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Reporting risk, producing prejudice: How news reporting on obesity shapes attitudes about health risk, policy, and prejudice

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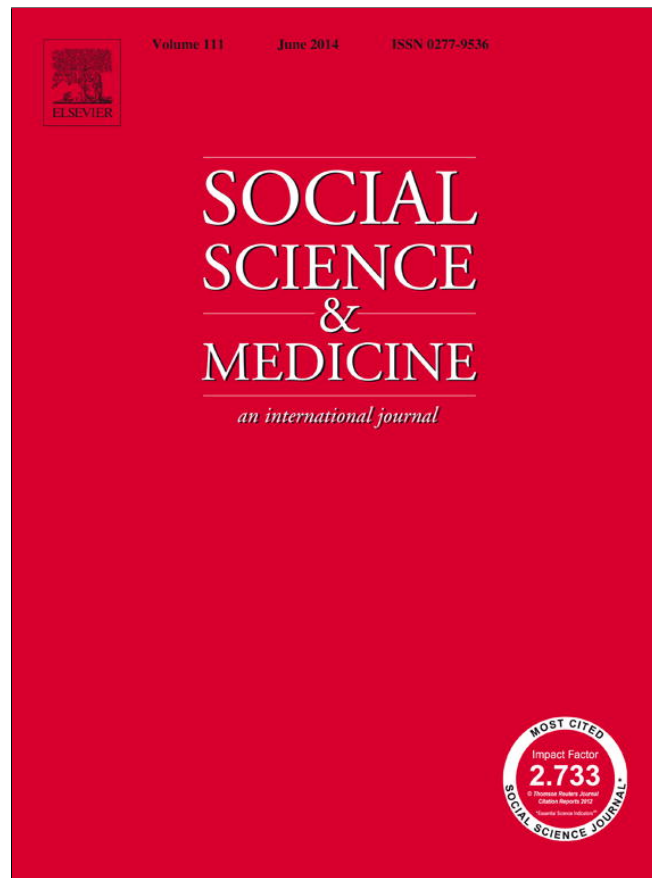
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## Reporting risk, producing prejudice: How news reporting on obesity shapes attitudes about health risk, policy, and prejudice



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### ABSTRACT

News reporting on research studies may influence attitudes about health risk, support for public health policies, or attitudes towards people labeled as unhealthy or at risk for disease. Across five experiments ( $N = 2123$ ) we examined how different news framings of obesity research influence these attitudes. We exposed participants to either a control condition, a news report on a study portraying obesity as a public health crisis, a news report on a study suggesting that obesity may not be as much of a problem as previously thought, or an article discussing weight-based discrimination. Compared to controls, exposure to the public health crisis article did not increase perception of obesity-related health risks but did significantly increase the expression of antifat prejudice in four out of seven comparisons. Across studies, compared to controls, participants who read an article about weight-based discrimination were less likely to agree that overweight constitutes a public health crisis or to support various obesity policies. Effects of exposure to an article questioning the health risks associated with overweight and obesity were mixed. These findings suggest that news reports on the “obesity epidemic” – and, by extension, on public health crises commonly blamed on personal behavior – may unintentionally activate prejudice.

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News reports on health topics reflect widely-held attitudes and also potentially shape attitudes about health risk and health policy (Gollust et al., 2012; Gollust et al., 2013; Saguy and Almeling, 2008). Exposure to some sorts of news media representations of health and illness may also have unintended consequences, such as worsening the stigma associated with certain health risks.

The news media frame high body weight in a variety of ways – including as a public health crisis brought on by bad personal choices and, alternatively, as an overhyped health concern and a basis for unfair discrimination. This makes reporting on body weight a good case for examining how exposure to contrasting news frames shapes attitudes. Specifically, this paper examines how exposure to different news frames of weight shape perception of health risk, support for anti-obesity policies, and expression of antifat prejudice. To the extent that people's understandings of health risk affect their health behaviors and that support for health policies affect the likelihood that specific policies will gain popular support, it is important to understand what factors shape these attitudes. Understanding the factors that contribute to weight-based stigma and discrimination is crucial as both a matter of

social justice and public health, in that the weight-based discrimination compromises equal access to employment, earnings, education, and medical care (Puhl and Heuer, 2009) and has been shown to contribute to morbidity and mortality (Muennig and Bench, 2008). In pursuing this research, we also respond to calls for research into the unintended effects of public health messages (Gollust et al., 2013; Hoyt et al., 2014).

### 1. Framing

Sociological research illustrates that claimsmakers with a stake in defining a given issue as an urgent problem socially construct social problems, frame them in particular ways, and identify specific solutions (Snow et al., 1986). By “framing,” we mean the selection and emphasis of “some aspects of a perceived reality ... in such a way as to promote a particular problem definition” (Entman, 1993: 52). Extant research shows that specific media frames imply not only different ways of understanding social problems but also different courses of action (Best, 2008; Gusfield, 1981; Spector and Kitsuse, 1977) and that news media promotion of specific frames informs which solutions appear feasible and legitimate (Entman, 1993). Experimental research has further shown that exposure to news accounts can shape attitudes. For example, one study found

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that people expressed different attitudes towards HPV vaccine policies depending on suggested that they read news briefs that emphasized that there was uniform support for the HPV vaccine or suggested that there was conflict between politicians and medical experts (Gollust et al., 2010). Using the case of news reporting on obesity, this paper contributes to our understanding of how exposure to specific news accounts of weight shape attitudes about health risks, policies, and prejudice.

## 2. Weight frames

There are different ways in which body weight is framed and blame and responsibility for excess weight are discussed (Barry et al., 2009; Barry et al., 2011; Lawrence, 2004; Saguy, 2013). While media accounts are typically multivocal, the contemporary U.S. media primarily portray “obesity” as a health problem caused by bad personal choices (Saguy and Gruys, 2010; Saguy et al., 2010). However, as we discuss below, there are alternative ways to understand the matter. Here we focus on three distinct “problem frames” (what kind of problem weight is) and one “blame frame” (who is blamed for the problem) that previous work suggests have disparate effects on attitudes and behavior (Saguy, 2013). The problem frames include 1) the “public health crisis frame,” 2) the “health at every size frame,” and 3) the “fat rights frame” (Saguy, 2013). We also discuss the “personal responsibility” blame frame. These particular frames are important to study because they dominate public discourse, in the case of the public health crisis and personal responsibility frames, or because they arguably represent the most radical challenges to dominant views, in the case of the fat rights and health at every size frames (Saguy, 2013).

