a higher BMI are more likely to experience weight discrimination, which in turn is associated with eating more convenience food, overeating to the point of feeling sick, and irregular meal rhythms. As such, experiences with weight discrimination account for some of the relation between BMI and eating behaviors. This pathway may be one way through which a vicious cycle perpetuates itself: BMI is associated with being discriminated against on the basis of body weight, these experiences are associated with unhealthy eating behaviors, unhealthy eating behaviors are associated with increased risk of weight gain, weight gain increases risk of discrimination, etc (Tomiyama, 2014).

There was little evidence that the association between weight discrimination and eating behavior was moderated by demographic characteristics. There were two exceptions. First, the association between weight discrimination and eating at regular intervals was slightly stronger among white participants, although a similar association was also apparent among African American participants. Second, although weight discrimination was unrelated to snacking in the full sample, there was a positive association among men but not women. Women tend to snack more than men (Hartmann, Siegrist, & van der Horst, 2013) and are more prone to emotional eating when experiencing depressed mood (Camilleri et al., 2014). For women, the stress of discrimination may not increase their already elevated snacking behavior relative to men, whereas men may cope with the stress by snacking more. This behavior may be particularly harmful for men since they tend to choose less healthy snacks than women (Hartmann et al., 2013).

The relation between eating frequency (i.e., snacking or small meals) and successful weight maintenance, however, is unclear (e.g., Elfhag & Rössner, 2005; Mesas, Muñoz-Pareja, López-García, & Rodríguez-Artalejo, 2012). Indeed, frequent snacks are incorporated into many strategies for weight loss because it may help to reduce feelings of hunger (Bachman & Raynor, 2012). In the present sample, we could not differentiate between healthy and unhealthy snacking. For all of the other eating behaviors, however, the association between weight discrimination and behavior was similar across the two sexes. This pattern specifically indicates that the harmful effects of weight discrimination are not limited to women, who are also at greater risk for unfair treatment because of their weight.

Among all the attributions for discrimination, unfair treatment based on body weight generally had the strongest and most consistent associations with the eating-related behaviors. At the same time, the associations were not limited to weight discrimination. Of note, overeating was the most common correlate of discrimination. In the present study, participants who reported experiencing discrimination based on their ancestry, gender, age, religion and a physical disability, in addition to weight, tended to eat to the point of feeling sick more frequently than those who did not have such experiences. Overeating may be one common coping mechanism that individuals use when facing the stress of discrimination. The experience of discrimination, regardless of the attribution, is stressful and associated with poor health-related behaviors (Pascoe & Smart Richman, 2009). Food is often a source of comfort (Wansink, Cheney, & Chan, 2003) and used to help regulate emotions (van Strien et al., 2013) and social identity (Sinha, in press). Even healthy food can be used to self-regulate (Sinha, in press). Food is also more accessible and socially acceptable than drinking alcohol, cigarette smoking, or using illicit substances, which may explain why experiencing discrimination was so consistently associated with overeating in the present study.

The analysis that was focused only on participants who reported one attribution for discrimination suggested that dysregulated meal rhythmicity was primarily associated with weight discrimination. This pattern suggests that difficulty with regular meal rhythms is more specific to weight discrimination than other eating behaviors, such as overeating or consumption of convenience foods, which appear to be broader coping mechanisms. Interestingly, age discrimination was the other attribution that had the strongest and most consistent associations with the eating-related

behaviors. Similar to weight discrimination, age is a characteristic that changes over time, and discrimination based on a characteristic that changes over time may be more detrimental because the characteristic is not well integrated into the individual's identity and/or because loved ones are often the perpetrators. As with weight discrimination, discrimination based on age is associated with worse health and declines in health over time (Sutin et al., 2015). Unhealthy eating behavior may be one behavioral mechanism that individuals use to cope with the stress of such discrimination.

The present research has several strengths, including a large and diverse national sample, the assessment of a relatively broad list of attributions for discrimination, and the assessment of several different aspects of eating behavior. There were also some limitations that could be addressed in future research. First, the eating behavior measure and weight and height were self-report. Although the eating items were drawn from the Behavioral Risk Factor Surveillance Survey and validated against other measures, more objective assessments are needed to support the present findings based on self-report. Similarly, reported and measured weight and height are highly correlated (Sutin, 2013), but there is some bias that can be particularly problematic for categorizing BMI. It would be helpful to have measured weight and height as well as other objective measures of adiposity in future studies. Second, the survey was cross-sectional. Overeating and other eating-related behaviors are hypothesized to be one pathway through which weight discrimination increases risk for weight gain and obesity (Sutin & Terracciano, 2013). The present research supports this pathway, but longitudinal data are needed to test the temporal ordering of the proposed process. Finally, the sample was limited to adults living in the United States. Cultural norms may shape eating-related behaviors and the correlates of BMI and may thus also shape the negative impact of discrimination based on weight. It would be worthwhile to test whether these associations generalize to other cultural contexts.

Despite these limitations, the present research adds to the growing evidence that experiences with weight discrimination are associated with unhealthy eating behaviors. Unfair treatment on the basis of body weight is not only linked to binge-eating behavior but also to an unhealthy diet and meal irregularity. Most of the associations between weight discrimination and the eating behaviors were similar across sex, race/ethnicity, and age. This pattern suggests that weight discrimination is equally harmful across different demographic groups. Eating behaviors may contribute to the association between weight discrimination and poor health outcomes.

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Appendix A. Supplementary data

Supplementary data related to this article can be found at <http://dx.doi.org/10.1016/j.appet.2016.02.016>.

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