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What is This?
“Obesity Is a Disease”: Examining the Self-Regulatory Impact of This Public-Health Message

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Abstract
In the current work, we examined the impact of the American Medical Association’s recent classification of obesity as a disease on weight-management processes. Across three experimental studies, we highlighted the potential hidden costs associated with labeling obesity as a disease, showing that this message, presented in an actual New York Times article, undermined beneficial weight-loss self-regulatory processes. A disease-based, relative to an information-based, weight-management message weakened the importance placed on health-focused dieting and reduced concerns about weight among obese individuals—the very people whom such public-health messages are targeting. Further, the decreased concern about weight predicted higher-calorie food choices. In addition, the disease message, relative to a message that obesity is not a disease, lowered body-image dissatisfaction, but this too predicted higher-calorie food choices. Thus, although defining obesity as a disease may be beneficial for body image, results from the current work emphasize the negative implications of this message for self-regulation.

Keywords
self-regulation, weight, public-health message, disease, obesity, self-control, mental models, individual differences, health

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The American Medical Association, a leading voice in medical, policy, and health regulations, formally recognized obesity as a disease in June 2013. In addition to commanding more funding for the research, prevention, and treatment of obesity, weight-related public-health messages should also encourage obese individuals to value their health, engage in healthier behavior, and ultimately lose weight (Cameron & Leventhal, 2003). Furthermore, public-health messages that focus on obesity as a disease should increase body satisfaction by emphasizing the physiological triggers of weight gain, which can, in turn, reduce stigma and personal blame (Crandall, 1994; Monterosso, Rozyman, & Schwartz, 2005). However, despite probable benefits, we suggest that the “obesity is a disease” message may also undermine important weight-management efforts.

The term disease suggests that bodies, physiology, and genes are malfunctioning. By invoking physiological explanations for obesity, the disease label encourages the perception that weight is unchangeable. Across domains, research has shown that physiological factors are ascribed lower levels of controllability relative to situational or behavioral factors (Dar-Nimrod & Heine, 2006; Monterosso et al., 2005; Plaks, Malahy, Sedlins, & Shoda, 2012). These immutable descriptions make self-regulatory efforts seem futile and failure inevitable, which results in feelings of hopelessness and ultimately disengagement from one’s

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attempts to regulate behavior (Carver & Scheier, 2011; Finlay-Jones & Brown, 1981). Thus, the message that obesity is a disease may undermine important psychological determinants of salubrious behaviors for obese individuals—the very people these public-health messages are targeting (Teixeira, Mata, Williams, Gorin, & Lemieux, 2012).

We predicted that the disease message, relative to a standard weight-management message or a message that obesity is not a disease, would undercut the importance that obese individuals place on dieting to improve their health and would undermine their concern for their weight. In addition, this reduced concern would predict less healthy food choices (i.e., selection of higher calorie food). We also investigated whether the disease message, with its focus on physiological explanations, improves body satisfaction (e.g., Crandall, 1994) but whether such increases have costs. For obese individuals, mild or moderate body dissatisfaction can serve as a motivator to reduce consumption. Indeed, some research illustrates that such body-image concerns are a stronger motivating force than health concerns for engaging in healthy behaviors (e.g., McDonald & Thompson, 1992). In summary, we examined whether the message that obesity is a disease alters crucial psychological processes (i.e., concern about weight, body image) underlying obese individuals’ motivation to engage in healthy behaviors (i.e., choosing lower-calorie foods).

**Study 1 and Study 2**

**Method**

**Participants and procedure.** For Studies 1 and 2, we recruited participants from Amazon’s Mechanical Turk (Buhrmester, Kwang, & Gosling, 2011). One hundred eighty-two participants (44% female, 56% male; median age = 30 years) took part in Study 1, and 185 participants (38% female, 62% male; median age = 27 years) took part in Study 2.1 We randomly assigned participants to read either a recent New York Times article (Pollack, 2013) discussing the decision of the American Medical Association to categorize obesity as a disease or a control article (Luedtke, 2011) offering a standard information-based public-health message about weight.2 In the Times article, the author summarizes some of the major benefits of this decision, such as compensation for obesity-related drugs, surgery, counseling, and reduced stigma against people who are obese, as well as some of the drawbacks. In the information-based control article, the author highlights standard tips and tools for managing weight, such as keeping exercise activities interesting and monitoring weight weekly.