### 2.1. Public health crisis frame

Since the late 1990s, obesity has been increasingly framed as a public health crisis warranting government intervention (Kersh, 2009). For instance, former U.S. Surgeon General Richard Carmona called obesity the “terror within,” claiming that the “magnitude of the dilemma will dwarf 9–11 or any other terrorist attempt” (Pace, 2006). To take another example, a highly-publicized 2004 study by a team of Centers for Disease Control and Prevention (CDC) scientists estimated that overweight and obesity combined caused 400,000 excess deaths in the year 2000, predicting that overweight and obesity would soon overtake tobacco as the “leading cause of preventable death” (Mokdad et al., 2004). This study used the 1998 National Institutes of Health (NIH) definitions “overweight” and “obesity” among adults, which are based on Body Mass Index (BMI), calculated by dividing a person’s weight in kilograms by their height in meters squared. Based on these definitions, the overweight category includes people with a BMI equal to or greater than 25 but less than 30, whereas the “obese” category refers to people with a BMI of 30 or greater (National Institutes of Health and National Heart (1998); Squires, 1998). Following Saguy (2013), we label this the “Eating-To-Death” study. The Eating-to-Death study was criticized for having incorrectly adjusted for age and making various mathematical errors (Flegal et al., 2004), some of which the authors acknowledged in a subsequent correction (Mokdad et al., 2005). Ultimately, as we discuss below, the CDC acknowledged a later study as providing better estimates. Still, the public health crisis frame has remained deeply entrenched (Saguy, 2013).

### 2.2. Health at every size frame

In contrast, some researchers, clinicians, and activists promote a *health at every size* (HAES (r)) frame, which asserts that people of all sizes can be healthy and that weight-loss diets typically lead to long-

term weight *gain* and worsened health (Bacon et al., 2001; Mann et al., 2007). They contend that, even at the highest levels of BMI, which are associated with higher mortality, it is not clear that high BMI, in and of itself, *causes* elevated mortality. Instead, poor nutrition, sedentary lifestyle, poverty, or weight-based stigma may cause both higher BMI and higher mortality (Campos et al., 2006).

A highly-publicized 2005 study (Flegal et al., 2005) lent support to the HAES stance. The authors – another team of CDC scientists – found that relative risks of mortality only increased significantly once BMI surpassed 35 and that those in the overweight category (also based on the 1998 NIH guidelines) were significantly *less* likely to die than those in the normal weight category. Translated into number of excess deaths, in the year 2000, there were 111,909 excess annual deaths due to obesity (BMI  $\geq$  30) but over 86,094 *fewer* deaths thanks to overweight. Combining the excess deaths due to obesity and the lives *saved* thanks to overweight produced 25,815 excess deaths associated with obesity and overweight combined (Flegal et al., 2005). The CDC ultimately recognized this study – which, following Saguy (2013), we call the Fat-OK study – as providing the best available estimate (CDC, 2005). Still, the extent to which overweight or obesity contributes to increased risk of mortality remains hotly contested among scientists, so that the question of how news reporting on such debates shape attitudes remains timely.

Some public health officials expressed concern that reporting on the Fat-OK study would provide a justification for overeating and erode support for anti-obesity policies (Dodge, 2005; Johnson, 2005; Kolata, 2005; Marchione, 2005). The extent to which exposure to news reporting on this study actually affected perception of health risks or support for health policies, however, remains unknown.

### 2.3. Fat rights frame

The *fat rights* movement offers a more radical analysis. It rejects the medical terms “overweight” and “obesity,” reclaiming “fat” and “fatness” as value neutral, as the Black Power movement reclaimed “black” and the gay rights movement reclaimed “queer” (Cooper, 1998; Harding and Kirby, 2009; Rothblum and Solovay, 2009; Wann, 1999). Building on the civil rights, feminist, and gay rights movements, fat rights activists present fatness as a desirable form of diversity and condemn weight-based discrimination as an unacceptable form of prejudice. They spread their message in books, blogs, and via organizations such as the National Association to Advance Fat Acceptance and the International Size Acceptance Association. Fat rights activists argue that epidemiological studies such as the Eating-to-Death study increase weight-based prejudice and stigma (see Saguy and Riley, 2005). The extent to which this fear is justified, however, remains unknown. Also unknown is how exposure to fat-rights arguments shape attitudes about health risk, policy and prejudice.

### 2.4. Personal responsibility frame

Related to but distinct from the kind of problem an issue constitutes is the question of who is to blame. Among what Saguy (2013) calls “blame frames,” the personal responsibility frame – in which weight is blamed on bad personal choices, rather than factors beyond individual control – dominates contemporary U.S. news reporting and is often paired with the public health crisis problem frame (Saguy, 2013).

## 3. Framing effects on attitudes about health risk, policies, and prejudice

Previous research suggests that support for various obesity policies varies based on views about whether elevated weight is

evidence of sinful behavior, a biological disability, or caused by a toxic food environment (Barry et al., 2009). Less understood is how news media exposure shapes such attitudes. While the “hypodermic” model of media effects – in which the media inject ideas into a passive public – has been largely discredited, there is evidence that the ways in which the news media frame an issue has some causal force, albeit moderated by social location (Schudson, 2003). For instance, after exposure to messages emphasizing that childhood obesity is dangerous, conservatives are more likely to believe childhood obesity is a serious problem and are more likely to support obesity policy interventions when childhood obesity is framed as a threat to military readiness (Gollust et al., 2013; Wallington et al., 2010).

Moreover, past research has demonstrated that media exposure to negative stereotypical depictions can increase expression of prejudice, while media exposure to counter-stereotypical depictions can decrease it (Ramasubramanian, 2011). Crandall and Eshleman's (2003) justification-suppression model proposes that people are more likely to voice prejudice when a trait is considered both negative and under personal control. Yet, to date, only a small handful of experimental studies have attempted to manipulate antifat attitudes, and a review of extant studies reveals mixed results (Daníelsdóttira et al., 2010). Of the 16 published papers reviewed in this article, 13 included only one experiment, raising questions regarding the replicability of effects with a given set of stimuli and outcome measures. To systematically investigate the effect of exposure to specific frames, we conducted multiple experiments that replicated or extended upon each other using different samples and dependent variables, a common approach in psychology, used to better demonstrate the reliability of an effect.

#### 4. Hypotheses

We constructed three sets of hypotheses regarding the effects of specific frames on assessment of health risks of higher body mass (Hypotheses 1a–c), support for anti-obesity policies (Hypotheses 2a–c), and antifat prejudice (Hypotheses 3a–c).

##### 4.1. Exposure to public health crisis and personal responsibility frames

Following Crandall and Eshleman (2003), we expected that, compared to controls, participants exposed to a news report framing weight as a public health crisis brought on by bad personal choices would report increased concern about the health risks of higher body mass (Hypothesis 1a), increased support for anti-obesity policies (Hypothesis 2a), and increased antifat prejudice (Hypothesis 3a).

##### 4.2. Exposure to health at every size and fat rights frames

In contrast, we expected the opposite pattern of results for participants exposed to a health at every size or fat rights frame. Specifically, compared to controls, we expected these participants to express less concern about potential weight-related health risks (Hypothesis 1b), less support for anti-obesity policies (Hypothesis 2b), and less antifat prejudice (Hypothesis 3b).

