

Narratives for Obesity: Effects of Weight Loss and Attribution on Empathy and Policy Support

Paul H. Thibodeau¹, Rachel Uri¹, Briana Thompson¹,
and Stephen J. Flusberg² **[AQ: 1]**

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Abstract

Despite an urgent need to address the issue of obesity, little research has examined the psychological factors that influence support for obesity-related policy initiatives, which represent an important tool for addressing this complex health issue. In the present study, we measured the degree to which people supported obesity-related policy interventions and empathized with a person struggling with obesity after reading a personal account of his or her situation. The narrative described an obese individual who was portrayed as either successfully losing weight or not, and as attributing his or her weight-loss outcome to personal or environmental factors. We found that protagonists who successfully lost weight and/or took personal responsibility for their situation elicited more empathy from participants, which was associated with support for societal policy interventions for obesity. These findings suggest that specific features of personal narratives influence support for obesity-related policies and highlight empathy as a mechanism through which such narratives affect obesity-related attitudes.

Keywords

narrative, obesity, public policy, reasoning, schema, stigma

Obesity poses significant costs to individuals and society (National Institutes of Health, 2012; Wang & Beydoun, 2007). To address this important public health issue, several analyses have called for policy interventions that would change the physical, economic, and social environments that have contributed to the rise of obesity (Allison et al., 2008; Brescoll, Kersh, & Brownell, 2008; Institute of Medicine, 2012). However, the majority of Americans conceptualize obesity as a personal problem—the result of harmful individual choices (Bleich & Blendon, 2010)—and recent polling has found that there is relatively little support for societal-level policy interventions in the United States (Tompson et al., 2012).

An important challenge for public health officials is to communicate the underlying environmental factors that contribute to obesity and to increase support for policy interventions. Recent work has identified personal narratives as a promising tool for achieving this goal (Braverman, 2008; Busselle & Bilandzic, 2008; Niederdeppe, Roh, & Shapiro, 2015; Slater & Rouner, 2002). Stories about individuals struggling (and succeeding or failing) to lose weight are ubiquitous and engaging and provide a structured framework for thinking about the causes of and solutions to obesity (Barry, Brescoll, Brownell, & Schlesinger, 2009; Brochu &

Esses, 2009; Niederdeppe, Shapiro, Kim, Bartolo, & Porticella, 2014; Thibodeau, Perko, Flusberg, 2015).

The goal of the current study is to investigate how personal narratives affect peoples' support for obesity-related policy interventions by applying insights from attribution theory (Jones & Nisbett, 1972 **[AQ: 2]**). A core tenet of this theoretical framework is that people make qualitatively different kinds of attributions for behavior depending on whether they are thinking about themselves or another person. People tend to highlight environmental factors when reflecting on the causes of their own behavior but emphasize internal, personal factors when reasoning about why other people behave the way they do (i.e., “the fundamental attribution error”; Ross, 1977). In the context of obesity policy, this psychological tendency may influence who is likely to support government intervention. Because people struggling with their own weight are more likely to recognize the external forces that

¹Oberlin College, Oberlin, OH, USA

²State University of New York, Purchase, NY, USA

Corresponding Author:

Paul H. Thibodeau, Department of Psychology, Oberlin College,
120 W Lorain Street, Oberlin, OH 44074, USA.

Email: paul.thibodeau@oberlin.edu

contribute to obesity, they may be more likely to support policies that would reform the social environment by, for instance, regulating food-related advertising or banning fast food in schools (Oliver & Lee, 2005).

The salience of environmental influences on one's own behavior may also represent an opportunity for public health messaging, as empathy can lead people to adopt someone else's attributional perspective (Regan & Totten, 1975). As a result, one prediction that classic attribution theory makes is that empathizing with someone who is struggling with obesity should increase awareness of environmental influences on weight and, in turn, increase support for policies that would address the root causes of the problem. The current study provides novel ground for testing this possibility in a domain with real-world consequences.

