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**Fat in the Fire?
Science, the News Media, and
the “Obesity Epidemic”**

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Fat in the Fire?

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DRAFT: DO NOT QUOTE WITHOUT PERMISSION OF THE FIRST AUTHOR

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Fat in the Fire?

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Abstract

This paper compares alarmism and individual blame in a sample of scientific publications on weight and health, press releases on these publications, and news reporting on these same publications. We find that the news media dramatize the issue of obesity more than the studies on which they are reporting and are more likely than the original science to highlight individual blame for weight. This is partly due to the news media's tendency to report more heavily on the most alarmist and individual-blaming scientific studies. Press releases further explain which articles receive media coverage and how they are framed.

Key terms: news reporting, science reporting, obesity epidemic, framing, tyranny of thinness

Fat in the Fire?

Science, the News Media, and the “Obesity Epidemic”

Obesity is the “terror within,” according to Surgeon General Richard Carmona who says that “unless we do something about it, the magnitude of the dilemma will dwarf 9-11 or any other terrorist attempt” (Associated Press 2006). This statement reflects two decades of increasingly intense concern that America is eating itself to death. News reports on the “obesity epidemic” have exploded in recent years, eclipsing coverage of other health issues including smoking, which remains the leading cause of preventable death (Mokdad et al. 2004; see Figure 1). Such stories evoke an impending disaster that will halt and even reverse the long trend of rising human life expectancy, as in a recent news title that blasts “Bigger Waistlines, Shorter Lifespans: Obesity a ‘Threatening Storm’” (Semuels 2005). And politicians are reacting to this media barrage: states such as Pennsylvania and Arkansas have passed legislation that requires schools to send home “BMI report cards,” alerting parents that their children “weigh too much,” while major soft drink manufacturers announced in the fall of 2006 they have reached an agreement with the Clinton Foundation to remove soft drinks from schools (Chute 2006). In December 2006, New York City Board of Health voted to adopt the nation’s first municipal ban on the use of all but tiny amounts of artificial trans fats in restaurant cooking and a separate measure that would require fast food outlets to prominently display the caloric content of each menu item on menu boards or near cash registers (Leuck and Severson 2006).

INSERT FIGURE 1 ABOUT HERE

The alarm is based on current definitions in which anyone with a Body Mass Index (BMI, weight in kilos divided by height in meters squared) over 25 is deemed “overweight” and anyone with a BMI over 30 is labeled “obese.” By these definitions, an average height woman (5’4”) who weighs 146 pounds is “overweight” and average height man (5’9”) is “overweight” at 170 pounds. A woman of average height is “obese” at 175 pounds and a man of average height is “obese” at 203 pounds. Over one half of the U.S. population in the 1960s and almost 2/3 of the U.S. population today weighs “too much” today by these standards (Flegal et al. 2005; Flegal et al. 2002; Kuczmarski 1994). Recently, several researchers have argued that, for the overwhelming majority of people, weight is a poor predictor of health and should be less of a public health focus (see Ernsberger and Haskew 1987; Gaesser 1996; Campos 2004; Campos et al. 2006; Oliver 2005; Flegal et al. 2005). A recent study by scientists at the Center for Disease Control and Prevention (CDC) suggests that it is only after BMI reaches 35 that there is a meaningful increase in mortality, that people in the “overweight” category actually had the lowest rate of mortality (Flegal et al. 2005). Still, such skeptical voices remain a minority perspective in public discussion of obesity. This is both reflected in and shaped by news reporting on weight and health.

Obesity has such a negative symbolic valence that it is often evoked to raise concern about a range of other political issues, from predatory marketing and consumerism, on the left, to working mothers on the right. For instance, in the summer of 2006, a *New York Times* article, bemoaning that “Americans are

awash in red ink” wrote “Consumer indebtedness is soaring, the savings rate is down to zero and people are filing for bankruptcy at record rates. To many observers, these are symptoms of cultural decline, from sturdy thrift to flabby self-gratification – embodied in the current obesity epidemic.” An advertisement running in newspapers in the summer of 2005 blamed “30 years of feminist careers,” for a host of social ills including “an epidemic of childhood obesity and diabetes”: “With most mothers working, too few adults and children eat balanced, nutritious, portion-controlled home-cooked meals. Within a generation 50% of Americans will become diabetic, creating a medical and financial nightmare likely to crush our healthcare system” (*Washington Times* 2005).

That the news media would distort or dramatize health risks is not new. The press has been shown to distort health issues in other ways, such as by reporting disproportionately on drug use compared to higher ranking health risks like smoking (Frost et al. 1997).¹ And creating drama is a routine part of reporting (Schudson 2003), one that is further encouraged by the considerable commercial pressures on U.S. news media (Bennett 1983). While life expectancy in the United States increased by 64% during the twentieth century (Donatelle 2006) and we are better able to cure and control diseases than any other civilization in history, we hear that a phenomenal number of us are dreadfully ill (Glassner 2000:xii). One study tallied reports of the number of Americans suffering from various ailments, estimating that 543 million Americans are seriously sick – a

¹ Similarly, sociologists of law have shown that the news media often “distort the law” (Haltom and McCann 2004; Sunstein and Shih 2005).

shocking number in a nation of 266 million inhabitants (Garfield 1996, cited in Glassner 2000: xii).

INSERT FIGURE 2 ABOUT HERE

But is such alarmism merely or chiefly the product of media reporting? On the topic of obesity, news reporting has followed in the wake of scientific production (see Figure 2), making it plausible that, in this case, the news is science-driven. Indeed, while the news media sometimes contribute to sensationalism, they are also known to draw on investigative journalism to debunk false perceptions (Nelkin 1987). In still others, they uncritically reproduce the claims of scientists (Nelkin 1987). Despite the essential role played by the news media in shaping knowledge, the news – and especially science news – remain a relatively understudied topic by sociologists. We need to better understand the respective role played by science and the media in framing heavier body weight as a dire health risk and on framing risk more generally.

News reporting shapes lay understandings of health and risk and public policy priorities (Nelkin 1987) and, as such, is an important area of study. As patients become less likely to trust doctors blindly, they are more likely to seek information about health directly (Schlesinger 2002). When they do, they tend to get their information from news sources rather than from scientific studies (Nelkin 1987; Carlsson 2000).² Given this, it is increasingly important to understand how

² Nelkin (1987:77) cites a 1984 survey by the National Cancer Institute that found that 63.6 percent of respondents received information about cancer prevention from magazines, 60 percent from newspapers, and 58.3 percent from television. Only 13 to 15 percent had talked to physicians about cancer prevention. More recently, Carlsson (2000) similarly found that 82% of cancer patients obtained information about cancer from television and radio and 86% from newspapers.

the mass media “filter and translate scientific information” (Epstein 1996: 22). And news reporting on health, as news reporting more generally, transmits more than information; it conveys social norms and hierarchies as well, making this an important research site for cultural sociologists.