After reading their respective article, participants in each condition responded to measures, which were followed by demographic questions excluding height and weight so we could compute body mass index (BMI).3 We expected obese individuals to be more concerned with their health and weight than individuals of average weight would be (Neumark-Sztainer et al., 1997). However, notably, we expected these self-regulatory processes to be undermined by the disease message. In Study 2, we also tested whether reduced concern for weight predicted higher-calorie food choices.

**Measures.** In Study 1, we presented participants with two health-focused reasons for dieting: medical advice and health problems (questions adapted from Bloksstra, Burns, & Seidell, 1999). We asked participants to indicate, on a 9-point scale, how important each reason would be to them if they started a diet tomorrow or were currently dieting, r(180) = .74, p < .001.

In Study 2, participants indicated instead how concerned they were with watching their weight on a 7-point scale ranging from very unconcerned to very concerned. We also presented participants in Study 2 with a menu and asked them to indicate which sandwich they would order from the following choices: The Italian (980 calories), Smoked Turkey Breast (360 calories), Roast Beef and Cheddar (700 calories), BLT (654 calories), and Vegetable Delight (230 calories). We used the number of calories each participant ordered for analyses (see Norman, 2010, for using parametric statistics with this type of scale).

**Results**

Ordinary least squares (OLS) regression equations revealed an interaction between participants’ BMI (Study 1: M = 26.71 kg/m², SD = 6.06, range = 18–50; Study 2: M = 27.19 kg/m², SD = 7.07, range = 16–51) and message type (disease vs. control; effects coded 1 and –1, respectively), and this interaction had an effect on both health-focused dieting (b = −0.04, β = −0.13, p = .082; see Fig. 1) and concern for weight (b = −0.04, β = −0.31, p = .005; see Fig. 2).4 Tests of conditional effects across BMI revealed that for obese people, the disease message, relative to the control message, predicted nonsignificant decreases in health-focused dieting in Study 1 (b = −0.21, β = −0.12, p = .25) and significant decreases in concern for weight in Study 2 (b = −0.47, β = −0.31, p = .002). The opposite pattern emerged for people of average weight; the disease message predicted nonsignificant increases in health-focused dieting (b = 0.25, β = 0.14, p = .18) and concern for weight (b = 0.15, β = 0.10, p = .31). BMI significantly predicted health-focused dieting (b = 0.06,
β = 0.22, p = .029) and concern for weight (b = 0.09, β = 0.40, p < .001) in the control condition, whereas these relationships were nonexistent in the disease condition (health-focused dieting: b = −0.012, β = −0.04, p = .71; concern for weight: b = −0.002, β = −0.01, p = .90).

Finally, for obese individuals in Study 2, there was a conditional indirect effect of the disease message on healthy food choice through concern for weight (calculated using Hayes’s, 2013, Model 7 for the PROCESS tool, shown in Fig. 3), index of moderated mediation = 1.70, 95% confidence interval (CI) = [0.377, 3.940]. Specifically, this indirect effect was significant for obese individuals, 95% CI = [5.395, 40.875], but not for individuals of average weight, 95% CI = [−21.384, 5.608]. That is, obese individuals who read the disease message reported less concern for their weight than those who read the information-based health message and subsequently made more unhealthy, higher-calorie food choices.

