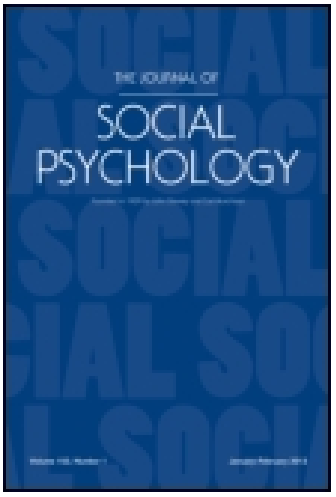

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The Effect of Effort and Weight Controllability on Perceptions of Obese Individuals

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ABSTRACT. We examined the impact of offset controllability (capability of losing weight) and offset effort (efforts to lose weight) on judgments of an obese target. Participants ($n = 216$) read about an obese person whose body weight was controllable/uncontrollable, and who did/did not put in effort to eat healthily and exercise. Effort played a more important role than controllability in evaluations of the target. Targets who put in effort to be healthy were ascribed fewer obesity stereotypes, evoked less disgust, and were considered to have a more acceptable lifestyle. These findings extend attribution theory and have implications for strategies to reduce weight bias.

Keywords: attribution theory, controllability, effort, obesity, stigma

OBESITY IS AN ATTRIBUTE THAT is undesirable and devalued, particularly in Western cultures, and thus fits with Goffman's (1963) definition of a social stigma. Obese people experience bias and discrimination in a wide range of domains, including interpersonal relationships (Chen & Brown, 2005), customer service (King, Shapiro, Hebl, Singletary, & Turner, 2006), and employment and educational settings (Puhl & Heuer, 2009). The consequence of this discrimination is that obese individuals may experience negative financial, social, and personal outcomes due to their weight (Thompson, Edelsberg, Colditz, Bird, & Oster, 1999). Negative attitudes toward obese people have been observed in undergraduate samples (e.g., Crandall, 1994), in the general population (e.g., Teachman, Gapinski, Brownell, Rawlins, & Jeyaram, 2003), among children (Anesbury & Tiggemann, 2000), health care practitioners (Ogden & Flanagan, 2008), and even among obese individuals themselves (Schwartz, Vartanian, Nosek, & Brownell, 2006; Wang, Brownell, & Wadden, 2004). There is also a range of negative obesity stereotypes, such that obese individuals are seen as lazy, sloppy, lacking motivation, lacking self-discipline, and having poor personal hygiene (e.g., Puhl & Brownell, 2001).

One factor that has been theorized to contribute to obesity stigma is the perceived controllability of obesity; that is, the extent to which an individual is perceived to have control over her or his body weight (Blaine & Williams, 2004; Crandall, 1994). This perspective is consistent with Weiner's attribution theory of stigmas (Weiner, 1985; Weiner, Perry, & Magnusson,

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1988), which suggests that the perceived causes and stability of a stigmatizing condition will influence affective responses and judgments toward target individuals. For example, Weiner and colleagues (1988) portrayed obesity as originating from either "glandular dysfunction" (uncontrollable) or "excessive eating without exercise" (controllable). These authors found that participants felt less pity, liked the targets less, and were less likely to help the targets when the onset of their obesity was portrayed as controllable compared to when it was portrayed as uncontrollable. Similar effects were found for other stigmatizing conditions, such as AIDS and cancer. Other studies have also shown that greater perceived weight controllability is associated with more negative stereotyping and stigma (Sikorski, Luppa, Brahler, Konig, & Riedel-Heller, 2012; Tiggemann & Anesbury, 2000), fewer positive evaluations, reduced likeability, and decreased willingness to help obese individuals (Crandall, 1994; DeJong, 1980; Jeong, 2007). Furthermore, Crandall (1994) found that persuading individuals that obesity was determined by genetic and metabolic factors led to less antipathy towards obese people. Taken together, attribution research has consistently demonstrated that higher perceived controllability over a stigmatizing condition is associated with more negative attitudes and stereotyping.