Feminist scholars have a long-standing interest in the pressures on women to conform to narrowly defined and unrealistic body expectations (Bordo 1993; Wolf 1991). Feminist scholarship has critiqued the fashion industry for promoting an image of ultra-thin female bodies, which make women desperate to lose weight (Bordo 1993; Chernin 1995; Media Education Foundation 1999; Thompson 1994; Wolf 1991) and vulnerable to products or regimens that promise weight loss, even when they prove ineffective.³ Yet, with the important exception of feminist fat activists who argue that fat hatred is a feminist issue (Wann 1999; Cooper 1998; Schoenfielder & Wieser 1983; on the economic consequences of fat stigma for women, see Conley and Glauber 2005), feminist scholarship has generally *not* critiqued news media reports that 2/3 of the U.S. population weigh too much for their *health*. Indeed, a recent article in *Signs*, a leading Women’s Studies journal, urged feminists to become *more* concerned about obesity trends (Yancey et al. 2006). In other words, the general attitude of feminist scholars has been that people who are “truly overweight or obese” should lose weight, even by the same means that are deemed unhealthy for thinner women.

³ Women are more likely than men to diet (46% of women are dieting at any one time compared to 33% of men, Bish et al. 2005) and more likely than men to take weight-loss drugs or have weight-loss surgery (Santry et al. 2005).

Public discourses about body weight have implications not only for gender but for racial and class inequality as well. Middle-class white girls have been more vulnerable to feeling that they could never be “thin enough” (Hesse-Biber 1996) and to the eating disorders and negative body image that ensue from that sentiment. In contrast, African-American girls seemed relatively better off, their positive self-image – even at higher weights – the product of affirming messages prevalent in African-American communities about individual style and respect for one’s body (Nichter 2000). However, increasing public health attention to “epidemic rates of obesity” among African-Americans, as well as Mexican-Americans, and the poor,⁴ means that positive body-image at higher weights among African-American women and girls is being increasingly portrayed as socially irresponsible and unhealthy. Moreover, in a context in which only those at the lowest body weights are considered healthy, higher weights among African-Americans, Mexican-Americans, and the poor may increasingly be cited as evidence of these groups’ lack of attention to health.

Drawing on a sample of scientific studies, press releases on those studies, and news reports on those same studies, we compare how weight and health is framed. The sample includes twenty scientific articles published in two separate journal issues, eight press releases on these publications, and a sample of 128

⁴ Based on the third wave of the National Health and Nutrition Examination Survey (NHANES), Flegal et al. (2002) found highest rates of overweight and obesity among non-Hispanic African American women and Ogden et al. (2002) found that rates of overweight in children were growing fastest among Mexican-American and non-Hispanic black adolescents. Advocacy groups like the American Obesity Association identify African Americans, Hispanic Americans, and “persons of low socioeconomic status within minority populations” as “especially likely to be overweight or obese” and blame “cultural factors that influence dietary and exercise behaviors” for “excess weight in minority groups.” (http://www.obesity.org/subs/fastfacts/Obesity_Minority_Pop.shtml, accessed on 10/6/2005).

news articles that report on those same publications. We ask what role the news media, compared to scientific publications, play in framing obesity as a public health crisis. Do journalists sensationalize work on which they are reporting? Do they color morally-neutral scientific accounts with moral overtones or, alternatively, are scientific studies of obesity themselves imbued with moral condemnations of fatness? What themes, metaphors, or language, if any, are journalists and editors introducing that are absent from the original studies on which they are reporting? What role do press releases play in translating science into news? The analysis contributes to our understandings of how overweight and obesity are being constructed as medical and public health problems and how science informs news reporting on health risks and health crises more generally.

Framing Body Fat and Body Weight

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). The terms “overweight” and “obesity” are themselves powerful and contested frames for understanding higher body weight as either a risk factor for disease or a disease in itself. Body weight is thus “medicalized” (Conrad and Schneider 1992), rather than being treated as a political or civil rights issue, as other claims-makers argue it should be (see Wann 1999; LeBesco 2004; Cooper 1998; Sobal 1995; Saguy and Riley 2005). Fat acceptance activists, reject the terms “overweight” and “obesity” because they reject the medical framing over higher body weights. Instead they reclaim the

term “fat” to speak of larger bodies as part of a natural and desirable form of diversity (Saguy and Riley 2005).

Research on framing shows that different media frames imply not only different ways of understanding social problems but also different courses of action (see Gamson 1992; Snow and Benford 1988; Tarrow 1992).⁵ If fatness is framed as a natural and desirable form of biological diversity, this suggests that we should promote greater social tolerance. If, on the other hand, fatness is framed as the product of unhealthy choices, fat people (and ethnic groups with higher population weights) are likely to be cast as morally deviant or even “villain” (Gusfield 1981). Framing fatness as a dire public health threat implies a need to invest public funds into research and treatment and may justify relaxing safeguards against the risks of weight-loss treatments, drugs, or surgery.

This paper focuses on how leading scientific journals and newspapers are framing heavier body weights as a medical and public health problem. One might expect that medicalizing body weight would lessen the moral blame associated with fatness, as some have argued has happened for other issues like alcoholism (Conrad and Scheider 1992). Yet, unlike alcoholism, which has been portrayed as largely genetic in origin and thus outside of personal control, body weight has been framed primarily as a “preventable” cause of illness, much like smoking (Mokdad et al. 2004; for an analysis of this, see Saguy and Riley 2005). This means that medicalizing weight may actually reinforce rather than diminish blame – especially for women who are held to thinner ideals and more likely to be

⁵ While Goffman’s (1974) concept of “frame” provided the inspiration for social movement framing analysis, the way social movement theorists use the term is quite different from what Goffman intended (see Heinich 1991).

blamed for their children's weight – as fatness will be read not only as a sign of sloth and gluttony but as disregard for health, which is heavily moralized in the United States (see Armstrong 1995; Crawford 1980; Lupton 1995; Nettleton and Bunton 1995). One recent news article exemplifies this possibility, arguing that “parents who do nothing to prevent obesity in their children are guilty of abuse, if not legally then morally. We are killing our kids with irresponsible and reckless indulgence” (Lovric 2005).

An alternative framing of this issue blames the food industry for contributing to an “obesogenic” environment (see Linn 2004; Tartamella, Herscher, and Woolston 2005; Dalton 2004; Nestle 2002; Brownell and Horgen 2003; Lawrence 2003). Even if it removes some of the *blame*, this framing is unlikely to lessen the *stigma* (Goffman 1963) associated with fatness in that it relies on an understanding of fatness as diseased. Alternative social problem frames could blame other industries, such as the automobile industry, or the government for the “obesity epidemic.”

News Reporting, Drama, and Moralizing

There are several mechanisms that have been shown to lead the news media, in general, and science reporting, in particular, to dramatize. News organization routines favor “astonishing” stories (Parisi 1999; Tuchman 1978), and “news tends to simplify complex social processes in ways that emphasize melodrama, that turn a complex set of phenomenon into a morality tale” (Schudson 2003:48). There is an especially strong tendency for those promoting particular social problems to exaggerate their urgency in the early stages of

social problem formation when the competition for scarce public attention is fierce, which leads to a dominance of alarmist claims in the news media (Downs 1972). Similarly, reporting is often characterized by “pack journalism” in which large groups of journalists cover similar topics, leading to peaks in coverage (Schudson 2003: 139-140; see also Glassner 2000).