The Present Study

The experiment was designed to test whether a protagonist's weight loss outcome (successful or not) and target of attribution (self or environment) in a personal narrative about obesity affects people's empathy toward the protagonist and support for obesity-related policy interventions. Consistent with attribution theory (Jones & Nisbett, 1972), we predicted that reading about a successful outcome *or* about someone taking personal responsibility for their weight would increase support for obesity policies. Current research on obesity narratives has highlighted the role of attribution—taking personal responsibility for weight loss (e.g., Niederdeppe et al., 2014; Niederdeppe et al., 2015)—but has not considered the role of a protagonist's outcome—whether the narratives describe an ongoing struggle with obesity or successfully achieving a weight loss goal. Describing a successful weight loss outcome may be especially effective in the current cultural context that is skeptical about the efficacy of self-regulation for maintaining a healthy weight (Aamodt, 2016), and could make people more optimistic about obesity treatment in general (Tomiya & Mann, 2013; Wamsteker et al., 2005). In this section, we expand on our description of the measures, enumerate specific theoretically motivated hypotheses, and identify secondary research questions, before presenting the results of the experiment and discussing their implications.

Empathy: Turning Observers Into Actors

Empathy reflects the process of identifying with someone else's struggle—taking his or her perspective and sympathizing with his or her condition (Batson et al., 1988) [AQ: 3]. One of the goals of the current work is to test how features of a personal narrative—whether the protagonist successfully loses weight and to what he or she attributes the outcome—moderate empathy.

In line with a central tenet of attribution theory, we predicted that people would respond more favorably to

protagonists who acknowledged personal responsibility for their weight. This prediction is consistent with recent work on obesity narratives, in which participants expressed more affective empathy for protagonists who acknowledged personal responsibility for their weight status and viewed these protagonists as more similar to themselves (Niederdeppe et al., 2014; Niederdeppe et al., 2015). The prediction is also consistent with a core American belief that emphasizes personal responsibility (Feldman, 1988) and with widespread thinking about the underlying causes of obesity (Bleich & Blendon, 2010; Lundell & Niederdeppe, & Clarke, 2013).

Hypothesis 1: *A main effect of attribution on empathy:* People will show more empathy to protagonists who take personal responsibility for their weight loss outcome compared to protagonists who attribute their weight loss outcome to environmental factors.

Research has also shown that people are more likely to empathize with someone else when that person experiences success (Mezulis, Abramson, Hyde, & Hankin, 2004). People are motivated to identify ways that they are similar to other people who have experienced success and different from other people who have experienced a failure (i.e., a “positivity bias”; Zuckerman, 1979). This suggests that people should empathize more strongly with someone who has succeeded in losing weight.

Hypothesis 2: *A main effect of outcome on empathy:* People will show more empathy to protagonists who successfully lose weight compared to protagonists who fail to lose weight.

We also predicted an interaction between the experimental manipulations. We expected people to respond especially unfavorably to protagonists who failed to lose weight and attributed this failure to environmental factors, as these protagonists may be seen as merely giving an excuse by blaming outside forces for what participants consider a personal failing (Jones & Nisbett, 1971; Niederdeppe et al., 2015; Zuckerman, 1979).

Hypothesis 3: *An interaction between attribution and outcome on empathy:* People will show the least empathy to protagonists who attribute unsuccessful weight loss to environmental factors—compared to protagonists who attribute a failure to lose weight to personal factors or to protagonists who successfully lose weight.

In addition to the outcome and attribution manipulations, the narrative described the protagonist as male half of the time and as female half of the time. This factor was included for practical reasons, since females are more likely to be blamed for being overweight than males (e.g., Neumark-Sztainer et al., 2002; Rothblum, 1992), and yet prior research

has not investigated whether people respond differently to a male versus a female protagonist (e.g., Niederdeppe et al., 2014; Niederdeppe et al., 2015). Thus, we identify a secondary set of research questions related to empathy and the gender of the protagonist:

Research Question 1: Do people respond to with similar levels of empathy to male and female protagonists?

Research Question 2: Will there be a gender congruence effect (Calvo-Merino, Grèzes, Glaser, Passingham, & Haggard, 2006), in which female participants empathize more strongly with female protagonists, while male participants empathize more strongly with male protagonists?