Most research on obesity stigma from an attribution perspective has focused on *onset controllability*, that is, the responsibility for and control one has over acquiring a condition. However, Weiner and colleagues (1988) and Brickman and colleagues (1982) distinguished between onset controllability and offset controllability, the latter referring to the ability to change a condition or the potential effectiveness of one's attempts to change. Several studies do provide indirect evidence that offset controllability can also influence evaluations of obese people. For example, an obese target who was described as recently having lost weight was evaluated more negatively than an obese target who had not lost weight (Blaine, DiBlasi, & Connor, 2002). The authors suggested that recent weight loss strengthened beliefs that body weight is controllable, leading to greater dislike of that particular target. Similarly, participants shown a before-and-after weight-loss advertisement rated the target person more negatively and also perceived body weight as more easily controllable compared to participants who were shown only the "before" image or only the "after" image (Geier, Schwartz, & Brownell, 2003). These studies indicate that perceptions of obesity offset controllability (i.e., the belief that obese people *can* lose weight) can also contribute to negative attitudes and stereotypes toward obese individuals.

Some research has further extended attribution theory by examining perceptions of effort along with both onset and offset controllability. The distinction between offset controllability and effort can be conceptualized as the difference between the likelihood that one's actions will result in a change in one's condition (controllability) and actively doing something to try to change one's condition (effort). For example, offset controllability in the context of obesity would refer to having the ability to lose weight (e.g., not having an underlying medical condition that prevents weight loss), and this controllability component is generally viewed as relatively stable (Weiner, 1985). In comparison, offset effort would reflect actions taken in order to try to lose weight (e.g., healthy eating and exercise), and this effort component is generally viewed as less stable (Weiner, 1985). In an early study examining the distinction between controllability and effort, Karasawa (1991) gave participants information about the behavior of a student at the onset of falling behind at school (i.e., how the problem was acquired) as well as information about the offset of the problem (i.e., how the problem was changed). The student who failed an exam due to illness or low ability (both marked by low controllability) evoked more pity than did the student who failed

due to lack of effort invested in studying. Interestingly, although ratings of the target were affected by both onset and offset information, final ratings of the target were most strongly influenced by information about the offset of the problem. In particular, targets were evaluated most negatively when they did not exert effort to catch up in class (offset effort), regardless of the initial cause of the problem (i.e., the onset information). Further, Karasawa (1991) argued that failure to fulfill one's potential (i.e., investing no effort when the outcomes are controllable) may result in the most negative evaluations. These negative evaluations may be based on perceptions of intentional moral deviance (Hutcherson & Gross, 2011; Rozin, 1999).

In the context of obesity stigma, a few recent studies have examined the impact of effort to lose weight on attitudes toward obese individuals. For example, previously overweight or obese individuals who had lost weight through diet and exercise (high effort) were perceived more positively than were targets who had lost weight via surgery (low effort) (Fardouly & Vartanian, 2012; Mattingly, Stambush, & Hill, 2009; Vartanian & Fardouly, 2013, 2014), and this difference appears to be due to people viewing surgery patients as less responsible for their weight loss (Vartanian & Fardouly, 2013, 2014). Furthermore, Bullock, Stambush, and Mattingly (2011) showed that the difference between positive evaluations of high-effort targets relative to low-effort targets was most evident among individuals who were high in anti-fat attitudes. These findings suggest that perceptions of efforts to lose weight via lifestyle choices influence the extent to which people endorse negative obesity stereotypes.

Although effort does appear to play a role in obesity stigma, no study to date has distinguished between the influence of controllability and effort on judgments of an obese target. Indeed, control and effort are often confounded in scales commonly used to assess beliefs about the controllability of body weight. For example, Crandall's (1994) Anti-fat Attitudes Scale includes the items "People who weigh too much could lose at least some part of their weight through a little exercise" and "Fat people tend to be fat pretty much through their own fault," which could be perceived as indicating either effort or controllability, or both. Thus, the current study examined the independent effects of beliefs about offset controllability (i.e., capability of losing weight) and offset effort (i.e., efforts to lose weight) on judgments of an obese target.