Concerning science reporting specifically, journalists have been shown to favor imagery over content, cover research as a series of dramatic events, and report on provocative theory as if it were fact (Nelkin 1987: 30). In that the view of the United States in the grips of a dangerous “obesity epidemic” is currently conventional wisdom and that skeptics are in a small (albeit growing) minority, and that the media are biased toward conventional over dissident opinions (Schudson 2003:60), this would further make alarmist reporting on weight and health likely. Journalists often rely on a limited number of “genres” to report on a wide range of issues, so that reporting resembles “making cookies from an antique cookie cutter” (Darnton 1975: 189). Among these genres, “epidemic” is commonly used as a metaphor to discuss a host of problems, like drunk-driving, tobacco, teen pregnancy, and obesity, thus contributing to the dramatization of these issues. Similarly, previous research further suggests that the press often use war metaphors to create drama when reporting on varied issues but especially on the body (see Media Education Foundation 1999; Calasanti and Slevin 2001: 55; Clark and Everest 2006).

Media routines also lead towards a focus on individualized, rather than socio-structural, frames. News tends to be “people-centered,” where “clearly

identified individuals personify or stand in for larger, more difficult to grasp social forces” (Schudson 2003:48). This means that the news media tend to blame social problems on individuals rather than on systemic forces. Previous work has shown this to be true in the framing of obesity, although the press seems to be more likely in recent years to blame the food industry for increasing population weights (Lawrence 2003).

The literature on media reporting shows that reporters and news sources (of which we can consider scientific reports one kind) both play an important role in shaping science news (Schudson 2003; Gans 1979; Cohen 1963; Bennett 1994; Hess 1984; Ericson et al. 1989). In that contemporary U.S. journalists lack the time to do investigative and critical reporting, news sources potentially exert a great deal of influence (Schudson 2003; Tuchman 1978; Gans 1979). The mass media may be especially uncritical and reliant on news sources – and especially scientists – when reporting on science, due to reverence for science, complexity of materials, and lack of scientific training (Nelkin 1987). This literature informs our four central questions:

1. Do the news media dramatize more than the scientific studies on which they are reporting?
2. Do the news media discuss individual responsibility for weight more than the science on which they are reporting?
3. If either 1 or 2 is true, to what extent is this due to selective attention on the part of the news, e.g., to articles that lend themselves to drama or to a focus on individual blame?

4. What role do press releases play in determining which scientific articles receive media attention and how they are framed?

Data and Methods

To address these questions, we draw on a nested sample of scientific articles (N=20) from two publications of *Journal of the American Medical Association (JAMA)*, relevant press releases (N=8), and news reporting on those article (N=128). We analyzed and coded all of the research articles, preliminary communications, and editorials in the 1999 and 2003 special issues on obesity in the *JAMA*, one of the two leading peer-reviewed medical journals. Special issues on obesity in the leading medical journal *JAMA* are newsworthy events in themselves that generate media attention. Comparing coverage of articles within a special issue has the methodological advantage of allowing us to hold constant other factors that affect media coverage, such as moment in the news cycle and prestige of journal. Using two different issues, published four years apart, allows us to examine the effect of differences in news events (in this case the publication of each special issue) on news reporting.

INSERT TABLE 1 ABOUT HERE

Using the search criteria “obesity” in the full text OR “weight” in the full text AND “American Medical Association” in the full text for the three months after the publication of each *JAMA* issue, we collected all media reports on either of these special issues from the most of the Lexis-Nexis categories. These included General News, World News, News Wires, Business News, Legal News, University News, and Medical News, for three months after the date of

publication. We excluded articles shorter than 500 words since shorter articles lack the space to develop themes for which we test. We also excluded peer-reviewed journal articles, as we wanted news reporting on these two issues, rather than scientific articles that cited them. This generated a news sample of 128 news articles, including 69 on the 1999 issue and 59 on the 2003 issue. Table 1 gives the number of articles published in each Lexis-Nexis News category and publication. Note that the sample is heavily weighted towards the General News category (N=66), followed by the News Wire category, which includes several smaller publications (N=24), and Business News (N=21). Relatively few articles fell into the World News (N=8), Medical News (N=5), and University News (N=4) categories. The sample is thus mostly U.S., with a few Canadian and one European (M2 Press Wire) news articles.

INSERT TABLE 2 ABOUT HERE

Table 2 provides the titles, lead authors, and a brief summary of the scientific reports contained in each of the two special issues of *JAMA*, on which our news samples were reporting. It also provides the number of press releases and news reports on each scientific article. As is shown, in the 1999 special issue an article by Mokdad and colleagues (Mokdad et. al. 1999) received by far the most media attention, with 43 out of the total 69 articles reporting on the special issue discussing this particular article. This study invoked an “obesity epidemic” reporting on increased prevalence of people with a BMI over 30, between 1991 and 1998, based on a telephone survey of self-reported weight and height (Behavioral Risk Factor Surveillance System). An article by David Allison and

colleagues (Allison et al. 1999) received the second greatest amount of media attention, with 24 articles reporting on it. This study estimated that 280,000 (or 325,000 using hazard ratios from never-smokers) people died in 1991 due to obesity, by comparing, among those 18 years or older, the relative risk of mortality for people with a BMI of over 30 to people with a BMI between 23 and 25 (the upper range of the “normal weight” category) and assuming that all excess deaths in the former category, compared to the latter, were attributable to their weight.⁶ Fifteen news articles reported on a study of the (limited) effectiveness of leptin treatment for weight loss (Heymsfield et al. 1999).

The remaining articles were mentioned in fewer than ten articles. Eight news reports discussed an editorial sounding the alarm on increasing rates of obesity and calling for policy intervention (Koplan and Dietz 1999). Seven reported on a research article that examined the independent effect of cardiorespiratory fitness on cardiovascular disease (CVD) and all-cause mortality (Wei et al. 1999). Six discussed a scientific report on the association of fiber consumption with insulin levels, weight gain, and other CVD risk factors (Ludwig et al. 1999). Six also discussed a report on the effects of intermittent exercise on weight loss, adherence and fitness (Jakicic et al. 1999). Five news articles mentioned the report on the effects of reducing television, videotape, and video game use on adiposity, physical activity, and dietary intake (Robinson 1999). Four news articles discussed a report on the contribution of overweight and

⁶ A more recent study, has estimated the number of excess deaths among those with a BMI greater than 30 (compared to those in the “normal weight” category of 18.5-25) to be about 112,000. Using the same methodology, however, “overweight” (BMI 25-30) saves almost 90,000 lives each year and *underweight* costs about 30,000 (Flegal et al. 2005).

obesity to chronic health conditions (Must et al. 1999), and no news reports explicitly mentioned an editorial urging physicians to counsel patients about diet and physical activity and to improve their own body weights, fitness, and diets (Fontanarosa 1999).