Policy Support

The measure of policy support included eight interventions that have been introduced into federal or state legislation and that public health officials argue would have a large impact on obesity (Brescoll et al., 2008). The policies varied in who they targeted (consumers, educators, food manufacturers, marketers, health insurers), how they would affect people who are currently or at risk of being overweight, and how they were expected to reduce obesity. For this reason, prior work has distinguished between obesity policies that would cost money or not (Barry et al., 2009) or between policies deemed more *protective* compared to ones deemed more *punitive* (Thibodeau et al., 2015). Since our theoretical questions are grounded in attribution theory, we will distinguish between policies that emphasize *societal reform* (which tend to be more *protective* policies that would increase taxes to fund educational interventions, media literacy programs, and treatment programs) compared to ones that provide incentives at the *individual level* (which tend to be more *punitive* policies that would not increase taxes but would, for example, allow health insurers to charge higher premiums to obese individuals).

We predicted that empathy would be associated with support for both types of policy interventions (Niederdeppe et al., 2014; Niederdeppe et al., 2015; Pearl & Lebowitz, 2014; Regan & Totten, 1975; Sikorski et al., 2011). We expected a positive relationship between empathy and support for *societal reform* and a negative relationship between empathy and support for *individual-level* incentives, since empathy should encourage people to adopt an attributional perspective that makes environmental contributions to obesity more salient (Regan & Totten, 1975).

Hypothesis 4: There is a positive association between empathy and support for *societal reform*.

Hypothesis 5: There is a negative association between empathy and support for policies that would increase *individual* accountability.

Finally, prior work provides a context for articulating more nuanced research questions about the relationship between the experimental manipulations, empathy, and policy support. Specifically, we identify the following research question:

Research Question 3: Is empathy always associated with support for societal level policy interventions and opposition toward interventions that would emphasize individual accountability?

We address this question by testing whether the relationship between empathy and policy support is consistent across the experimental conditions. One possibility is that protagonists who successfully lose weight *and* point to the facilitating effect of environmental factors in their weight loss outcome will elicit the most support for *societal-level* policy interventions (Niederdeppe et al., 2014; Niederdeppe et al., 2015). On this view, protagonists who emphasize personal responsibility in a successful weight loss outcome may elicit empathy from the reader but support for *individual-level* policies rather than *societal* ones. In other words, reading about successful weight loss may have a positive effect on empathy, regardless of the target of attribution, but this empathy may translate to support for *societal-level* policies when the protagonist makes an environmental attribution and to support for *individual-level* policies when the protagonist makes a personal attribution. On the other hand, empathy may be more uniform: Reading about a protagonist who succeeds in losing weight *or* who takes personal responsibility for the outcome may elicit empathy that translates to support for *societal-level* policies and opposition for *individual-level* incentives (Jones & Nisbett, 1971; Regan & Totten, 1975).

Method

Participants

We recruited and paid 300 people through Amazon's Mechanical Turk (Buhrmester, Kwang, & Gosling, 2011), restricting our sample to people who were at least 18 years old, were living in the United States, and had a good performance record on previous tasks ($\geq 90\%$ approval). Data from 45 people were excluded because they either did not complete the study or had previously participated in a related study, leaving data from 255 participants for analysis (60% male; $M_{\text{age}} = 32$, $SD = 10.3$). A power analysis, using an effect size of $\eta^2 = .03$ (which is consistent with prior work using related measures and experimental manipulations; e.g., Niederdeppe et al., 2014; Niederdeppe et al., 2015; Thibodeau et al., 2015), revealed sufficient statistical power (.78) of the size of the sample collected ($N = 255$) to test for predicted effects.

Materials and Procedure

Participants were randomly assigned to read one of eight narratives about someone struggling with obesity (see supplementary material for complete study materials, available online at heb.sagepub.com/supplemental). There were two independent variables with two levels each: The protagonist of the narrative either did or did not lose weight (*outcome*), he or she either attributed the outcome to personal or environmental factors (*attribution*). In addition, *gender* was implied to be male (John) or female (Sarah).

The narrative contained two paragraphs, which were structurally similar across conditions. The first paragraph established the protagonist's history with obesity and provided a brief description of the medical risks associated with the condition (e.g., "Because of his/her weight, John/Sarah is at risk for developing diabetes, high blood pressure, and heart disease."). It also included a statement about the protagonist's intention to lose weight and concluded with a statement about his or her weight loss outcome.

In both attribution conditions, the protagonist highlighted the role of diet and exercise in his or her struggle to lose weight—emphasizing either personal responsibility (e.g., "I know that my health is my responsibility, and I have taken accountability for my weight") or environmental factors (e.g., "It has been challenging to find available, affordable healthy food").