**Study 3**

To address the concern that the findings might be driven more by the control-condition message than by the disease message, we used an “obesity is not a disease” control message in Study 3. This message emphasized that the solution to the obesity crisis is to give people the knowledge and tools to make better choices and not to label obesity as a disease. Additionally, we examined a further psychological determinant of health behavior: body dissatisfaction (Heinberg, Thompson, & Matzon, 2001). Although a physiological attribution for weight can reduce self-blame and body-image concerns (Crandall, 1994; Monterosso et al., 2005), a mild or moderate level of body dissatisfaction can help motivate individuals to reduce calorie consumption (Heinberg et al., 2001). Thus, to extend the findings of Studies 1 and 2, we replaced concern for weight as the mediating mechanism linking the disease message to calorie consumption for obese individuals with body dissatisfaction.

**Method**

**Participants and procedure.** Three hundred sixty participants (40% female, 60% male; median age = 29 years) from Amazon’s Mechanical Turk took part in Study 3. Participants read either the disease message (same article as in Studies 1 and 2) or the control message. The control article focused on why obesity is not a disease and included selected paragraphs from articles published in Forbes magazine (Kabat, 2013) and on the Fox News Web site (Ablow, 2013). The authors focused on the reasons that obesity should not be considered a disease, comparing it with smoking and highlighting the importance of personal behavior and choice in the negative health outcomes, such as diabetes and heart disease, that result from obesity. After reading their respective article, participants responded to measures and demographic questions. Although certain subgroups (e.g., women) are more at risk than others (e.g., men) for body dissatisfaction, we expected a direct positive relation between BMI and body dissatisfaction, in line with other work (Hill & Williams, 1998). And, notably, we expected the message
describing obesity as a disease, relative to the message that obesity is not a disease, to reduce this dissatisfaction and also to come at a self-regulatory cost—namely, higher-calorie food choices (Heinberg et al., 2001).

Measures. To assess body dissatisfaction, we used the Contour Drawing Rating Scale (Thompson & Gray, 1995). Selecting from nine drawings increasing in size from thin to obese, participants indicated which body shape resembled their own and which one they wish they resembled. The discrepancy between these two ratings was the index of body dissatisfaction. We also presented participants with the same menu task as in Study 2.

Results

OLS regression equations revealed an interaction between participants’ BMI ($M = 27.91$ kg/m$^2$, $SD = 7.41$, range = 14–64) and message type (disease vs. not disease), and this interaction had a significant effect on body dissatisfaction ($b = -0.02$, $\beta = -0.13$, $p = .002$; see Fig. 4). Tests of conditional effects across BMI revealed that obese people reported significantly lower levels of body dissatisfaction ($b = -0.24$, $\beta = -0.18$, $p = .003$) in the disease condition than in the control condition. For individuals of average weight, there was no significant difference in body dissatisfaction ($b = 0.10$, $\beta = 0.08$, $p = .203$). The relationship between BMI and body dissatisfaction was significant in both conditions, but it was significantly less strong in the disease condition ($b = 0.09$, $\beta = 0.52$, $p < .001$) than in the control condition ($b = 0.14$, $\beta = 0.78$, $p < .001$).

Finally, for obese individuals, there was a conditional indirect effect of the disease message on healthy food choice through body dissatisfaction (calculated using Hayes’s, 2013, Model 7 for the PROCESS tool), index of moderated mediation = 0.63, 95% CI = [0.077, 1.802]. Specifically, the indirect effect of message type on calories chosen through body dissatisfaction, 95% CI = [1.043, 18.302], was significant for obese individuals but not for individuals of average weight, 95% CI = [−9.945, 0.991]. That is, for obese individuals, the disease message resulted in lower body dissatisfaction, which predicted the choice of meals containing higher calories (see Fig. 3).

Discussion

This research illuminates the potential benefits and hidden costs associated with the message that “obesity is a disease” by showing that this message cultivates increased body satisfaction but also undermines beneficial self-regulatory processes in obese individuals. A disease-based, relative to an information-based, public-health message reduced the importance placed on health-focused dieting and concern for weight, and it predicted less healthy food choices (i.e., selection of food...
containing more calories) for individuals with higher BMIs. Furthermore, a disease message, relative to a not-disease message, increased body satisfaction, which also predicted less healthy food choices for individuals with higher BMIs. It is these very people whom weight-related, public-health messages are targeting, because even modest weight loss in obese individuals can have lasting health and economic benefits (Oster, Thompson, Edelsberg, Bird, & Colditz, 1999).