The Current Study

The present study extends attribution theory by examining the joint effects of controllability and effort in judgments of an obese target. Specifically, we manipulated both capability to lose weight (offset controllability: weight-controllable vs. weight-uncontrollable) and individual effort to lose weight through healthy lifestyle choices (offset effort: no-effort vs. high-effort). Based on Weiner's attribution theory (Weiner, 1985; Weiner et al., 1988), it was hypothesized that targets whose weight was described as offset uncontrollable would be rated more favorably than would targets whose weight was described as offset controllable. Further, in line with Karasawa (1991) and Mattingly and colleagues (2009), it was expected that high-effort targets would be rated more favorably overall than would no-effort targets. Drawing on Karasawa (1991), we also predicted that the effects of effort and weight controllability would be additive, such that the no-effort target in the weight-controllable condition would be evaluated most negatively overall, and that the high-effort target in the weight-uncontrollable condition would be evaluated most positively overall.

METHOD

Participants

Two hundred and sixteen participants based in the United States were recruited through the internet-based Amazon's Mechanical Turk (MTurk), which has been shown to produce data comparable in quality and reliability to traditional methods (Buhrmester, Kwang, & Gosling, 2011). Four participants were excluded from the study because they failed the comprehension check questions, and a further 19 participants were excluded because they failed to respond correctly to at least one of the validity check questions used to ensure that participants were completing the survey properly. The final sample consisted of 193 participants (69 males and 124 females), with mean age of 33.84 years ($SD = 11.32$; range = 18 – 65) and mean body mass index (BMI) of 25.50 kg/m^2 ($SD = 6.16$; range = 15.59 – 49.59). The majority of the sample was Caucasian (81.6%), 5.7% were African-American, 5.2% were Hispanic, 4.1% were Asian, and 2.6% identified as "other." None of the demographic characteristics differed by experimental condition ($ps > .15$). This study was approved by the university's ethics committee.

Materials and Procedure

Participants signed-up for a study "examining doctor-patient interactions" and were informed that they would be reading the transcript of an interaction between a doctor and a patient, after which they would answer some questions about the transcript, the doctor, and the patient. Participants first viewed some information about the doctor (a photo and her business card). Participants then viewed a photo of a female patient and read brief patient summary notes outlining basic demographic information (e.g., date of birth, marital status, occupation) and health information (e.g., height, weight, blood pressure). A photograph of an obese individual taken from a weight-loss Web site (and used in previous research on attitudes toward obese individuals; Vartanian & Fardouly, 2014) was used to convey the patient's body size. In addition, her BMI score and related descriptive label were provided in the patient summary notes which read "BMI: 31.6 (Obese)."

Participants were then asked to read a transcript outlining an interaction between the doctor and patient. In the transcript, the patient stated that she was seeing the doctor for a routine check-up. This was followed by a discussion of the patient's social history, medical history, family medical history, medications, diet, and exercise patterns. The transcripts were approximately 1,100 words in length and were used to manipulate the controllability and effort information. Transcripts were pilot tested with an online MTurk sample of 288 participants and an additional laboratory sample of 114 undergraduate students to ensure that the information was conveyed effectively. In all conditions, the cause of obesity was always described as being due to an underactive thyroid (that is, obesity was always portrayed as onset uncontrollable). This information mirrors the manipulations used in previous attribution research regarding the onset controllability of obesity (i.e., a thyroid condition; Weiner et al., 1988). All of the targets indicated that they were taking thyroid medication. Offset controllability was manipulated by varying whether the medication used to control the patient's thyroid problem had been successful (weight-controllable) or unsuccessful (weight-uncontrollable). This manipulation was designed to convey to participants whether or not the patient was capable of controlling her weight; that is, whether or not

the thyroid condition continued to be a barrier to weight loss. Offset effort was manipulated by varying the amount of effort the patient invested in maintaining a healthy body weight through lifestyle choices. In the high-effort condition, the patient reported eating healthy meals, minimizing the consumption of snacks, desserts, and high-calorie drinks, and engaging in regular physical activity. In the no-effort condition, the patient reported eating relatively unhealthy meals as well as frequent snacks, desserts, and high-calorie drinks while engaging in minimal physical activity. Participants were randomly assigned to one of four conditions: weight-controllable/no-effort ($n = 52$), weight-controllable/high-effort ($n = 52$), weight-uncontrollable/no-effort ($n = 44$), and weight-uncontrollable/high-effort ($n = 45$).