After reading the narrative, participants were asked to speculate on the gender of the protagonist. Most people thought they had read about a female when the protagonist's name was Sarah (97%) and a male when the protagonist's name was John (94%). This question served as a general manipulation check to ensure that participants had read the experimental materials. Excluding data from participants who thought they had read about a male when the protagonist's name was Sarah or a female when the protagonist's name was John does not affect the results. We did not ask targeted questions about the outcome and attribution manipulations to avoid demand effects (Paolacci & Chandler, 2014 [AQ: 4]). However, the findings replicate prior work in important ways, which suggests that the outcome and attribution manipulations had the intended effects (Niederdeppe et al., 2014; Niederdeppe et al., 2015).

Empathy. Participants then completed a 10-item version of the Empathy Response Scale (Campbell & Babrow, 2004; Cronbach's $\alpha = .801$), which included questions about how strongly participants *identified* with the protagonist, their *emotional arousal*, *concern*, and *understanding*, as well as how *realistic* the protagonist's situation seemed. As a result, it provides a global measure that is well suited to "test the causes and effects of the state of empathic arousal" (Campbell & Babrow, 2004, p. 167). We offer a more nuanced consideration of empathy by analyzing subcomponents of the

Table 1. Factor Loadings for Policy Support Measures, Which Together Explained 56% of the Variance in Participants' Ratings of the Policy Support Measures.

Item	Principal Component 1: Societal	Principal Component 2: Individual
Tax credits for health	.38	.26
Media literacy funding	.44	.07
Early education	.41	.24
Treatment programs	.45	-.08
Public service announcements	.37	-.07
Legal protection	.23	-.60
Increase cost of health insurance	.09	.65
Photoshop notices	.32	-.27
Eigenvalue	3.31	1.15
Variance explained, %	41	14

scale in the supplementary material (available online at heb.sagepub.com/supplemental).

Policy Support. Eight policy measures were taken from prior work on the relationship between obesity narratives and public policy support (Barry et al., 2009; Thibodeau et al., 2015). They were chosen because they have been identified by public health officials as being at least moderately feasible and highly effective (Brescoll et al., 2008).

A principal component (PC) analysis revealed the predicted two-factor structure in participants' ratings of support for the policies based on an inspection of the scree and the Kaiser criterion (two eigenvalues were greater than 1). Table 1 shows the factor loadings. All the items loaded positively on the first PC, suggesting that this factor captures a general orientation toward action in the context of obesity policy. The items that loaded most heavily on the first PC called for more protective *societal* reforms by focusing on early education, media literacy, and treatment programs. The items that loaded on the second PC targeted *individual* behavior. The policy that loaded most positively on this PC would allow health insurers to charge higher premiums to people who are overweight; the policy that loaded most negatively on the second PC would extend to obese individuals the same legal protections and benefits that are provided to people with other physical disabilities. Thus, higher scores on the second PC reflect support for *individual* incentives (e.g., additional health care fees for being overweight), whereas lower scores on this PC reflects opposition to creating such an incentive structure (by outlawing them).

Background and Demographic Questions. Finally, participants were asked a set of background questions, including whether they had ever struggled with their own weight. They were also asked to report their age, sex, height, and weight (to compute body mass index [BMI]), and political ideology.

Table 2. Summary of Hypotheses, Research Questions, and Results.

Hypothesis or research question	Result
Hypothesis 1: Personal attributions lead to more empathy	As predicted, a main effect of attribution on empathy, $F(1, 251) = 9.43^{**}$, $\eta^2 = .03$
Hypothesis 2: A successful outcome leads to more empathy	As predicted, a main effect of outcome on empathy, $F(1, 251) = 6.81^{**}$, $\eta^2 = .03$
Hypothesis 3: An unsuccessful outcome and environmental attribution leads to especially low levels of empathy	As predicted, an interaction between attribution and outcome on empathy, $F(1, 251) = 6.20^*$, $\eta = .02$
Research Question 1: Differences by protagonist's gender?	No main effect of gender, $F(1, 247) = 1.28$, interaction with outcome, $F(1, 247) = 0.39$, or attribution, $F(1, 247) = 0.56$; no three-way interaction, $F(1, 247) = 0.63$
Research Question 2: Congruence between the protagonist's and participant's gender leads to more empathy	No interaction between the gender of the protagonist and gender of the participant, $F(1, 251) = 0.64$
Hypothesis 4: Positive relationship between empathy and <i>societal</i> policies	As predicted, $r(253) = .23^{***}$ ($\beta = .24^{***}$)
Hypothesis 5: Negative relationship between empathy and <i>personal</i> policies	As predicted, $r(253) = -.25^{***}$ ($\beta = -.25^{***}$)
Research Question 3: Is empathy always associated with support for societal-level policy interventions and opposition toward interventions that would emphasize individual accountability?	Yes: a positive relationship with support for <i>societal</i> policies, $\beta = .07^{**}$ and negative association with support for policies that would emphasize individual accountability, $\beta = -.08^{**}$ (regardless of weight loss outcome or attribution)