#### 5. Overview of experimental methods and data analysis strategy

In all of the experiments, participants were exposed to one of three published news articles or essays and then completed the dependent measures. In the first two experiments, we examined the effects of exposure to news reports of the Eating-To-Death and

Fat-OK studies, compared to a control condition. In the last three experiments, we examined the effects of the Eating-To-Death news report and a Fat Activist article, compared to a control condition, and also varied whether we assessed antifat prejudice towards fat people generally, fat women, or fat men.

##### 5.1. Participant recruitment

In Experiment 1, we recruited adult participants by posting an advertisement asking for volunteers willing to share their opinion on “a recent issue in the news,” in the “volunteers” section of [Craigslist.org](http://craigslist.org), an online site hosting classified ads, discussion forums, and personal ads. As of October 18th, 2013 it was the tenth most visited website in the United States (<http://www.alexa.com/siteinfo/craigslist.org>). We worded the advertisement to attract people generally interested in news articles, while not oversampling for people with specific interest in issues related to body size. In Experiments 2–5, participants were students at a U.S. west-coast public university who read an article and then completed a brief survey at the start or end of their anthropology, communication studies, psychology, or general education social science or life science classes. They were given 5–8 min to read the one-page article to which they were randomly assigned. To ensure that all participants had sufficient time to read the articles and complete the survey, the survey items were limited in number to fit on one page in Experiments 2–5. Table 1 presents key demographic information regarding each study.

##### 5.2. Stimuli

###### 5.2.1. Independent variable: article source

We used genuine articles to maximize the external validity of the study. Participants were randomly assigned to one of three conditions, including: (1) a control news article on deaths attributable to cancer that made no mention of weight (Brody, 2005), (2) a news article on the Eating-to-Death study (Fox, 2004), or (3) a news article on the Fat-OK study in Experiments 1 and 2 (The New York Times, 2005) or a Fat Rights blog article that was formatted to appear as if it were a New York Times news article in Experiments 3–5 (Harding, 2007).

The news article on the Eating-to-Death study framed obesity and overweight as a public health crisis, saying that “obesity is near to overtaking smoking as the No. 1 cause of death in the United States,” quoting a news source saying that “overweight and obesity are literally killing us,” and citing the economic cost of “obesity-related complications.” It further framed obesity in terms of personal responsibility, saying that individuals can lose weight by taking small steps, such as “taking the stairs instead of the elevator.”

**Table 1**  
Key demographics across experiments.

	Experiment number				
	1	2	3	4	5
<i>Sample size</i>					
Total	248	314	473	779	309
Women	195	239	349	580	207
Men	53	75	124	199	102
<i>Age</i>					
M (SD)	37 (14)	21 (3)	21 (2)	21 (3)	20 (1)
<i>Ethnicity (%)</i>					
White	75	35	27	30	32
Asian	4	40	37	34	42
Hispanic	8	13	20	22	11
Black	5	3	3	2	3
Other	8	9	13	12	12

The article on the Fat-OK study reported “modest amount of ‘excess’ weight may actually be good for you, while being too thin can be dangerous.” However, it also warned that “extreme obesity, can be lethal” and that “slightly pudgy individuals would be wise not to take the findings as a license to overindulge.” As such, it offered a *weak* Health at Every Size (HAES) Frame, coupled with an implicit personal responsibility frame.

In contrast, the Fat Activist article provided a stronger version of the HAES frame – arguing that “weight itself is not a health problem, except in the most extreme cases.” It also explicitly rejected the personal responsibility frame, asserting that “diets don’t work.” Finally, unlike the other articles, it argued that fat people “deserve to be treated with dignity and respect” and that shaming them is counterproductive.

### 5.2.2. Article presentation

In Experiment 1, the text of the articles was cut and pasted into an online survey program and participants were informed that the article was taken from *The New York Times*. In Experiments 2–5, the articles were all formatted to appear as if they were printed directly from *The New York Times* website. Across all of the studies, the purported title, author, and date of publication were standardized to prevent extraneous factors, such as author gender, from impacting the results. We shortened and removed a few expletive phrases from the fat rights article used in Experiments 3–5.

### 5.3. Data analysis overview

When presenting the results, we first examine whether there are differences in mean scores across conditions and focus on the main effects of article type on attitudes using one-way between-subjects ANOVAs. For interested readers, we note that two-way between subjects ANOVAs were also explored with gender (men versus women) or ethnicity (Asian versus White) as independent variables along with article type, but there were no statistically significant interactions between article type and ethnicity or gender and due to space limitations these analyses are not reported in the text (all  $ps > .05$ ). Because effect sizes are generally small in media-exposure studies, full corrections for family-wise error (e.g., Bonferroni corrections) would make it extremely difficult to identify statistically significant effects. Given that our tests were designed to investigate specific hypotheses, we used Fisher’s Least Significant Differences test to assess whether attitudes differed between the three conditions for each dependent variable. We then identified whether the effects were significant at the  $p < .05$ ,  $p < .01$ , or  $p < .001$  level.

We also report effect sizes, or Cohen’s  $d$ , a measure of the differences between means, in standard deviation units, in our tables. Following Cohen (1988), we interpret effect sizes as small (.20), medium (.50), or large (.80). Our discussion focuses on differences between the experimental conditions and control condition, but effect sizes and statistical significance for differences between the different experimental conditions are available upon request.

## 6. Overview of dependent variables across experiments

The ordering of survey items was consistent across experiments and conditions. Unless otherwise noted, all of the items below used a 9-point Likert scale (“1 = Strongly Disagree, 3 = Disagree, 5 = Neutral, 7 = Agree, 9 = Strongly Agree”).

### 6.1. Health risk

To examine framing effects on perceptions of health risk, participants indicated the extent to which they believed that: 1) The

rise in number of overweight people over the last 30 years represents a major public health crisis (Experiments 1–4); and 2) if they believed that people who are “obese,” “overweight,” “normal weight,” or “underweight,” respectively, are “usually healthy” (Experiment 1). The first item simultaneously captures the extent to which respondents see overweight as a significant problem that should be a public health priority.

### 6.2. Policies

In order to assess potential support for public efforts to reduce population-level obesity rates, we included questions about the extent to which participants believed that 1) The government should fund programs to help people lose weight (Experiments 1–4); 2) Schools should teach children in health class about the dangers of weighing more than average (Experiments 1, 3–4); 3) Overweight individuals (BMI 25–29) should be charged more for health insurance (Experiments 1–4); and 4) Obese individuals (BMI 30+) should be charged more for health insurance (Experiments 1–2). The first item was intended to capture support, broadly conceived, for providing public resources for weight loss. The second specifically focuses on childhood education, while the third and fourth items measure support for a punitive approach.