After being given the option to re-read the transcript (which very few participants elected to do), participants answered eleven multiple-choice comprehension questions in order to establish that they had understood the transcript (e.g., What medical condition did the patient report?). Participants were excluded from the study if they did not answer at least seven of these questions correctly. Participants were then asked a series of questions about the doctor (to strengthen the cover story) and about the patient. For the patient ratings, participants indicated the extent to which they viewed the patient as lazy, sloppy, motivated (reverse scored), self-disciplined (reversed scored), and as having poor personal hygiene, on a 5-point scale ranging from 1 (*not at all*) to *5* (*extremely*). A Negative Obesity Stereotypes composite was computed by averaging responses to these five items ($\alpha = .86$). Participants also rated the extent to which they felt pity, anger, and disgust toward the patient on a scale ranging from 1 (*not at all*) to 5 (*extremely*).

Next, participants rated the extent to which they thought the patient was capable of controlling her body weight through lifestyle choices (controllability manipulation check) and the extent to which they thought the patient was putting in sufficient effort to ensure that she was at a healthy weight (effort manipulation check). Both items were rated on a 7-point scale ranging from 1 (*strongly disagree*) to 7 (*strongly agree*).

Participants were also asked a series of questions pertaining to the patient's lifestyle. Participants made judgments about whether the patient's diet and exercise routine were "acceptable" on a scale ranging from 1 (*not at all*) to 5 (*extremely*) and about how the patient's diet and exercise routine compared to the average person (1 [*much worse*] to 5 [*much better*]), which were averaged to create a Lifestyle Evaluation index ($\alpha = .91$). Participants were then asked to predict the direction (*gained/lost/stayed the same*) and amount of the patient's weight change in 6-months' time.

Participants also completed the Dislike and Willpower subscales of the Anti-Fat Attitudes scale (AFA; Crandall, 1994) which assess people's beliefs about the extent to which obesity is under personal control and their general attitude toward obese people, respectively ($\alpha_{willpower} = .70$, $\alpha_{dislike} = .89$). These measures were assessed as potential moderators and potential covariates because past research has found these constructs to be relevant to evaluations of obese individuals (e.g., Bullock et al., 2011; Crandall, 1994). Finally, participants provided demographic information about their age, sex, weight and height (used to calculate their BMI), and ethnicity.

Statistical Analyses

One-way ANOVAs were used to test the effectiveness of the effort and control manipulations. Next, a series of 2 (Weight Controllability: controllable vs. uncontrollable) × 2 (Effort: no-effort vs. high-effort) ANOVAs were conducted to assess the impact of the manipulations on each of

TABLE 1
Correlations Between the Dependent Variables and AFA Dislike and AFA Willpower Subscales

Item	*AFA dislike*	*AFA willpower*
Negative obesity stereotypes	.39***	.38***
Pity	.15*	.07
Anger	.40***	.21**
Disgust	.61***	.34***
Lifestyle evaluations	−.08	−.23**
Weight change in pounds	.10	.11

*$p < .05$. **$p < .01$. ***$p < .001$.

the dependent variables. Regression analyses revealed that AFA Dislike and AFA Willpower did not interact with the manipulated variables in any case ($ps > .05$), and they were therefore not included as potential moderators. However, both variables were significantly correlated with negative obesity stereotypes, pity (Dislike only), anger, disgust, and lifestyle evaluations (Willpower only; see Table 1). Because neither Dislike nor Willpower varied by experimental condition ($ps > .18$), and because the data met the assumption of homogeneity of regression for ANCOVA, we included Willpower and Dislike as covariates in the relevant analyses. The pattern of results remained the same if these variables were not included as covariates in the analyses.

RESULTS

Manipulation Checks

The effort manipulation was effective: Participants rated the high-effort target ($M = 5.08$, $SD = 1.73$) as putting in more effort to be at a healthy weight than they did the no-effort target ($M = 1.91$, $SD = 1.04$), $F(1, 190) = 238.80$, $p < .001$, $\eta_p^2 = .56$. The controllability manipulation was also effective: The weight-controllable target ($M = 3.53$, $SD = 0.96$) was rated as more capable of controlling her body weight through lifestyle choices than was the weight-uncontrollable target ($M = 2.75$, $SD = 1.02$), $F(1, 190) = 29.47$, $p < .001$, $\eta_p^2 = .13$.