Compared to 1999, the articles in the 2003 special issue of *JAMA* were less agenda-setting in nature. None of the articles purported to show that obesity and overweight were major public health crises. Rather, articles in this issue tended to take this for granted. The article in this issue that generated the most media attention (19 articles) was a report on the efficacy of low-carbohydrate diets – the weight-loss craze of the moment – for weight loss, serum lipids, fasting serum glucose, fasting serum insulin levels, and blood pressure (Bravata et al. 2003). Close behind, with 16 news reports, was an article reporting that a sample of 108 children with an average BMI of 34.7, who were referred to the hospital for evaluation and many of whom had other health problems, reported quality of life (QOL) scores that were comparable to those of children with cancer and lower than “healthy” children (Schwimmer et al. 2003).

Ten news articles reported on a study of the efficacy of self-help weight loss programs compared to a structured commercial program (Heshka et al. 2003). Nine news articles reported on the efficacy of the weight loss drug zonisamide (Gadde et al. 2003), while 4 reported on the efficacy of the weight loss drug sibutramine in adolescents (Berkowitz et al. 2003). Six news articles mentioned a study of the relationship between sedentary behaviors, especially television watching, and obesity and Type II diabetes in women (Hu et al. 2003).

Three news reports discussed the *JAMA* editorial (Bray 2003) invoking an “obesity epidemic,” reviewing available treatments, and calling for more research. Two discussed a report on the effect of a program of lifestyle changes on systemic vascular inflammation and insulin resistance (Esposito et al. 2003), and two explicitly mentioned an editorial sounding the alarm on increasing rates of pediatric and adolescent obesity and calling for behavioral modification, research into pharmacotherapy and surgery, and prevention. No news articles discussed the very technical study of the safety and efficacy of injections of Recombinant Variant of Ciliary Neurotrophic Factor (rhvCNTF) for weight loss (Ettinger et al. 2003).

We used the Google logarithmic search engine to locate press releases on any of the *JAMA* articles on the World Wide Web. We used various combinations of the article title and author, along with the year of publication and the word “embargoed” in our searches. This enabled us to find eight press releases, several of which referenced more than one article. Among these was an official *JAMA* press release for each issue, two National Institutes of Health (NIH) press releases for research they funded, as well as press releases issued by the lead author’s academic institution. Since press releases are generally posted on the web and made as accessible as possible, we are confident in this method. However, it is possible that we missed one or more press releases in our search. As is shown in Table 2, most of the *JAMA* news articles were discussed in at least one press release and lack of coverage in a press release was generally a good predictor of minimal news coverage.

Coding

Coding was done at the article level for over 200 codes for all of the scientific articles, the article abstracts, the press releases, and the news media sample. Tests of inter-coder reliability averaged 90 percent. Below, we describe the codes used in the current analysis. Unless explicitly stated below, variables were coded as “1” when the aspect in question was mentioned by the journalist or a news source and as “0” if it was not mentioned. Thus all codes are independent of each other and articles could be coded "1" on multiple codes. Our reference to “article,” “story,” or “report” below refers to the scientific articles, press releases, and media articles.

To measure dramatization, stories were coded for whether the article suggested that obesity/overweight was a public crisis, represented an epidemic, or used war metaphors. We also coded articles for whether they blurred the lines between different weight categories, which often served to dramatize by suggesting, say, that 2/3 of the adult population, currently categorized as “overweight” (BMI between 25 and 30), were “obese” (BMI between 30 and 35), “extremely obese” (BMI between 35 and 40), or “morbidly obese” (BMI over 40).

An important way to temper or qualify alarmist reporting is to air scientific debates over risk. In the area of obesity, there is debate over whether obesity *per se* is a serious health problem or whether current weight guidelines are appropriate (Ernsberger and Haskew 1987; Gaesser 1996; Campos 2004; see Campos et al. 2006; Saguy and Riley 2005; Andres et al. 1985; Flegal et al. 2005). A large body of research also documents that people who are physically

fit, as measured by a treadmill test, have excellent health profiles, even if they fall into the overweight or obese categories (Blair et al. 1995; Blair et al. 1996; Blair and Church 2004; Katzmarzyk et al. 2005; Wei et al. 1999). As a measure of balanced or nuanced reporting, we coded media reports for whether they invoke debates about the health risks associated with obesity, about what are appropriate guidelines for defining obesity, or discuss science suggesting one can be “fit and fat.”

To evaluate how scientific and news reports assign blame, we coded articles for whether they discussed arguments that obesity is caused by bad individual choices including those related to diet and exercise, social-structural factors including restaurant portions and food advertising, or genetic factors. We also coded for the solutions cited, including individual changes to exercise or diet, any policy solution, weight-loss drugs, and weight-loss surgery. We coded articles for whether they mentioned specific demographic groups, such as the poor, African-Americans, or Latinos.

Findings: News Reporting on Obesity Science

Our analyses suggest that the news media tend to dramatize the risks of obesity by using, more than the science on which they are reporting, words like “epidemic” and “war” and by blurring the lines between weight categories, giving an impression that the population is heavier than it is. The news media is also more likely than the science to ascribe individual blame for weight. Our analyses suggest that this is partly due to the news’ selective attention to studies that lend themselves most readily to dramatization and a focus on individual blame.

Finally, press releases help explain both which articles the press report on and how those studies are framed.

Dramatization

FIGURE 3 ABOUT HERE

Figure 3 illustrates graphically the proportion of scientific and news articles dramatizing obesity in various ways. The 1999 *JAMA* issue and news reporting on that issue overwhelmingly represented overweight and obesity as a crisis, at 70% and 72%, respectively. This framing was less prevalent in the 2003 special issue and news reporting on that issue, at 40% and 34%, respectively. This does not mean that the 2003 articles tended to *counter* claims that obesity was a crisis. Rather, compared to 1999, they were more likely to take them for granted so that they did not need to be made explicit. In both years, the science and news often presented obesity as a crisis. For instance, a 2003 news report proclaimed that “unless something is done to halt the trend, today's kids will grow up to be even heavier than their parents, already the fattest generation in history.” Another 2003 news article quoted an associate professor of pediatrics at the Medical College of Wisconsin saying, “This is getting so bad that it's going to exhaust all the resources we have in health care” (Fauber and Johnson 2003).

In 1999, our news sample was more likely to label obesity an epidemic than our science sample. Twenty percent of the articles in the 1999 special issue of *JAMA*, compared to 49 percent of news reporting on that issue labeled obesity an epidemic. Among the scientific articles invoking an “obesity epidemic” was

Mokdad and colleagues' (1999) "The Spread of the Obesity Epidemic in the United States, 1991-1998" and an editorial commenting on this same study (Koplan and Dietz 1999). A news article reporting on "The Spread of the Obesity Epidemic" quoted the CDC director saying that excess weight is increasing as rapidly as an infectious disease might spread, and it should be treated as seriously as an epidemic (McKenna 1999).

Unlike the 1999 issue, the 2003 *JAMA* issue included no articles purporting to show that obesity was an epidemic, although two of the ten scientific articles invoked the "obesity epidemic" as a taken-for-granted fact. Thirty-one percent of the news coverage of this issue also framed obesity as an epidemic. For instance, one article reported that: "There's a rapidly spreading epidemic afflicting all regions of the country, all ethnic and economic groups, and all ages.... It's obesity" (Delude 2003).