### 6.3. Prejudice

In each study, we assessed prejudice with one or two measures. We relied on three of the most widely used measures of antifat attitudes in the literature in order to have multiple assessments of the same concept. Each was chosen because they assess slightly different aspects of antifat attitudes (e.g., the first scale includes items that explicitly assess dislike while the last scale examines negative stereotypes). In Experiments 1, 2 and 5, we used the Crandall Dislike of Fat People Scale (henceforth Crandall Scale), which includes seven items such as “I really don’t like fat people much” (Crandall, 1994). We coded and averaged responses so that higher numbers indicated greater prejudice. The scale showed high internal consistency (Experiment 1 Cronbach’s  $\alpha = .83$ ; Experiment 2 Cronbach’s  $\alpha = .89$ ; Experiment 5 Cronbach’s  $\alpha = .86$ ).

In Experiments 3, 4, and 5, we used the Morrison & O’Connor Antifat Attitudes Scale (henceforth Morrison Scale), which includes five items such as “On average, fat people are lazier than slender people” (Morrison and O’Connor, 1999). Experiment 3 used the measure in its original form. Given work suggesting that women experience more weight bias than men (Puhl et al., 2008), Experiment 4 specifically examined antifat prejudice against women, using altered Morrison Scale measures (e.g., “It is disgusting when a fat woman wears a bathing suit at the beach”). Given evidence that, in the contemporary U.S. context, fat men are generally considered less attractive than more slender or muscular men (Frederick and Haselton, 2007), Experiment 5 focused on antifat prejudice against men, using modified measures from the Morrison Scale (e.g., “Fat men have only themselves to blame for their weight”). In these last two experiments, we dropped the last item on the scale because it could not be altered to be gender-specific (e.g., “I would never date a fat woman” would not be a sensible question to women in the primarily heterosexual college population). We coded and averaged responses so that higher numbers indicated greater prejudice (Experiment 3 Cronbach’s  $\alpha = .79$ ; Experiment 4 Cronbach’s  $\alpha = .78$ ; Experiment 5 Cronbach’s  $\alpha = .74$ ).

In Experiment 3, we also used the short form of the Bacon et al. Fat Phobia Scale (henceforth Bacon Scale), which includes 14 items (Bacon et al., 2001). We gave participants a series of 14 word pairs,

**Table 2**  
Framing effects on perceived health risks, Experiment 1.

	Main effect	Mean scores			Effect size comparisons	
	Article type	Eating-to-Death	Fat-Ok	Cancer control	Eating-to-Death vs. Control	Fat-OK vs. Control
	<i>F</i> ( <i>p</i> )	<i>M</i> ( <i>SD</i> )	<i>M</i> ( <i>SD</i> )	<i>M</i> ( <i>SD</i> )	<i>d</i>	<i>d</i>
<i>H1: Rise in overweight people is a major public health crisis</i>						
	4.70* (.01)	7.9 (1.5)	7.3 (1.5)	7.9 (1.5)	.00	-.40**
<i>H1: Beliefs that __ people are usually healthy</i>						
Underweight	2.26 (.11)	3.8 (1.7)	3.3 (1.3)	3.6 (1.7)	.12	-.20
Normal weight	.81 (.45)	5.9 (1.5)	5.7 (1.4)	5.6 (1.7)	.19	.06
Overweight	3.24* (.04)	3.6 (1.8)	4.4 (1.7)	3.9 (1.8)	-.17	.29 ( <i>p</i> = .09)
Obese	.21 (.81)	2.5 (1.3)	2.7 (1.5)	2.6 (1.8)	-.06	.06

Note. First column lists measures. Positive effect sizes (e.g., *d* = .40) indicate that the first group scored higher than the second, whereas negative effect sizes (e.g., *d* = -.40) indicate that the first group scored lower than the second.

\*\*\**p* < .001, \*\**p* < .01, \**p* < .05.

asking them to indicate which word best reflected their feelings and beliefs about “obese or fat people” (e.g., “active” versus “inactive”). For example, for the pair industrious vs. lazy, 1 = Industrious, 5 = midpoint, 9 = Lazy. We coded and averaged responses so that higher numbers indicated greater prejudice (Experiment 3 Cronbach's alpha = .81).

**7. Results**

*7.1. Experiment 1: framing effects on perceived health risks, policy attitudes, and prejudice*

*7.1.1. Health risk*

As shown in Table 2, contrary to Hypothesis 1a, participants reading the Eating-To-Death news article did not differ from controls in beliefs that overweight represented a public health crisis or health risk. This may reflect preexisting beliefs, as indicated by the fact that 92% of participants agreed that rise in overweight represents a crisis, whereas only 3% agreed that obese people could be healthy (“agreed” defined as scoring >5.0 on the Likert scale). Consistent with Hypothesis 1b, participants reading the Fat-OK news article were less likely than controls to agree that overweight represented a public health crisis.

*7.1.2. Policies*

We found no support for Hypothesis 2a in Experiment 1. As shown in Table 3, there were no significant differences in support for any obesity-related policies between participants reading the Eating-to-Death news article and controls. We did, however, find some support for Hypothesis 2b. Participants reading the Fat-OK

news article reported less support than the control group for government funding of weight-loss programs and for schools teaching the dangers of overweight. There were no significant group differences in support of punitive policies charging overweight and obese people more for insurance.

*7.1.3. Prejudice*

Experiment 1 provided some limited support for Hypothesis 3a. As shown in Table 4, participants who read the Eating-to-Death news article reported more antifat prejudice than the control group, although this effect was only marginally significant, as was the overall omnibus ANOVA. Contrary to Hypothesis 3b, participants who read the Fat-OK news report did not differ from the control group in reported antifat prejudice.

In the next four experiments, we attempted to replicate and extend Experiment 1 in a classroom setting that would provide greater control over testing conditions, focusing on policy attitudes and weight-based prejudice.

*7.2. Experiment 2: framing effects on policy attitudes and prejudice*

*7.2.1. Policies*

Contrary to the hypotheses 2a-b, there were no significant differences across conditions in support of any of the policies.

*7.2.2. Prejudice*

Contrary to the hypotheses 3a-b, there were no significant differences across conditions in expression of prejudice.