Note. Analyses of variance (ANOVAs) are reported in the table to confirm the results of the structural equation models and provide additional information for interpretation (e.g., effect size). A two-way ANOVA with predictors for the outcome and attribution manipulations on empathy is reported for Hypotheses 1 to 3. The protagonist's gender was added to this model to address Research Question 1. A two-way ANOVA with predictors for the protagonist's gender and participant's gender is reported for Research Question 2.

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

None of the demographic characteristics of the sample differed by experimental condition.

Analysis

We analyzed the data with structural equation models (SEMs), using the *lavaan* package in *R* (Rosseel, 2012), to investigate the complex relationships between the measures and to control for response biases of individual participants (see Westfall & Yarkoni, 2016). The primary hypotheses and secondary research questions are summarized in Table 2. Three nested SEMs were compared to test these hypotheses and research questions (see Table 3), with targeted follow-up analyses (analyses of variance [ANOVAs] or *t* tests) in some cases. The first model situated the relationship between the dependent measures: quantifying the association between empathy and support for *societal* and *individual* policies. It provided a baseline model for testing the influence of the experimental manipulations. The second model was compared with the first in order to test for effects of the experimental manipulations on empathy. The third model was compared with the second to test for effects of the experimental manipulations on policy support. The difference in fit (likelihood ratios) between nested SEMs approximates a χ^2 distribution with the number of added parameters as its degrees of freedom (Kline, 1998).

Dummy-codes were created to reflect the combination of outcome and attribution conditions in the SEMs. Conditions in which (a) successful weight loss was attributed to personal factors, (b) successful weight loss was attributed to environmental factors, and (c) unsuccessful weight loss was attributed to personal factors were compared to the condition in which (d) unsuccessful weight loss was attributed to environmental factors. Note that this approach provides the same information as one that tests for (a) a main effect of the outcome manipulation, (b) a main effect of the attribution manipulation, and (c) an interaction between these factors.

Individual difference measures that have been shown to influence how people respond to obesity-related narratives and predict support for obesity-related policies (gender, age, BMI, and political ideology; Niederdeppe et al., 2014; Niederdeppe et al., 2015; Oliver & Lee, 2005; Thibodeau et al., 2015) were included in a final model to provide relevant information to practitioners and put the effects of the manipulations in a broader context.

Results

To test for effects of the experimental manipulations on the measure of empathy (Hypotheses 1-3), we compared two SEMs. The first established the relationship between the outcome measures, using empathy as a predictor of support for

Table 3. Model Fit Indices.

Model	χ^2	df	p	CFI	RMSEA [95% CI]	AIC
1. Situating outcome measures	27.02	10	.01	0.91	.08 [.05, .12]	3396.3
2. Testing for effects of outcome and attribution on empathy	5.19	7	.64	1.00	.00 [.00, .06]	3370.5
3. Testing for effects of outcome and attribution on policy support	0.98	1	.32	1.00	.00 [.00, .17]	3378.3

Note. df = degrees of freedom; CFI = comparative fit index; RMSEA = root mean square error of approximation; CI = confidence interval; AIC = Akaike information criterion. Three nested models were compared: one that situated the outcome measures, a second that tested for effects of the experimental manipulations on empathy, and a third that tested for effects of the experimental manipulations on policy support.