In 1999, 46% of the news sample, compared to *none* of the *JAMA* articles, employed war metaphors. Similarly, even though none of the 2003 *JAMA* articles used this language, 27% of news reporting on this issue used war metaphors. For instance, one 2003 news article quotes a diabetes specialist saying "It's a time bomb" (Ritter 2003). While only one of the 2003 *JAMA* articles blurred the differences between weight categories, 53% of news reports on this issue did. In other words, at least in 2003, the news media tended to over generalize, thus leading to dramatization.

An important way to temper or qualify alarmist reporting is to air scientific debates over risk. Yet, *none* of the press reports on these two special issues

discussed any debate over the whether weight per se was a meaningful indicator of health. None of the studies on which they were reporting explicitly made this argument, but the 1999 issue of *JAMA* included an article that showed that physical fitness – as measured by a treadmill test – is a better predictor of health and cardiovascular disease (CVD) than weight (Wei et al. 1999). In 1999, one news article mentioned that there is controversy over where the line should be drawn between healthy and unhealthy weight, even though none of the articles in the 1999 *JAMA* special issue explicitly raised this point. In 2003, there was no such discussion in either the science or news media. In 1999, one *JAMA* article (Wei et al. 1999) and eight news articles, six of which were reporting on that specific *JAMA* article, aired the argument that one could be “fit and fat.” In 2003, two news articles made this argument even though none of the science articles on which they were reporting did (Figure available upon request). These analyses suggest that the press is most unlikely to discuss scientific controversy when reporting on science that does not present its findings in such terms, that there is a potential for journalists to engage in independent critical analysis of the research on which they are reporting, and that often such critical analysis is quite muted and rare.

Morality and Inequality

FIGURE 4 ABOUT HERE

News articles tended to moralize weight above and beyond the science on which they were reporting by attributing obesity to factors under people’s individual control – especially those thought to reflect moral character, like

choosing to be sedentary or making bad food choices. Figure 4 shows the relative emphasis on individual, structural and genetic causes of and solutions to obesity. Note that, across publications and years, individual contributors to weight are more likely to be invoked than either structural or genetic factors. This suggests that science and news tend to treat body weight as a product of individual behavior.

Nonetheless, in both 1999 and 2003, the news reports were more likely than the science on which they were reporting to mention individual contributors to excess weight. In 1999, 72 percent of news reports, compared to 40 percent of the scientific articles evoked individual contributors to weight. In 2003, 40 percent of the science articles and 98 percent of reporting on that science stressed individual responsibility for weight. “Americans are gobbling down more calories than ever, resulting in a 50 percent increase in the nation's obesity rate,” begins the first line one typical news report (Torassa 1999) on the 1999 study of the “obesity epidemic” (Mokdad et al. 1999). Another news report (Hudson 1999) on the 1999 *JAMA* issue reports, “Some 300,000 Americans die each year from eating millions of cookies, hot dogs, potato chips and other empty calories during increasingly inactive lives, according to another report also published in *JAMA*.” (Never mind that neither of the science reports in question reported any data on the eating or exercise behaviors of their respondents.) In other words, while the original scientific articles discussed individual contributors to weight more than social-structural or genetic contributors, the news tended to amplify this focus.

Articles were most likely to highlight choices in diet and exercise. In the case of “childhood obesity,” it was often parents, schools, and “society”, who are blamed. One article opined:

We buy our kids Oreos and Nintendos, eliminate gym classes to improve math scores, sell pizza at school fund-raisers, use the TV as a baby sitter and drive kids everywhere in minivans equipped with cup trays to hold milkshakes and Slurpees. “As a society, we have let kids down,” said Dr. Robert Bonow of Northwestern Memorial Hospital (Ritter 2003).

On one hand, this article argued that “as a society, we have let kids down,” invoking collective blame. On the other, many of the specific examples were targeted at parents and especially mothers, who are usually the primary caregivers. It is parents who allegedly buy Oreos and Nintendos, sell pizza at school fund-raisers, “use the TV as a baby sitter,” and “drive kids everywhere in minivans equipped with cup trays to hold milkshakes and Slurpees.”

These discussions were often racialized. For instance, the next sentence in the excerpt above read “The percentage of kids age 6 through 11 who are overweight has more than tripled in 30 years, to 15 percent, with the rates generally higher among Latinos and African Americans” (Ritter 2003). This could imply that, as a society, we have especially let down minority children, but, given the focus on parental responsibility, it could also be read as evidence of bad parenting among minority groups. In fact, news articles that mentioned the poor, blacks, or Latinos were statistically more likely, compared to those that did not mention these groups, to ascribe higher weights to poor food or exercise choices (Table available upon request), although they were also more likely to mention

social-structural and in 2003 only, genetic contributors. These provocative findings deserve further study.

In 1999, 30 percent of the *JAMA* articles and 72 percent of the news reporting on that issue evoked social-structural contributors to obesity, such as the food industry, the car culture, or urban planning. In 2003, 30 percent of the *JAMA* articles and twelve percent of news reporting on those articles mentioned social-structural contributors. Blaming the restaurant industry did not seem to let individuals off the hook. Rather, industry and consumers were likely to be held jointly responsible, as in this article: “They're pushing these super-sized foods at restaurants, and customers want value for their dollar.... Am I going to go to the restaurants where I get a 3-ounce burger for \$3, or to the one where I get an 8-ounce burger for \$3?” (Winiarski 1999).

Only ten percent of articles in the 1999 *JAMA* issue and ten percent of news reporting on that issue mentioned genetic contributors to obesity. The corresponding figures for 2003 were twenty percent and three percent. The lack of discussion of genetic causes of obesity, in the news and science alike, is striking given the increased “geneticization” (Lippman 1998) of a wide range of conditions and behavior. That the press hardly ever mentioned genetic contributors to weight, even when they were mentioned in 20 percent of the scientific journal on which they were reporting is striking and demonstrates the extent to which the news tends to attribute body size to individual volition.

FIGURE 5 ABOUT HERE

Figure 5 illustrates the proportion of scientific and news articles that cite particular weight loss techniques or strategies, including individual changes to exercise or diet, any policy solutions, weight-loss drugs, or weight-loss surgery. Note that the scientific and news articles alike are more likely to discuss individual changes to exercise or diet than they are to mention any policy solution. Discussions of behavioral changes to diet or exercise were also more likely to be invoked than weight-loss drugs or obesity surgery, although there was a marked increase in discussion of surgery in 2003 compared to 1999.

In 1999, 80 percent of our science sample and 74 percent of our science sample mentioned people making changes to their diet or exercise patterns to lose weight. In 2003, these figures were 90 and 81 percent for the science and news, respectively. In contrast, in 1999 half of the science sample and 35 percent of the news sample mentioned any sort of policy solution, while these figures were 20 and 17 percent for the 2003 science and news, respectively. Weight loss drugs were discussed in 20 percent of the 1999 science sample and 30 percent of the 1999 news sample. In 2003, these figures were 60 percent for the science and 25 percent news samples.⁷ Weight loss surgery was not mentioned in any of the 1999 science reports and in only one of the 1999 news reports. Twenty percent of the 2003 science reports discussed weight loss surgery, compared to eight percent of the 2003 news reports.