One possible reason that we were unable to replicate the results of Experiment 1 in Experiment 2 is that the small effect sizes typical

**Table 3**  
Framing effects on policy attitudes, Experiments 1–2.

	Main effect	Mean scores			Effect size comparisons	
	Article type	Eating-to-Death	Fat-OK	Control	Eating-to-Death vs. Control	Fat-OK vs. Control
	<i>F</i> ( <i>p</i> )	<i>M</i> ( <i>SD</i> )	<i>M</i> ( <i>SD</i> )	<i>M</i> ( <i>SD</i> )	<i>d</i>	<i>d</i>
<i>H2: Government should fund weight-loss programs</i>						
Experiment 1	6.16** (.002)	6.0 (2.3)	5.1 (2.3)	6.4 (2.6)	-.16	-.53***
Experiment 2	.35 (.70)	5.3 (2.4)	5.5 (2.4)	5.2 (2.4)	.04	.12
<i>H2: Schools should teach kids about dangers of weighing more than average</i>						
Experiment 1	10.23*** (.001)	7.6 (1.6)	6.4 (2.0)	7.4 (1.7)	.12	-.54***
<i>H2: Overweight people should be charged more for insurance</i>						
Experiment 1	.57 (.57)	4.2 (2.3)	3.8 (2.3)	4.1 (2.4)	.04	-.13
Experiment 2	.80 (.45)	3.8 (2.1)	4.2 (2.3)	3.9 (1.9)	.05	.14
<i>H2: Obese people should be charged more for insurance</i>						
Experiment 1	1.08 (.34)	5.1 (2.6)	4.5 (2.6)	4.8 (2.7)	.11	-.11
Experiment 2	.88 (.42)	4.4 (2.4)	4.8 (2.5)	4.5 (2.2)	-.04	.13

Note. \*\*\**p* < .001, \*\**p* < .01, \**p* < .05.

**Table 4**  
Framing effects on prejudice, Experiments 1–2.

	Main effect	Mean scores			Effect size comparisons	
	Article type	Eating-to-Death	Fat-OK	Control	Eating-to-Death vs. Control	Fat-OK vs. Control
	<i>F</i> ( <i>p</i> )	<i>M</i> ( <i>SD</i> )	<i>M</i> ( <i>SD</i> )	<i>M</i> ( <i>SD</i> )	<i>d</i>	<i>d</i>
<i>H3: Crandall Scale</i>						
Experiment 1	2.84 (.06)	3.4 (1.6)	2.8 (1.5)	3.0 (1.5)	.26 ( <i>p</i> = .08)	-.13
Experiment 2	.12 (.89)	2.8 (1.3)	2.9 (1.5)	2.8 (1.2)	.00	.07

Note. \*\*\**p* < .001, \*\**p* < .01, \**p* < .05.

of studies of media exposure (Grabe et al., 2008) are less reliably detected across studies. Further, the confidence interval for *p*-values in replications is typically fairly wide. For example, the 80% confidence interval for a *p* = .05 is *p* = .0012 to *p* = .48, meaning that a full 10% of replications would be expected to have *p* values even higher than .48 (Fai et al., 2012).

To determine whether the results of Experiment 1 were replicable, we conducted several additional experiments with some modifications. We included the same control condition and the Eating-to-Death experimental condition but replaced the news report on the Fat-OK study with a more forceful article by fat-rights activist Kate Harding. We also used a wider variety of validated prejudice measures to test framing effects on antifat prejudice.

7.3. Experiment 3: framing effects on perceived health risks, policy attitudes, and prejudice

7.3.1. Health risk

As shown in Table 5, contrary to Hypothesis 1a, participants who read the Eating-To-Death news article did not differ from the control group in agreement that the rise in overweight represents a public health crisis. Consistent with Hypothesis 1b, readers of the Fat-Rights article were less likely than the control group to say that the rise in overweight represented a public health crisis.

7.3.2. Policies

Experiment 3 provided no support for Hypothesis 2a. Readers of the Eating-to-Death article did not differ from the control group in support for any of the obesity-related public policies. Experiment 3 fully supported Hypothesis 2b, however. Readers of the Fat-Rights article reported less support than the control group for all three policy initiatives.

7.3.3. Prejudice

As shown in Table 6, Experiment 3 provided some support for Hypothesis 3a. Participants reading the Eating-to-Death news article expressed slightly greater prejudice on the Morrison Scale. There were no mean differences between the groups in agreement with stereotypes on the Bacon Scale. Experiment 3 provided mixed results for Hypothesis 3b. Contrary to Hypothesis 3b, readers of the Fat Rights article did not report less prejudice on the Morrison Scale, but were significantly less likely to endorse negative stereotypes on the Bacon Scale, lending the first support in Experiments 1–3 for Hypothesis 3b.

7.4. Experiment 4: framing effects on perceived health risks, policy attitudes, and prejudice

7.4.1. Health risk

As shown in Table 5, contrary to Hypothesis 1a, participants reading the Eating-To-Death news article did not differ from the control group in beliefs that the rise in overweight represents a public health crisis. Consistent with Hypothesis 1b, compared to the control group, readers of the Fat-Rights article were significantly less likely to agree that the increase in overweight represented a public health crisis.

7.4.2. Policies

As shown in Table 5, we found weak support for Hypothesis 2a. Readers of the Eating-To-Death news report were more likely than controls to support government funding of weight-loss programs but did not significantly differ from controls in support for the other two policy measures. However, Hypothesis 2b was fully supported. Compared to controls, participants reading the Fat Rights article reported significantly less support for all three policy questions.

**Table 5**  
Framing effects on policy attitudes, Experiments 3–4.

	Main effect	Mean scores			Effect size comparisons	
	Article type	Eating-to-Death	Fat-rights	Control	Eating-to-Death vs. Control	Fat rights vs. Control
	<i>F</i> ( <i>p</i> )	<i>M</i> ( <i>SD</i> )	<i>M</i> ( <i>SD</i> )	<i>M</i> ( <i>SD</i> )	<i>d</i>	<i>d</i>
<i>H1: Rise in overweight people is a major public health crisis</i>						
Experiment 3	17.32*** (.001)	7.4 (1.9)	6.2 (2.0)	7.2 (1.8)	.11	-.53***
Experiment 4	28.30*** (.001)	7.2 (1.8)	6.0 (2.0)	7.0 (1.8)	.11	-.53***
<i>H2: Government should fund weight-loss programs</i>						
Experiment 3	10.08*** (.001)	5.6 (2.5)	4.4 (2.3)	5.4 (2.4)	.08	-.43***
Experiment 4	20.63*** (.001)	5.7 (2.3)	4.4 (2.3)	5.2 (2.4)	.21*	-.34***
<i>H2: Schools should teach kids about dangers of weighing more than average</i>						
Experiment 3	23.22*** (.001)	7.0 (2.3)	5.4 (2.5)	6.9 (1.9)	.05	-.68***
Experiment 4	30.65*** (.001)	6.8 (2.3)	5.4 (2.5)	6.7 (1.9)	.05	-.59***
<i>H2: Overweight people should be charged more for insurance</i>						
Experiment 3	5.27*** (.005)	3.6 (2.6)	2.7 (2.0)	3.2 (2.3)	.16	-.23*
Experiment 4	6.88*** (.001)	3.6 (2.5)	2.8 (2.1)	3.3 (2.3)	.12	-.23*

Note. \*\*\**p* < .001, \*\**p* < .01, \**p* < .05.