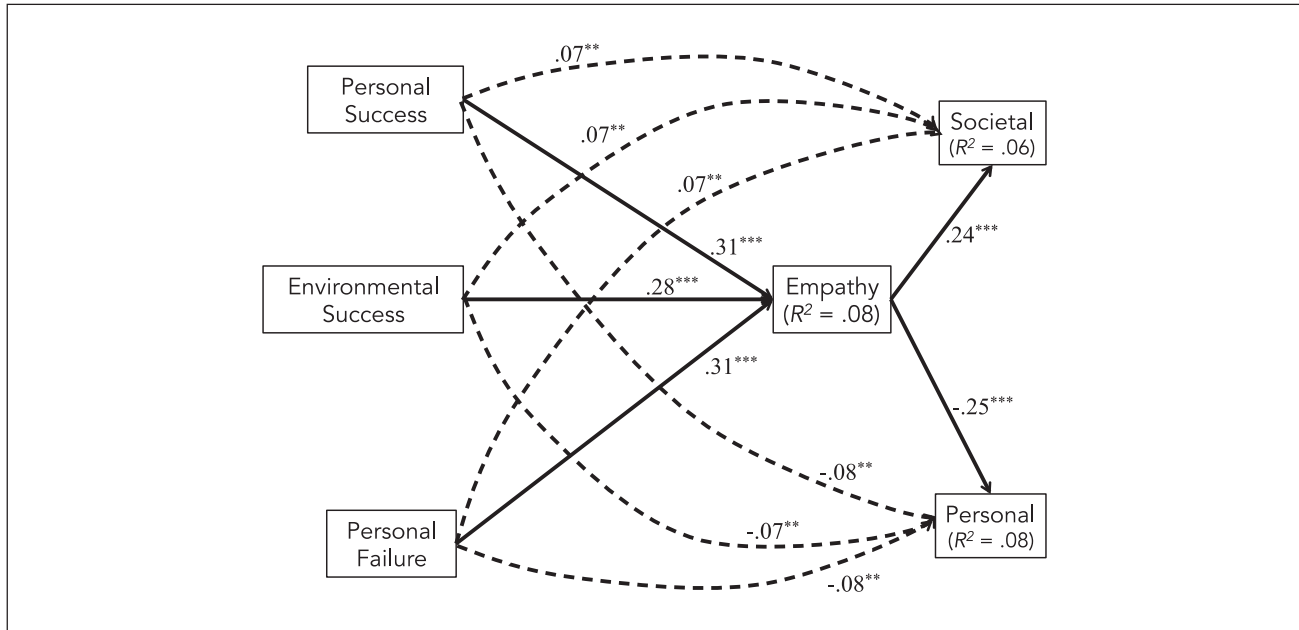


Figure 1. Path analysis illustrating the effects of the outcome (success or failure) and attribution (personal or environmental) factors on empathy and support for two types of obesity-related policies.

Note. The solid lines reflect direct effects; the dashed lines reflect indirect effects.

p < .01. *p < .001.

societal and individual policies. The second model additionally included the experimental manipulations as predictors of empathy (see Table 3) and provided a significantly better fit to the data than the first, $\chi^2(3) = 21.83, p < .001$. As shown in Figure 1, protagonists who attributed a successful weight loss outcome to personal ($\beta = .31, p < .001$) or environmental ($\beta = .28, p < .001$) factors, as well as protagonists who took personal responsibility for unsuccessful weight loss ($\beta = .31, p < .001$), elicited more empathy from participants than protagonists who attributed unsuccessful weight loss to environmental factors.

The results of a two-way ANOVA testing for main effects of and an interaction between the outcome and attribution manipulations on empathy are shown in the first three rows of Table 2 and confirm the SEM. Follow-up independent samples *t* tests (Bonferonni corrected $\alpha = .008$) showed differences between the condition that attributed unsuccessful weight loss to environmental factors and each of the others

Table 4. Mean Levels of Empathy and Support for Societal and Individual Policies by Outcome (Successful or Unsuccessful) and Attribution (Personal or Environmental) Condition, With Standard Deviations in Parentheses.

Outcome	Attribution	Empathy	Societal	Individual
Successful	Personal	3.74 (0.56)	3.17 (1.92)	2.71 (2.22)
Successful	Environmental	3.68 (0.60)	3.00 (1.51)	3.32 (2.09)
Unsuccessful	Personal	3.73 (0.69)	2.96 (2.11)	2.66 (1.83)
Unsuccessful	Environmental	3.27 (0.71)	2.86 (1.74)	3.31 (2.41)

(successful weight loss attributed to personal factors, successful weight loss attributed to environmental factors, unsuccessful weight loss attributed to personal factors; $ts > 3.5, ps < .001$; see Table 4). There were no differences between the other three conditions ($ts < .7, ps > .4$). These results provide support for Hypotheses 1 to 3.