⁷ This is because were several articles in the 2003 *JAMA* issue that tested weight-loss drugs, but few news reports that discussed those particular articles. This speaks to the phenomenon of selective reporting discussed in the next section.

In other words, our analyses suggest that both scientific and news discussions of obesity have tended to focus on individual behavior modification, thus emphasizing individual blame and responsibility for weight. While there is also some discussion of policy solutions, it coexists with a heavier focus on individual remedies. While weight-loss drugs might offer a biological view of weight that would lessen individual blame, the news media discussions of weight-loss drugs usually highlighted their ineffectiveness, thus serving to further emphasize the importance of behavior modification. For instance, one article quotes a Professor of Nutrition discussing weight-loss drugs as an elusive “magic bullet” that distract people from making necessary lifestyle changes: “Fewer people are doing what they know they should do. Instead, everybody just wants a magic bullet” (Hsu 1999). If an effective and low-risk weight-loss drug were discovered, this could potentially undermine the tendency to blame individuals for their weight, but this is, for the moment, purely hypothetical. Similarly, because weight-loss surgery does not repair faulty biological function (and in fact impairs some aspects of the proper functioning of the stomach such as assimilation of nutrients and vitamins), discussions of such surgery are quite consistent with blaming individuals for their weight, their inability to lose it, and their apparent need for drastic surgery to compensate for their personal failings.

Selective Reporting, Drama, and Individualizing

Why did the press dramatize the risks of obesity by using words like “epidemic” and “war” and by confusing weight categories so as to give an impression that the population is heavier and sicker than it is? As we review

above, media scholars have shown that there are several mechanisms that lead to the sensationalism and individualizing of social problems. One could interpret our findings to be the result of the media's tendency to sensationalism and individual blame.

Further analyses highlight, however, an important mechanism by which the news sensationalizes its reporting on science: selective reporting. We find that journalists are more likely to report on articles that lend themselves to dramatization than on those that do not. We tested this by comparing framing in news reports based on which studies they covered. Specifically, for each issue of *JAMA*, we compared news reports that mentioned the most reported-on study with those that did not mention that study. We also compared news reports that mentioned the second most reported-on study with those that did not mention that study. Figure 6 shows the proportion of news reports employing particular frames when there is a statistically significant difference between news reports that mention one of the most publicized scientific articles and those that do not mention this study.

INSERT FIGURE 6 ABOUT HERE

In 1999, 43 news articles, over half of the total sample for that year, discussed "The Spread of the Obesity Epidemic" (Mokdad et al. 1999). The press's greater tendency, compared to the original scientific research, to characterize obesity as an epidemic in 1999 seems to be due to its overwhelming focus on this particular article, as articles that reported on this particular article were significantly more likely to refer to obesity as an epidemic ($p < .000$). Among

the 43 news articles that reported on “The Spread of the Obesity Epidemic” (Mokdad et al. 1999), 29 – or 67 percent – described obesity as an “epidemic.” This compares with 19 percent of articles that do not explicitly mention this article.

The fact that press reporting in 2003 was more likely to blur the line between different weight categories can be partly attributed to the disproportionate focus in 2003 on the one article that did blur the lines between different weight categories, “Health related quality of life of severely obese children and adolescents” (Schwimmer et al. 2003). Although the title referred to “severely obese” children and the abstract specified that the average BMI of participants was 34.7, both the abstract and article often referred simply to “obese” children. The first line of the article abstract presents the context as: “One in 7 US children and adolescents is obese, yet little is known about their health-related quality of life (QOL),” falsely implying that the research sample was representative of this larger group of youngsters. It reported the findings as: “Compared with healthy children and adolescents, obese children and adolescents reported significantly ($P < .001$) lower health-related QOL in all domains....”

Similarly, almost all of the press reports on this study (15/16) suggested that this study pertained to obese or overweight children *in general*, and rarely mentioning that the youngsters in the study were hospitalized and had serious

health conditions.⁸ “Obesity hurts kids' lifestyles like cancer,” proclaimed one typical news headline (Fauber 2003). Similarly, a *USA Today* article quoted the lead author saying: “This study demonstrates how difficult it is to be an obese child” (Hellmich 2003). In comparison, 31 percent of news articles that did not explicitly mention the quality-of-life article blurred the lines between weight categories, a still sizable but much smaller proportion.

While selective reporting can help shed light on why the press was more likely than the science on which it was reporting to represent obesity as an epidemic and to blur weight categories, it does not seem to explain the greater tendency of the press in 1999 or 2003 to use war metaphors like “battle” or “time bomb.” This language was not significantly more likely, for either given year, among news articles that reported on the 1999 “obesity epidemic” article, the 1999 “annual deaths” article,⁹ the 2003 “low-carb” article (Bravata et al. 2003), or the 2003 “Quality of Life” article (Schwimmer et al. 2003) in 2003. This may, in part, be due to the fact that our small sample sizes (imposed by the methodology of examining reporting on a single special issue) limits the likelihood of statistically significant results, or it may mean that this particular difference is driven by general media routines that favor “war” imagery rather than by selective reporting.

Why is the press more likely to focus on individual contributors to obesity than are the science on which they are reporting? Because almost all of the

⁸ Standard usage of the term “overweight” to designate children in the highest 95% of weight distribution at “at risk of overweight” to refer to children in the highest 85% contributes to confusion of these categories when discussing children.

⁹ Although it comes close in the case of the “annual deaths” article ($p=0.146$).

press reports in 2003 blamed weight on individual factors, we have virtually no variance to explain for this year. In 1999, over 70 percent of press reports discussed individual contributors to weight, but we can still find variation among these 69 news articles. Twenty-four of these articles reported on Allison et al's (1999) "Annual deaths attributable to obesity in the United States." Using methodology originally formulated to calculate "tobacco deaths," Allison et al. assumes that "obesity-attributable deaths" were avoidable and the product of individual actions. The heavy focus on this article seems to have contributed to the framing of weight as a product of individual choices or behaviors. Articles that mentioned the "annual deaths" study were significantly more likely than articles that did not mention this study ($p=0.049$) to suggest that weight is determined by individual behavior. Eighty-eight percent of press reports on this scientific study invoked individual contributors to weight, compared to 64% of articles that did not explicitly discuss this study. In other words, it appears that one mechanism by which the news tended to stress individual contributors to social issues was by reporting disproportionately on science that lent itself to this analysis. This in turn may encourage scientists to dramatize their findings to attract media attention.