**Table 6**  
Framing effects on prejudice, Experiments 3–5.

	Main effect	Mean scores			Effect size comparisons	
	Article type	Eating-to-Death	Fat-rights	Control	Eating-to-Death vs. Control	Fat-rights vs. Control
	<i>F</i> ( <i>p</i> )	<i>M</i> ( <i>SD</i> )	<i>M</i> ( <i>SD</i> )	<i>M</i> ( <i>SD</i> )	<i>d</i>	<i>d</i>
<i>H3 Prejudice: Morrison scale</i>						
Experiment 3 (against fat people)	3.46 (.06)	4.6 (1.7)	4.2 (1.6)	4.2 (1.6)	.24*	0
Experiment 4 (against fat women)	8.88*** (.001)	4.7 (1.7)	4.1 (1.6)	4.3 (1.6)	.24**	-.13
Experiment 5 (against fat men)	9.00*** (.001)	5.5 (1.4)	4.8 (1.5)	4.9 (1.4)	.43***	-.07
<i>H3 Prejudice: Bacon et al. scale</i>						
Experiment 3	8.31*** (.001)	4.9 (.8)	4.6 (.7)	4.8 (.6)	.14	-.31**
<i>H3 prejudice: Crandall scale</i>						
Experiment 5	4.20* (.019)	2.5 (1.0)	2.1 (1.1)	2.2 (.9)	.32*	-.10

Note. \*\*\**p* < .001, \*\**p* < .01, \**p* < .05.

7.4.3. Prejudice

Experiment 4 also provided some support for Hypothesis 3a. As shown in Table 6, participants reading the Eating-to-Death news article reported significantly higher levels of antifat prejudice towards women on the Morrison Scale than controls, although the difference was small. Contrary to Hypothesis 3b, readers of the Fat Rights article did not differ from controls in expression of antifat prejudice towards women.

7.5. Experiment 5: framing effects on prejudice

Experiment 5 provided support for Hypothesis 3a. As shown in Table 6, compared to controls, participants reading the Eating-to-Death news article reported significantly more prejudice on both the Morrison (Against Men) and Crandall scales. Contrary to Hypothesis 3b, readers of the Fat Rights article did not differ from controls in prejudice on the Morrison (Against Men) or Crandall scales.

8. Discussion

8.1. Key findings

This is the first set of experimental studies to systematically examine the relative effects of exposure to news framing of body weight on assessment of health risk, support for obesity policies, and expression of antifat prejudice. Summarizing across the five experiments, we found little evidence that reading a news report on the “Eating-To-Death study,” estimating 400,000 annual excess

deaths associated with overweight and obesity, affected perception of weight-related health risk or support for obesity policies. However, we found some evidence that reading such an article increased the expression of antifat prejudice. We also found – in all but one of the experiments that tested for this – that participants who read a news report questioning the health risks overweight and obesity were less likely to agree that the rise in overweight represented a “major public health crisis” and were less likely to express support for obesity policies. Table 7 summarizes our findings across experiments.

Across the five experiments and across the experimental conditions, people tended to fall on the agree side of the scale when asked if schools should teach kids about the dangers of weighing more than average and that the rise in overweight people is a major public health crisis. People tended to disagree that people can be “overweight” and healthy, and even less likely to agree that they could be “obese” and healthy. People tended to average towards the disagree end of the scale when asked if overweight people should be charged more for insurance but around neutral when asked about charging “obese” people more. Attitudes were mixed regarding government funding of weight-loss programs with the average hovering around neutral (5.0). Expression of antifat prejudice varied based on the measure used. Consistent with Crandall's (1994) findings, people tended to disagree with the antifat attitudes assessed on the Crandall antifat attitudes scale. In contrast, responses on the other scales tended to average just at or below neutral. This may be due to the fact that the Crandall measure differs from the other measures by also including items related to discrimination (e.g., that

**Table 7**  
Summary of results, Experiment 1–5.

	Eating to Death					Fat-OK		Fat activist		
	Exp 1	Exp 2	Exp 3	Exp 4	Exp 5	Exp 1	Exp 2	Exp 3	Exp 4	Exp 5
<i>Health risk</i>										
Rise in overweight people is a major public health crisis	=		=	=		-		-	-	
Overweight people are usually healthy	=					=				
Obese people are usually healthy	=									
<i>Policies</i>										
Government should fund weight-loss programs	=	=	=	+		-	=	-	-	
Schools should teach kids about the dangers of weighing more than average	=		=	=		-		-	-	
Overweight people should be charged more for insurance	=	=	=	=		=	=	-	-	
Obese people should be charged more for insurance	=	=				=	=			
<i>Prejudice</i>										
Crandall		=			+	=	=		=	
Morrison & O'Connor			+	+	+			=	=	=
Bacon et al.			=					-		

Note: = indicates no significant difference; + indicates significant increase; - indicates significant decrease; Empty cell indicates that the hypothesis was not tested. All test conditions are compared to the control condition.

the participant would hire a slender person over a fat person) and includes some items assessing attitudes that might not be as widely held (e.g., that fat people are untrustworthy). Below we discuss how exposure to different frames impacted these attitudes.

### 8.1.1. Eating-to-death article (experiments 1–5)

Our null findings regarding the impact of exposure news reporting on the Eating-To-Death study on beliefs about the health risks of overweight may suggest that, in a context in which these risks are taken for granted, additional reinforcement has little effect. That it was difficult to shift attitudes towards greater support for policy interventions is consistent with earlier work (Gollust et al., 2013).

All three experiments using the Morrison & O'Connor Scale produced significant group differences in the predicted direction. Among the three studies using the Crandall Scale, one was significant and one was marginally significant in the predicted direction, and one was non-significant. The experiment using the Bacon Scale produced non-significant group differences. The differences observed across the scales may reflect the slightly different aspects of prejudice measured by each scale. It would be valuable for future research to better isolate the different types of antifat attitudes and examine the effects of primes on these attitudes.

### 8.1.2. Fat-OK article (experiments 1–2)

Compared to controls, participants who read a news report on the Fat-OK study were less likely to agree that the rise in overweight represents a public health crisis or to support government funded weight-loss programs or teaching children about the dangers of weighing more than average, in Experiment 1 (but not in Experiment 2). This was precisely what some commentators feared would be the effect of media reporting on this study. Readers of the Fat-OK article did not differ from controls, however, in their expression of antifat prejudice.

### 8.1.3. Fat rights (experiments 3–5)

Readers of the Fat-Rights article were similarly less likely than controls to say that overweight represented a major public health crisis and to express support for policy intervention, based on our three questions. However, they generally did not differ from controls in expression of antifat attitudes. Only one of five comparisons, across three studies and three different measures of antifat prejudice, was statistically significant.

Our finding that it was difficult to shift attitudes towards less antifat prejudice dovetails with work showing that it is difficult to shift attitudes away from the assignment of personal responsibility for weight (Gollust et al., 2013). Since the mere mention of high weight, regardless of the specific terms used to discuss it, evokes stigma and blaming (Puhl et al., 2013), efforts to counter stigma and blame are working against the current of public opinion.