The structural equation model also provides support for Hypotheses 4 and 5, as the relationship between empathy and *societal* policies was positive ($\beta = .23, p < .001$), whereas the relationship between empathy and *individual* incentives was negative ($\beta = -.25, p < .001$).

We then tested whether the gender of the protagonist affected empathy (Research Questions 1 and 2). Table 2 shows the results of a three-way ANOVA, in which the gender of the protagonist was included with the outcome and attribution factors to predict participants' empathic response. It revealed no main effect of the protagonist's gender on empathy or interactions. Participants responded with similar levels of empathy to male and female protagonists—both overall and as a function of the experimental manipulations (Research Question 1).

To address Research Question 2—whether there was a gender congruence effect on empathy—we fit a two-way between-subjects ANOVA with predictors for the gender of the protagonist (male or female) and gender of the participant (male or female). Although female participants reported more empathy overall ($M_{Female} = 3.76, SD = 0.63; M_{Male} = 3.52, SD = 0.67$), $F(1, 251) = 7.98, p = .005$, there was no interaction between the gender of the participant and the gender of the protagonist, $F(1, 251) = 0.64, p = .42$. Thus, in response to Research Question 2, we do not find that females are more likely to empathize with a female protagonist while males are more likely to empathize with a male protagonist.

A third structural equation model tested for effects of the experimental manipulations on policy support: both directly and indirectly (mediated by empathy). This third model did not provide a significantly better fit to the data than the second (see Table 3), $\chi^2(6) = 4.20, p = .65$, suggesting that after accounting for the relationship between empathy and policy support, the experimental manipulations did not have a direct effect on policy support. However, this third model does allow us to quantify the indirect effects of the experimental manipulations on policy support, thereby addressing Research Question 3. The dashed lines in Figure 1 illustrate the relationship between the experimental manipulations and policy support that is mediated by empathy. Protagonists who attributed successful weight loss to personal factors elicited indirect support for *societal* interventions ($\beta = .07, p = .006$) and opposition toward *individual* incentives ($\beta = -.08, p = .004$). Protagonists who attributed successful weight loss to environmental factors elicited similar levels of indirect support for *societal* interventions ($\beta = .07, p = .009$) and opposition toward *individual* incentives ($\beta = -.07, p = .008$), as did protagonists who took personal responsibility for unsuccessful weight loss (*societal*: $\beta = .07, p = .006$; *individual*: $\beta = -.08, p = .005$). In other words, reading about someone who successfully lost weight or attributed his or her weight loss outcome to personal factors elicited more empathy from protagonists. This increase in empathy was, in turn, consistently associated with support for *societal* interventions and

Table 5. Standardized Path Coefficients of Best Fitting Structural Equation Model.

Predictor	Empathy	Societal	Individual
Empathy		.23***	-.14*
Personal success	.30***	(.07**)	(-.04*)
Environmental success	.28***	(.06**)	(-.04*)
Personal failure	.29***	(.07**)	(-.04*)
Gender: Male	-.13*	-.16**	.12*
Age	.12*	-.18**	-.25***
Body mass index	.30***		-.18**
Political conservativeness		-.30***	.11*
R ²	.21	.21	.17

Note. Coefficients in parentheses reflect indirect effects. Nonsignificant predictors were pruned from the model.

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

opposition toward policies that emphasized *individual* accountability across experimental conditions.

Finally, we incorporated individual difference measures into the model by testing for effects of the participants' gender, age, BMI, and political ideology. Nonsignificant predictors were pruned from the model, resulting in a final model that provided a good fit to the data, $\chi^2(9) = 9.19, p = .42$ (RMSEA = .01, 95% confidence interval [.00, .07], goodness-of-fit index = 1.00). Standardized path coefficients are shown in Table 5. In terms of individual characteristics of the participants in the sample, the model revealed that (a) females were more likely to respond with empathy, to support the *societal* policy interventions, and to oppose the *individual* incentives than males; (b) older individuals tended to report more empathy with the protagonist but oppose both policy types; (c) people with higher BMIs empathized more strongly with the protagonist and opposed policies that would create *individual* incentives to maintain a healthy weight; and (d) conservatives opposed *societal* policy interventions but supported *individual* incentive programs.