Primary Analyses

Group means (and standard deviations) for negative obesity stereotypes, emotion ratings, and lifestyle evaluations are displayed in Table 2. Degrees of freedom for each analysis vary slightly due to missing data.

Negative obesity stereotypes. As predicted, there was a main effect of effort, such that the high-effort target was rated lower on negative obesity stereotypes compared to the no-effort target, $F(1, 186) = 185.65$, $p < .001$, $\eta_p^2 = .50$. We did not find the predicted main effect of controllability, $F(1, 186) = 1.78$, $p = .18$, $\eta_p^2 = .01$, but there was an Effort × Controllability interaction, $F(1, 186) = 10.57$, $p = .001$, $\eta_p^2 = .05$. Simple effects analyses revealed that weight-controllable/high-effort target was rated more favorably compared to the

TABLE 2
Group Means (*SD*s) for Weight-Uncontrollable and Weight-Controllable Targets as a Function of Effort Information

		Experimental condition	
Dependent variables	*Effort condition*	*Weight-uncontrollable*	*Weight-controllable*
Negative obesity stereotypes	High-effort	1.67[a] (0.58)	2.02[b] (0.71)
	No-effort	2.91[c] (0.60)	2.84[c] (0.64)
Pity	High-effort	2.09[a] (0.92)	1.62[b] (0.80)
	No-effort	1.89[a] (0.78)	1.62[a,b] (0.80)
Anger	High-effort	1.00 (0.00)	1.00 (0.00)
	No-effort	1.14 (0.51)	1.08 (0.33)
Disgust	High-effort	1.11[a] (0.38)	1.27[a] (0.66)
	No-effort	1.27[a] (0.73)	1.46[a] (0.78)
Lifestyle evaluations	High-effort	3.64[a] (0.67)	3.44[a] (0.94)
	No-effort	1.23[b] (0.31)	1.38[b] (0.51)
Weight change in pounds	High-effort	−2.82[a] (7.53)	−10.32[b] (10.81)
	No-effort	−1.54[a] (8.02)	−5.42[c] (8.31)

Note: For each variable, means within a row or column with different superscripts are significantly different at $p < .05$.

weight-controllable/no-effort target ($p < .001$, $\eta_p^2 = .24$), but that the effect of effort information was even more pronounced in the weight-uncontrollable condition ($p < .001$, $\eta_p^2 = .42$). These results do not support our hypothesis that the effects of effort and control would be additive.

Emotion ratings. Partially supporting our hypotheses, the Controllability × Effort analysis for pity revealed only a main effect of controllability, $F(1, 187) = 10.80$, $p = .001$, $\eta_p^2 = .06$, with weight-uncontrollable targets receiving more pity than weight-controllable targets. Note, however, that the controllability effect was only significant in the high-effort condition (the effect was marginally significant in the no-effort condition, $p = .08$). The analysis for anger could not be conducted because so few participants (including none in the high-effort conditions) indicated any anger at all. The Controllability × Effort analysis for disgust was also only partially supported our hypotheses: There was a significant main effect of effort, $F(1, 187) = 6.60$, $p = .01$, $\eta_p^2 = .03$, with no-effort targets evoking more disgust than high-effort targets. Examination of the means in Table 2, however, suggests somewhat of an additive effect with the no-effort/weight-controllable target receiving the highest disgust ratings and the high-effort/weight-uncontrollable target receiving the lowest disgust ratings. Post-hoc contrast analysis revealed that the difference between these two conditions was significant ($p = .01$).

Lifestyle evaluations. Consistent with our hypothesis, the high-effort patient's lifestyle was evaluated more positively than was the no-effort patient's lifestyle, $F(1, 187) = 584.52$ $p < .001$, $\eta_p^2 = .76$. We did not find the predicted main effect of weight controllability, $F(1, 187) = 0.03$, $p = .87$, $\eta_p^2 < .001$, but there was a significant Controllability × Effort interaction, $F(1, 187) = 4.48$, $p = .04$, $\eta_p^2 = .02$. Simple effects analyses revealed that the high-effort target's lifestyle was evaluated more favorably than was the no-effort target's lifestyle in the weight-controllable

condition ($p < .001$, $\eta_p^2 = .59$), and that this difference was even more pronounced in the weight-uncontrollable condition ($p < .001$, $\eta_p^2 = .63$). These results do not support the hypothesis that the effects of effort and control would be additive.