An additional reason for the lack of effects on the Crandall antifat attitudes scale may be that there may have been “floor effects.” Scores tended to clustered tightly around the bottom few points on the Likert scale (averages between 2.0 and 3.0 out of 9.0), so there might not have been as much room for attitudes to shift downwards after exposure to the Fat Rights (and Fat-OK) articles, suggesting that alternative Likert scale points or alternatives measures might be ideal for testing experimental effects in the future.

## 8.2. Limitations and strengths

With the exception of Experiment 1, our samples consisted of college students, limiting the findings' generalizability. Yet, the generally consistent results of Experiment 1 with the other experiments suggest that our findings may hold for a broader sample. That respondents were generally well educated and primarily of White or Asian background further limits generalizability. Future work should investigate whether our findings extend to people from other socio-economic-status and ethnic backgrounds.

While we attempted to select articles that were representative of the frames, we cannot say if different or longer news articles representing the same frames would have produced the same findings. The artificial nature of the experiments represents an additional limitation. In the real world, people typically encounter contrasting frames of the same topic via routine media exposure and are rarely asked to sit down, read one or two articles, and then respond to them. Further, there are limitations inherent to this type of experimental approach, namely that it assesses short-term effects of limited exposure to a stimulus and not the extent to which these produce lasting changes. Longitudinal and correlational studies could help identify factors that lead to longer lasting effects of exposure to specific frames.

The use of actual news articles, rather than constructed vignettes, is both a limitation and strength. Using real articles maximizes external validity, or the ability to generalize beyond the experiment but has less internal validity, or control of the experimental stimuli. Our real-world articles are messier than constructed vignettes, sometimes containing a multiplicity of frames, making it impossible to fully unpack the influence of each. In contrast, using constructed articles would have provided higher internal but lower external validity. It would nonetheless be valuable to use constructed vignettes to precisely test the impact of subtly shifting frames – or combinations of frames – while holding constant the rest of the text. Other fruitful avenues for future research include examining the effect of potential moderators of the effects of exposure to different frames on attitudes. For instance, previous work suggests that political ideology may moderate the impact of frames on support for specific obesity policies (Gollust et al., 2013). One could also test similar hypotheses via within-subject experiments.

This set of experiments had several notable strengths, including the relatively large number of experiments and large sample sizes, providing the power to detect small, medium, and large effects. While other studies use a single assessment of antifat prejudice, our use of multiple measures of antifat prejudice allows for greater confidence in the results. Further, we provide the first experimental examination of exposure to the Fat Rights frame, as well as a test of how exposure to news articles on a specific scientific controversy may have impacted beliefs about health risk, support for health policy, and expression of prejudice.

## 9. Conclusion

Together, our five experiments suggest that news reporting on the “obesity epidemic” may, in fact, be worsening antifat prejudice. Given evidence that weight-based stigma can itself worsen health (Muennig and Bench, 2008; Puhl and Latner, 2007), these findings should give us pause. Our findings suggest that researchers, journalists, activists, and politicians would benefit from understanding the potential negative consequences of messages representing these frames.