Discussion

Health professionals and policy makers agree that there is an urgent need to address the problem of obesity in the United States (National Institutes of Health, 2012; Wang & Beydoun, 2007). In this study, we investigated how personal narratives about an individual dealing with obesity would influence peoples' affective responses toward a protagonist who was described as struggling with obesity, as well as their support for protective and punitive obesity-related policy interventions.

We found that participants empathized more strongly with protagonists—male or female—who successfully lost weight or took personal responsibility for their weight loss outcome (Hypotheses 1-3). That is, our findings suggest that there are at least two ways to elicit empathy toward people struggling with obesity through personal narratives. One way is to

describe a protagonist who successfully loses weight. Emphasizing successful weight loss encourages empathy—identification with the protagonist—because people like to think of themselves as successful (Mezulis et al., 2004). A second route to empathy is to describe a protagonist who takes personal accountability for the outcome. People are inclined to think that maintaining a healthy weight requires some level of personal responsibility (Feldman, 1988; Forde & Raine, 2008; Niederdeppe et al., 2015; Westen, 2010). When a protagonist expresses that he or she shares this belief, readers may find it easier to identify with him or her—even if the protagonist has been unsuccessful in the attempt to lose weight. On the other hand, people do not seem to readily identify with protagonists who fail to lose weight and do not express some level of personal responsibility for a negative outcome.

One of the primary contributions of the current work is the finding that empathy was consistently associated with support for protective *societal-level* interventions (Hypothesis 4) and opposition toward more punitive *individual-level* incentives (Hypothesis 5). This represents a departure from prior work that has suggested that a narrative should explicitly identify environmental contributions to obesity in order to garner support for *societal* interventions (Niederdeppe et al., 2015). For practical and applied purposes, this suggests that personal narratives seeking to increase support for protective obesity-related initiatives at a societal level should aim to maximize the empathy that people feel toward a protagonist (Batson, 2011; Eisenberg & Miller, 1987).

One limitation of the current study is that it gauged peoples' attitudes toward a small and diverse set of policies designed to mitigate the rise of obesity. This was because our goal was to test how personal narratives for obesity would affect empathy and support for obesity policies in general. As research on the feasibility and efficacy of policy interventions develops, more targeted experiments with personal narratives should be conducted to gauge their persuasive capacity for specific policy proposals (see, e.g., Lieberman & Earp, 2015).

In addition, future work is needed to test whether and how low-level linguistic features of the narratives (e.g., word length, word frequency) and the causal relationships described in the narratives affected readers. For instance, one reason that people may have responded with less empathy to protagonists who attributed a weight loss failure to environmental factors is that this narrative described a more complex chain of causality (e.g., how factors outside the protagonist's control make it difficult to stick with a diet and exercise regimen) compared to conditions in which the protagonist successfully lost weight or attributed a weight loss failure to personal factors (e.g., to the motivation). Narratives that describe complex causal relationships can be more difficult for readers to process and may elicit less empathy (Reber, Winkielman, & Schwarz, 1998).

Personal stories about people struggling with their weight are extremely common and have widespread appeal. For instance, the NBC reality television program *The Biggest Loser*, which follows obese contestants determined to shed weight, has been a hit for over a decade. The present work suggests that the content of these kinds of narratives can influence not only how people respond to the characters described but also their attitudes toward societal-level policy initiatives. Identifying empathy as a mechanism for promoting policy support may be especially valuable since prior work has found that certain educational interventions and framing manipulations can have a negative impact on attitudes toward obesity and people struggling with obesity. For instance, an alternative approach proposal for promoting support for obesity-related policy has been to emphasize the genetic component of the condition or to describe obesity as a "disease" (American Medical Association, 2013). Recent work suggests that such an effort may actually *increase* the stigma associated with the condition and lead people to hold an essentialist view of obesity (Angermeyer, Holzinger, Carta, & Schomerus, 2011; Haslam, 2011; Hoyt, Burnette, & Auster-Gussman, 2014; Lebowitz & Ahn, 2014). Although more work is needed to test for potential drawbacks to emphasizing empathy in the context of obesity, the present study suggests that it may be an effective tool for promoting support for valuable policy interventions.

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Supplemental Material

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