Patient weight change after 6 months. As predicted, the Controllability × Effort analyses revealed that mean estimated weight loss in pounds was significantly greater for high-effort targets compared to no-effort targets, $F(1, 160) = 4.87$, $p = .03$, $\eta_p^2 = .03$. Also as predicted, mean weight loss was also significantly more pronounced in the weight-controllable (vs. weight-uncontrollable) groups, averaging across effort condition, $F(1, 160) = 17.50$, $p < .001$, $\eta_p^2 = .10$. The Controllability × Effort interaction was not significant, $F(1, 159) = 1.60$, $p = .22$, $\eta_p^2 = .01$.

DISCUSSION

The aim of the present study was to build on attribution theory (Weiner et al., 1988) in order to explain negative evaluations of obese individuals. Most past research has focused on onset controllability of obesity (i.e., explanations for the cause of the problem). In the present study, we held onset controllability constant, and this allowed us to examine the effects of offset controllability and effort to maintain a healthy lifestyle on judgments of obese individuals. The results of the current study suggest that, when it comes to offset information, judgments of an obese target may be more strongly influenced by effort information than by controllability information. That is, consistent with the hypotheses, high-effort targets were evaluated more positively overall than were no-effort targets. With respect to negative obesity stereotypes and evaluations of the target's lifestyle, there was a significant effort-by-controllability interaction such that the effect of effort was more pronounced when the obese person's body weight was uncontrollable (thyroid medication not working) as compared to controllable (thyroid medication working). Based on previous research (Karasawa, 1991; Mattingly et al., 2009; Weiner et al., 1988), we predicted that controllability and effort would have additive effects such that the weight-controllable no-effort target would be evaluated most negatively, and the weight-uncontrollable high-effort target would be evaluated most positively. Our results are only partly consistent with this hypothesis: We found that evaluations were most positive for the obese target who put in effort despite having uncontrollable body weight (i.e., the weight-uncontrollable high-effort target).

Recent research indicates that individuals who lose weight through effort (diet and exercise) are viewed more favorably than are individuals who lose weight through surgery (Fardouly & Vartanian, 2012; Mattingly et al., 2009; Vartanian & Fardouly, 2013, 2014). The present findings extend this literature by demonstrating that people who put in effort can be viewed more favorably even if weight loss has not occurred and the individual is still obese. One possible explanation for these findings may be that moral judgments are made based on the individual's effort or lack of effort to maintain a healthy lifestyle (Bullock et al., 2011). Indeed, for ratings of disgust, the patient who exercised regularly and ate a healthy diet was judged more favorably than the patient who did not exercise and had unhealthy eating habits, regardless of the controllability of her body weight. This finding is consistent with the view that disgust is a moral emotion that is evoked when immoral behavior is seen as intentional (Hutcherson & Gross, 2011; Rozin, 1999). Thus, the connection between obesity and disgust observed in previous studies (e.g., Vartanian,

2010) might in part be due to perceptions of obese people not exerting sufficient effort to take control of their weight.

Although, in most cases, effort appeared to be more important than weight controllability in judgments of an obese target, there were two exceptions. First, for ratings of pity, there was only a main effect of controllability. This finding is consistent with past research (e.g., Weiner et al., 1988) suggesting that participants feel more pity for an obese person whose weight is not controllable. Second, the main effect of controllability appears to be stronger than the main effect of effort for estimates of the target's weight change over the next six months. This finding suggests that participants understood the limitations of individual efforts to control body weight. Interestingly, despite recognizing the limitations of body-weight controllability, people's evaluations of an obese individual were still strongly influenced by the amount of effort that the target exerted to try to control her weight.

The present findings build on Weiner's attribution theory by highlighting the distinction between offset controllability and offset effort. When considering attributions of blame, people may be able to understand that a condition is not under an individual's control, but might still believe that the individual is responsible for making changes (Weiner, 1993). The current findings are also consistent with those of Karasawa (1991) in that targets who did not exert effort were evaluated more negatively than were targets who did put in effort. Interestingly, the weight-uncontrollable/no-effort targets were not perceived any more positively than the weight-controllable/no-effort targets. This finding suggests that obese individuals' efforts to maintain a healthy lifestyle are regarded as important irrespective of those individuals' ability to control their body weight. The differences in the ratings overall between the no-effort and high-effort targets suggest that perceptions of moral deviance could be reduced when individuals appear to be making an effort to change their condition (Karasawa, 1991).