The Role of Press Releases

Another factor shaping news coverage are press releases. Press releases shape both *what* gets reported and *how* it is framed. Press releases offer pre-packaged news that can easily be turned into copy by time-pressed journalists. The official *JAMA* press release on the 1999 special issue on obesity featured the "obesity epidemic" article (Mokdad et al. 1999) first, followed by a review of

an editorial (Koplan and Dietz 1999) entitled “Obesity Prevention Programs Need to be Multi-Faceted and a Priority,” the “annual deaths” article (Allison et al. 1999), and the leptin article (Heymsfield et al. 1999). These four articles are the same ones that received the most media attention, although not in this precise order.¹⁰ The article on the “obesity epidemic” (Mokdad et al. 1999), which was mentioned in over half of the news articles discussing the 1999 *JAMA* issue, was also publicized in a press release by the CDC, where the study’s authors work. Prominence in the *JAMA* press release was a better predictor of news coverage than press releases by other organizations, with the exception of the CDC. The study on the effects of exercise (Jakicic et. al. 1999) was discussed in only six news articles, even though it was publicized by press releases from Brown University and by the NIH. This particular NIH press release included a short paragraph each dedicated to one of three *JAMA* articles (Jakicic et al., 1999; Ludwig et al., 1999; Robinson 1999). One of these other articles (Ludwig et al. 1999) was also discussed in only six news articles, despite this press release and a longer NIH press releases focusing only on this study. The third (Robinson 1999), which was only publicized in this cursory manner, was discussed in five news articles.

In 2003, coverage by press releases was a good but imperfect predictor of news coverage. The four articles featured in order of prominence in the *JAMA* press releases (Hu et al. 2003; Heshka et al. 2003; Bravata et al. 2003; Bray 2003; Yanovski and Yanovski 2003) were discussed in six, ten, nineteen, three,

¹⁰ The press release featured the editorial before the “annual deaths” article, while the latter received more media attention than the former.

and one articles, respectively. The article that received the most news coverage (Bravata et al. 2003) was publicized by both the *JAMA* press release and a page-and-a-half individualized press release by Stanford University. The article that received the second largest amount of press coverage (Schwimmer et al. 2003) was not discussed in the *JAMA* press release but was the object of a detailed press release by The University of California, San Diego (UCSD). An article on a weight loss drug (Gadde et al. 2003) was discussed in nine news articles despite the fact that it had not been publicized by a press release that we could locate.

The way in which press releases frame science shapes news framing. In 1999, when the news reports were more likely than the *JAMA* articles to use war metaphors, refer to obesity as an epidemic, or to stress individual contributors towards obesity, the official *JAMA* press release also included all of those three frames. In 2003, when the press was more likely than the *JAMA* articles to use war metaphors, stress individual contributors towards obesity, and blur the lines between different weight categories, the official *JAMA* press release included the first two of these three frames. This underscores the important role that press releases have in framing news reports.

The 2003 official *JAMA* press release, which did not mention the quality of life article (Schwimmer et al. 2003), did not blur the lines between weight categories. The UCSD press release on this particular study did however blur the lines between weight categories considerably, reporting in the first paragraph: “Obese children and their parents report that health-related quality of life for overweight kids is significantly impaired and as bad as that experienced by

children with cancer who are undergoing chemotherapy.” The use of “overweight” to describe children with an average BMI of almost 35, when this term is generally used to designate a BMI over 25 is misleading and makes the subjects seem more representative of the larger population of “overweight” children than they truly are.¹¹

Conclusion

This paper exploited a unique sample of: 1) scientific articles on weight and health; 2) press releases on those studies; and 3) and news reports on those same studies to shed new light on how the news filters and translates scientific information to the lay public. We found that that news media have “thrown fat in the fire,” enflaming the issue of obesity, while simultaneously highlighting individual blame for weight. We found evidence for one important mechanism through which this is occurring: selective reporting. The news media’s tendency to report more heavily on the most alarmist and individual-blaming scientific studies, and not simply how they frame individual stories, partly explains *how* the news dramatize and individualize science. In other words, it is not so much that the news media are distorting individual studies as that they are distorting the scientific field, or cultural and social-organizational environment of scientific production (Bourdieu 1993), by giving more attention to particular kinds of studies

¹¹ This issue is further confused by the fact that the CDC never uses the term “obese” in reference to children and, instead, designates children above the 95th percentile for BMI norms as “overweight” and those above the 85th percentile for BMI norms as “at risk of overweight.” Recently, an expert committee of the American Medical Association “tentatively decided” to reclassify these definitions so that children above the 85th percentile would be classified as “overweight” and those above the 95th percentile as “obese,” in response the International Obesity Task Force (IOTF), a lobby with ties to the pharmaceutical industry (Moynihan 2006).

over others. Press releases help explain which articles receive media coverage and how they are framed.

These findings support the contention that scientists work as “parajournalists” (Schudson 2003) writing their stories – and especially the abstract – with journalists in mind. They then frame their research via press releases and interviews with journalists. A reward structure in which, all things being equal, alarmist studies are more likely to be covered in the media may make scientists even more prone to presenting their findings in the most dramatic light possible. Journalists, in turn, function as “parascientists,” evaluating studies, featuring some research while ignoring others, and thereby shaping not only lay understandings of science but arguably scientists’ own vision of the state of scientific knowledge. Future research should explore how scientists and journalists working in the area of obesity think about and negotiate the constraints of science reporting, as well as how the scientific and media fields intersect in different ways across national contexts (see Conrad and Markens 2001). Future research should also examine how the news media report on conflicting or competing findings by scientists. Which kinds of claims, findings, or scientists are given most credibility by the news media? How is such credibility conveyed? Such work will further contribute to our understanding of how expert knowledge is translated for public consumption.

This study has shown how scientific and news media discussions of weight have framed higher body weight as a health risk, disease, or even epidemic. While beyond the scope of traditional feminist critiques of the “tyranny

of slenderness” (Chernin 1995), we contend that such bio-medical discourses are as important as the fashion media in constructing normative understandings of acceptable and desirable bodies. Such understandings become especially prone to moralizing when individuals are held primarily responsible for body weight, as we found in our analyses. After all, the moral imperative to pursue health is strong in the United States and can reinforce or legitimize pressures to be thin for aesthetic reasons. Future work should examine how medical and fashion discourses on weight converge and the implications of these discussions for moral hierarchies and gender, race, class, and ethnic inequality.

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TABLES AND FIGURES

Table 1: News Categories and Publications, N=128

GENERAL NEWS	NEWS WIRE	BUSINESS NEWS	WORLD NEWS	MEDICAL NEWS	UNIVERSITY NEWS
Adweek Asia (N=1)	Associated Press (N=4)	Obesity, Fitness & Wellness Week (N=18)	Calgary Herald (N=1)	Biotech Business Week (N=1)	Daily Collegian (N=1)
Australian Financial Review (N=1)	Business Wire (N=2)	The Commercial Appeal (N=1)	Guelph Mercury (N=1)	Clinical Trials Week (N=1)	Minnesota Daily (N=1)
Chicago Sun-Times (N=5)	Congressional Press Releases (N=1)	The Miami Herald (N=1)	St. John's Telegram (N=1)	Consumer Reports On Health (N=1)	The Daily Free Press (N=1)
Columbus Dispatch (N=1)	Cox News Service (N=1)	The State (N=1)	The Guardian (N=1)	Health & Medicine Week (N=1)	University Wire (N=1)
Jet (N=1)	M2 PressWIRE (N=2)		The Record (N=1)	Medical Letter on the CDC & FDA (N=1)	
Milwaukee Journal Sentinel (N=6)	PR Newswire (N=5)		The Vancouver Sun (N=3)		
National Review (N=1)	San Jose Mercury News (N=2)				
Omaha World Herald (N=1)	Scripps Howard News Service (N=5)				
Pittsburgh Post-Gazette(N=1)	The Philadelphia Inquirer (N=2)				
Plain Dealer (N=1)					
St. Louis Post-Dispatch (N=2)					
St. Petersburg Times (N=1)					
Star Tribune (N=3)					
Tampa Tribune (N=1)					
The Atlanta Journal and Constitution (N=1)					
The Baltimore Sun (N=1)					
The Boston Globe (N=3)					
The Daily Telegraph (N=1)					
The Gazette (N=4)					
The Houston Chronicle (N=1)					
The Independent (N=2)					
The New York Times (N=4)					
The Ottawa Citizen (N=1)					
The San Diego Union-Tribune (N=1)					
The San Francisco Chronicle (N=2)					
The Seattle Times (N=2)					
The Toronto Star (N=3)					
The Washington Post (N=6)					
Times and Sunday Times (N=1)					
Times-Picayune (N=1)					
U.S. News & World Report (N=1)					
USA Today (N=4)					