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## References

- Bacon, J.G., Scheltema, K.E., Robinson, B.E., 2001. Fat phobia scale revisited: the short form. *International Journal of Obesity* 25 (2), 252–257.
- Barry, C.L., Brescoll, V.L., Brownell, K.D., Schlesinger, M., 2009. Obesity metaphors: how beliefs about the causes of obesity affect support for public policy. *Milbank Quarterly* 87 (1), 7–47.
- Barry, C.L., Jarlenski, M., Grob, R., Schlesinger, M., Gollust, S., 2011. News media framing of childhood obesity in the United States from 2000 to 2009. *Pediatrics* 128 (1), 132–145. <http://dx.doi.org/10.1542/peds.2010-3924>.
- Best, J., 2008. *Social Problems*. Norton, New York.
- Brody, J., 2005, October 13. How cancer rose to the top of the charts. *The New York Times*.
- Campos, P., Saguy, A.C., Ernsberger, P., Oliver, E., Gaesser, G., 2006. The epidemiology of overweight and obesity: public health crisis or moral panic? *International Journal of Epidemiology* 35 (1), 55–60. <http://dx.doi.org/10.1093/ije/dyi254>.
- CDC, 2005. Frequently Asked Questions About Calculating Obesity-related Risk. Retrieved January 19, 2011, from. [http://www.cdc.gov/PDF/Frequently\\_Asked\\_Questions\\_About\\_Calculating\\_Obesity-Related\\_Risk.pdf](http://www.cdc.gov/PDF/Frequently_Asked_Questions_About_Calculating_Obesity-Related_Risk.pdf).
- Cohen, J., 1988. *Statistical Power Analysis for the Behavioral Sciences*, second ed. Erlbaum, Hillsdale, NJ.
- Cooper, C., 1998. *Fat and Proud: the Politics of Size*. Women's Press, London.
- Crandall, C.S., 1994. Prejudice against fat people: ideology and self-interest. *Journal of Personality and Social Psychology* 66, 882–894.
- Crandall, C.S., Eshleman, A., 2003. A justification-suppression model of the expression and experience of prejudice. *Psychological Bulletin* 129 (3), 414–446.
- Danielsdóttira, S., O'Brien, K.S., Gao, A., 2010. Anti-fat prejudice reduction: a review of published studies. *Obesity Facts* 3, 47–58.
- Dodge, R., 2005, May 19. Experts seek to sort out confusion over obesity reports. *Knight Ridder/Tribune News Service*.
- Entman, R.M., 1993. Framing: toward clarification of a fractured paradigm. *Journal of Communication* 43 (4), 51–58.
- Fai, J., Fidler, F., Cumming, G., 2012. Subjective p intervals: researchers underestimate the variability of p values over replication. *Methodology* 8 (2), 51–62.
- Flegal, K.M., Graubard, B.I., Williamson, D.F., 2004. Methods of calculating deaths attributable to obesity. *American Journal of Epidemiology* 160 (4), 331–338.
- Flegal, K.M., Graubard, B.I., Williamson, D.F., Gail, M.H., 2005. Excess deaths associated with underweight, overweight, and obesity. *Journal of the American Medical Association* 293 (15), 1861–1867.
- Fox, M., 2004, March 10. Death rate from obesity gains fast on smoking. *The New York Times*. Retrieved from. <http://www.nytimes.com/2004/03/10/us/death-rate-from-obesity-gains-fast-on-smoking.html>.
- Frederick, D.A., Haselton, M.G., 2007. Why is muscularity sexy? Tests of the fitness indicator hypothesis. *Personality & Social Psychology Bulletin* 33 (8), 1167–1183.
- Gollust, S.E., Dempsey, A.F., Lantz, P.M., Ubel, P.A., Fowler, E.F., 2010. Controversy undermines support for state mandates on the human papillomavirus vaccine. *Health Affairs* 29 (11), 2041–2066.
- Gollust, S.E., Eboh, I., Barry, C.L., 2012. Picturing obesity: analyzing the social epidemiology of obesity conveyed through US news media images. *Social Science & Medicine* 74 (10), 1544–1551.
- Gollust, S.E., Niederdeppe, J., Barry, C.L., 2013. Framing the consequences of childhood obesity to increase public support for obesity prevention policy. *American Journal of Public Health* 0, e1–e7.
- Grabe, S., Ward, L.M., Hyde, J., 2008. The role of media in body image concerns among women: a meta-analysis or experimental and correlational studies. *Psychological Bulletin* 134, 460–476.
- Gusfield, J.R., 1981. *The Culture of Public Problems: Drinking-driving and the Symbolic Order*. University of Chicago Press, Chicago.
- Harding, K., 2007. Don't You Realize Fat is Unhealthy?. Retrieved from. <http://kateharding.net/faq/but-dont-you-realize-fat-is-unhealthy/>.
- Harding, K., Kirby, M., 2009. *Lessons From the Fat-o-sphere: Quit Dieting and Declare a Truce With Your Body*. Penguin Group, New York, NY.
- Hoyt, C.L., Burnette, J.L., Auster-Gussman, L., 2014. 'Obesity is a disease': examining the self-regulatory impact of this public-health message. *Psychological Science*. <http://dx.doi.org/10.1177/0956797613516981>.
- Johnson, C.K., 2005, April 20. Study Shows Government Overstated Risk of Death From Obesity. *The Associated Press*.
- Kersh, R., 2009. The politics of obesity: a current assessment and look ahead. *Milbank Quarterly* 87 (1), 295–316.
- Kolata, G., 2005, April 29. Study aside, fat-fighting industry vows to stick to its mission. *The New York Times*.
- Lawrence, R.G., 2004. Framing obesity: the evolution of news discourse on a public health issue. *Press/Politics* 9 (3), 56–75.
- Mann, T., Tomiyama, A.J., Westling, E., Lew, A.-M., Samuels, B., Chatman, J., 2007. Medicare's search for effective obesity treatments: diets are not the answer. *American Psychologist* 62, 220–233. <http://dx.doi.org/10.1037/0003-066X.62.3.220>.
- Marchione, M., 2005, June 3. Diet: CDC Chief Stresses That Extra Pounds are Harmful. *The Associated Press*.
- Mokdad, A.H., Marks, J.S., Stroup, D.F., Gerberding, J.L., 2004. Actual causes of death in the United States, 2000. *Journal of the American Medical Association* 291 (10), 1238–1245.
- Mokdad, A.H., Marks, J.S., Stroup, D.F., Gerberding, J.L., 2005. Correction: actual causes of death in the United States, 2000. *JAMA: the Journal of the American Medical Association* 293, 293–294.
- Morrison, T.G., O'Connor, W.E., 1999. Psychometric properties of a scale measuring negative attitudes toward overweight individuals. *Journal of Social Psychology* 139 (4), 436–445.
- Muennig, P., Bench, K.K., 2008. Obesity-associated stigma and physiological markers of stress: evidence from the Dominican Republic. *Stress and Health: Journal of the International Society for the Investigation of Stress* 25, 241–246.
- National Institutes of Health, National Heart, L., Blood Institute, 1998. *Clinical Guidelines on the Identification, Evaluation, and Treatment of Overweight and Obesity in Adults*, vols. 98-4083.
- Pace, G., 2006, March 1. Obesity bigger threat than terrorism? *CBSNews*. Retrieved from. <http://www.cbsnews.com/stories/2006/03/01/health/main1361849.shtml>.
- Puhl, R.M., Andreyeva, T., Brownell, K.D., 2008. Perceptions of weight discrimination: prevalence and comparison to race and gender discrimination in America. *International Journal of Obesity* 32, 992–1000.
- Puhl, R.M., Heuer, C.A., 2009. The stigma of obesity: a review and update. *Obesity* 17, 941–964.
- Puhl, R.M., Latner, J.D., 2007. Stigma, obesity, and the health of the nation's children. *Psychological Bulletin* 133 (4), 557–580. <http://dx.doi.org/10.1037/0033-2909.133.4.557>.
- Puhl, R.M., Peterson, J.L., Luedicke, J., 2013. Motivating or stigmatizing? Public perceptions of weight-related language used by health providers. *International Journal of Obesity* 37, 612–619.
- Ramasubramanian, S., 2011. The impact of stereotypical versus counter-stereotypical media exemplars on racial attitudes, causal attributions, and support for affirmative action. *Communication Research* 38, 497–516.
- Rothblum, E.D., Solovay, S. (Eds.), 2009. *The Fat Studies Reader*. New York University Press, New York, NY.
- Saguy, A.C., 2013. *What's Wrong with Fat?* Oxford University Press, New York.
- Saguy, A.C., Almeling, R., 2008. Fat in the fire? Science, the news media, and the 'obesity epidemic'. *Sociological Forum* 23 (1), 53–83.
- Saguy, A.C., Gruys, K., 2010. Morality and health: news media constructions of overweight and eating disorders. *Social Problems* 57 (2), 231–250. <http://dx.doi.org/10.1525/sp.2010.57.2.231>.
- Saguy, A.C., Gruys, K., Gong, S., 2010. Social problem construction and national context: news reporting on 'overweight' and 'obesity' in the U.S. and France. *Social Problems* 57 (4), 586–610.
- Saguy, A.C., Riley, K.W., 2005. Weighing both sides: morality, mortality and framing contests over obesity. *Journal of Health Politics Policy and Law* 30 (5), 869–921. <http://dx.doi.org/10.1215/03616878-30-5-869>.
- Schudson, M., 2003. *The Sociology of the News*. W. W. Norton & Company, New York.
- Snow, D.A., Rochford Jr., E.B., Worden, S.K., Benford, R.D., 1986. Frame alignment processes, microbilateralization, and movement participation. *American Sociological Review* 51 (4), 464–481.
- Spector, M., Kitsuse, J.L., 1977. *Constructing Social Problems*. Cummings Publishing Company, Inc, Menlo Park, CA.
- Squires, S., 1998, June 4. Optimal weight threshold lowered: millions more to be termed overweight. *Washington Post*, A01. Retrieved from. <http://www.washingtonpost.com/wp-srv/style/guideposts/fitness/optimal.htm>.
- The New York Times, 2005, April 22. You can be too thin, after all. *The New York Times*. Retrieved from. [http://www.nytimes.com/2005/04/22/opinion/22fri3.html?\\_r=0](http://www.nytimes.com/2005/04/22/opinion/22fri3.html?_r=0).
- Wallington, S.F., Blake, K., Taylor-Clark, K., Viswanath, K., 2010. Antecedents to agenda setting and framing in health news: an examination of priority, angle, source, and resource usage from a national survey of U.S. health reporters and editors. *Journal of Health Communication* 15 (1), 76–94.
- Wann, M., 1999. *FATISO?: Because You don't Have to Apologize for Your Size*. Ten Speed Press, Berkeley, CA.