However, before putting these findings into practice, additional work is needed. For example, actual behavioral measures of eating behavior should be employed (Baumeister, Vohs, & Funder, 2007). Future work should also continue to examine whether there is a direct effect of a disease message on eating behavior for obese individuals and should explore additional mediating mechanisms in order to foster a better understanding of the psychological effects of this message. Considering that obesity is a crucial public-health issue, a more nuanced understanding of an “obesity is a disease” message has significant implications for patient-level and policy-level outcomes, and we hope this article sparks such inquiry. For example, we focused primarily on the deleterious effects of the disease message on calorie consumption. However, some researchers argue that it is this focus on reduced calories, not obesity itself, that leads to increased mortality and morbidity (e.g., Miller, 1999). Furthermore, antidieting movements often incorporate a physiological explanation for obesity in the hopes of diminishing stigma and increasing body esteem. Results from the current work suggest that such efforts could be successful at improving body satisfaction but that such increases may lead to increased calorie consumption. Thus, we encourage future research to examine the costs and benefits of various policy messages about obesity and to move beyond the narrow focus on the negative effects of body dissatisfaction.

We are not advocating that the “thin” ideal that pervades Western culture is an admirable goal, nor that internalizing these unhealthy standards is a worthwhile strategy. In addition, we agree that the acceptance of diverse body sizes is laudable, as is the goal to increase medical treatment for obese individuals—themes that emerge in the argument in support of obesity as a disease. Furthermore, the positive effects of reducing stigma for goal engagement and attainment have substantial empirical support in social psychology more generally (e.g., Major & O’Brien, 2005) and within a weight-management context more specifically (Puhl & Heuer, 2010). Recognizing that there are potential benefits to labeling obesity as a disease, we conclude by noting that the aim of the current work was to (a) highlight some of the hidden self-regulatory costs of this public-health message and (b) inspire additional empirical inquiry in order to aid more scientifically informed decisions about both the costs and benefits of an “obesity is a disease” message.

Author Contributions
C. L. Hoyt and J. L. Burnette conceived and designed the study. Data collection was performed by L. Auster-Gussman, and C. L. Hoyt and J. L. Burnette analyzed and interpreted the data. C. L. Hoyt drafted the manuscript, and J. L. Burnette provided critical revisions. All authors approved the final version of the manuscript for submission.

Declaration of Conflicting Interests
The authors declared that they had no conflicts of interest with respect to their authorship or the publication of this article.

Notes
1. Data on body mass index (BMI) were unavailable for 1 participant in Study 1 and 6 participants in Study 2.
2. Participants were asked to summarize the theme of the article in one sentence. Less than 5% of participants across all studies failed to give a meaningful response to this question, which indicates that participants read and understood the article. Excluding the nonresponders did not meaningfully change the results.
3. BMI was slightly skewed across studies. A square-root transformation reduced the skewness, but results were indistinguishable from those using the untransformed variable.
4. BMI was used as a continuous predictor. To graph interactions, we used the standard ±1 standard-deviation approach. In these samples, values 1 standard deviation below and above the mean corresponded precisely with the World Health Organization’s (2006) classifications of average weight (BMI = 18.5–24.99 kg/m²) and obesity (BMI ≥ 30 kg/m²), respectively.
5. BMI data were unavailable for 3 participants in Study 3.
6. Given our focus on obesity, we excluded people (n = 40) who reported wanting to be larger (analyses were similar, and stronger, when they were included). Eight people did not complete the dissatisfaction measure, which left a final sample of 311 participants with both dissatisfaction and BMI scores.
7. Ancillary analyses revealed a significant interaction between BMI and message type on calories in Study 2 (p = .049; BMI negatively predicted calories in the control condition and positively predicted calories in the disease condition), but there was no significant relationship in Study 3.

References

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