The present findings have implications for strategies to reduce weight bias and may in part explain why previous attempts to reduce weight bias have not been particularly successful. Many of the existing interventions attempt to change people's beliefs about the controllability of body weight, often by describing the onset of obesity as uncontrollable (see Danielsdottir, O'Brien, & Ciao, 2010, for a review). Although these interventions succeed at changing people's beliefs about the controllability of obesity, they typically fail to have an impact on people's attitudes and stereotypes toward the target individuals (Anesbury & Tiggemann, 2000; Teachman et al., 2003). This shortcoming may stem from the fact that these interventions focus primarily on onset controllability and exclude information about offset controllability or effort (Danielsdottir et al., 2010; Sikorski et al., 2012). Thus, three elements that could form part of intervention efforts aimed at reducing anti-fat bias include educating the general public about the fact that (a) many overweight and obese individuals are actively trying to lose weight, (b) weight-loss efforts through lifestyle changes are not always successful, and (c) eating healthily and exercising regularly have important benefits regardless of their impact on one's weight. These strategies may counteract the media representations of body weight as highly malleable that contribute to the pervasiveness of negative obesity stereotypes and obesity stigma (Puhl & Heuer, 2010).

Limitations and Future Directions

In the present study, onset information was held constant (obesity caused by an underactive thyroid) so that we could directly examine the effects of offset information about obesity.

Furthermore, Karasawa (1991) found that offset information had a greater influence on evaluations of a target individual than did onset information. However, the portrayal of obese targets as not being responsible for the onset of their obesity in the current study may have somewhat attenuated people's negative reactions to the obese targets. This perceived lack of control for the onset of obesity may explain the lower ratings of disgust and anger towards obese targets that were observed in the present study compared to previous studies (e.g., Vartanian, 2010; Weiner et al., 1988). Thus, subsequent investigations may examine the possible dual-influence or additive effects of onset information (e.g., biological factors or unhealthy diet and exercise) and offset information (e.g., the possibility of, and effort exerted in, losing weight) for obesity. This development would extend previous research by examining how information about the perceived causes of a stigmatizing condition interacts with information about the ability and efforts to offset the condition (Weiner et al., 1988).

Another distinction that could be examined in future research is whether situational factors that influence one's ability to exert effort (e.g., financial restrictions limiting access to healthy foods, limited time available to eat healthily and exercise, etc.) could also impact people's perceptions of obese individuals. Research along these lines may extend attribution theory by producing a greater understanding of the relationship between controllability and effort, as well as other related constructs, such as responsibility for or stability of a condition.

Finally, a potential limitation of this study is that the data were collected using an online sample, limiting control over who participated and under what conditions. However, Amazon's Mechanical Turk has been found to produce data comparable in quality and reliability to traditional methods (Buhrmester et al., 2011). In addition, a recent study on emotions and stereotypes toward obese people (Vartanian, Thomas, & Vanman, 2013) found almost identical results using an online MTurk sample and a university sample that completed the study in a laboratory setting. Other limitations include the use of a single context (doctor-patient interaction) for examining the effects of offset control and offset effort on judgments of the obese target, and also focused on a single target individual. Future research is needed to confirm the generalizability of these findings across contexts and across targets.

Conclusion

The findings of the present study build on attribution theory by further examining the joint effects of offset controllability and offset effort information on perceptions of a stigmatized group (i.e., obese individuals). The results demonstrate that effort in achieving and maintaining a healthy lifestyle might be more important than people's beliefs about the controllability of body weight in determining their judgments of an obese person. Specifically, target individuals who put in effort to maintain a healthy diet and exercise routine were perceived more positively than were individuals who did not exert sufficient effort. These judgments could be attributed to perceptions of moral deviance based on lack of effort. The current results suggest that interventions designed to reduce weight bias can potentially be improved by incorporating elements that focus on the role and limitations of both offset controllability and offset effort. Specifically, such interventions could emphasize the fact that many obese people are actively trying to lose weight but that losing weight is often very difficult.

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