TOTAL GENERAL NEWS, N=66	TOTAL NEWS WIRE, N=24	TOTAL BUSINESS NEWS, N=21	TOTAL WORLD NEWS, N=8	TOTAL MEDICAL NEWS, N=5	TOTAL UNIVERSITY NEWS, N=4
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Table 2: Articles in the 1999 and 2003 JAMA

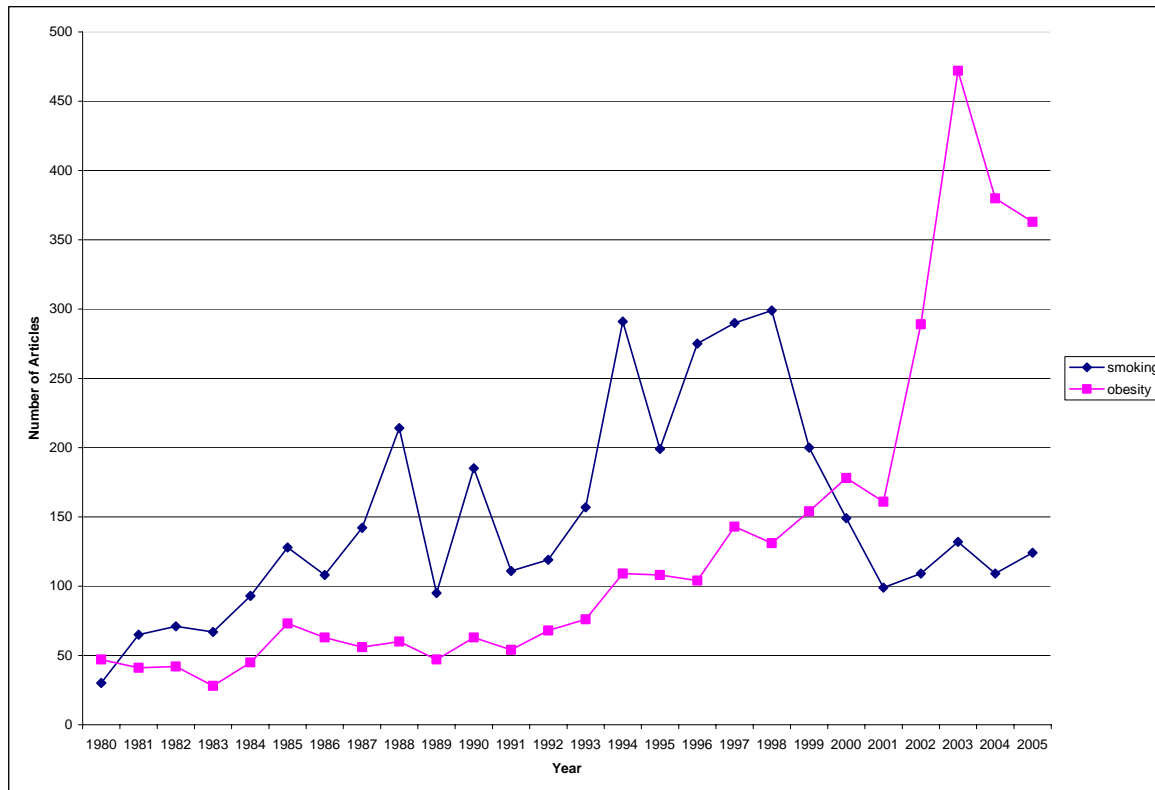
	Title	Lead Author	Topic	Press Releases	News Reports
1999	The Spread of the Obesity Epidemic in the United States	Mokdad	Increasing prevalence of obesity	2	43
1999	Annual Deaths Attributable to Obesity in the United States	Allison	Number of obesity-attributable deaths in the U.S.	1	24
1999	Recombinant Leptin for Weight Loss in Obese and Lean Adults	Heymsfield	The relationship between increasing doses of exogenous leptin administration and weight loss in lean and obese adults	1	15
1999	Caloric Imbalance and Public Health Policy	Koplan	Editorial sounding an alarm on increasing rates of obesity and calling for policy intervention	1	8
1999	Relationship Between Low Cardiorespiratory Fitness and Mortality in Normal-weight, Overweight, and Obese Men	Wei	The influence of lower cardiorespiratory fitness on CVD and all-cause mortality	0	7
1999	Dietary Fiber, Weight Gain, and Cardiovascular Disease Risk Factors in Young Adults	Ludwig	Association of fiber consumption with insulin levels, weight gain, and other CVD risk factors	2	6
1999	Effects of Intermittent Exercise and Use of Home Exercise Equipment on Adherence, Weight Loss, and Fitness in Overweight Women	Jakicic	The effects of intermittent exercise on weight loss, adherence, and fitness,	2	6
1999	Reducing Children's Television Viewing to Prevent Obesity	Robinson	The effects of reducing television, videotape, and video game use on adiposity, physical activity, and dietary intake	1	5
1999	The Disease Burden Associated with Overweight and Obesity	Must	Contribution of overweight and obesity to burden of chronic health conditions	0	4
1999	Patients, Physicians, and Weight Control	Fontanarosa	Editorial summarizing articles and urging physicians to counsel patients about diet and physical activity and to improve their own body weights, fitness, and diets	0	0
2003	Efficacy and Safety of Low-Carbohydrate Diets	Bravata	The effect of low-carb diets on weight, serum lipids, fasting serum glucose and fasting serum insulin levels, and blood pressure	2	19
2003	Health-Related Quality of Life of Severely Obese Children and Adolescents	Schwimmer	The health-related QOL of [severely] obese [and hospitalized] children and adolescents compared with "those who are healthy or those diagnosed as having cancer."	1	16
2003	Weight Loss With Self-help Compared With a Structured Commercial Program	Heshka	Weight loss and health benefits of self-help compared to structured commercial program	1	10
2003	Zonisamide for Weight Loss in Obese Adults	Gadde	The efficacy of zonisamide for weight loss in obese adults	0	9
2003	Television Watching and Other Sedentary Behaviors in Relation to Risk of Obesity and Type 2 Diabetes Mellitus in Women	Hu	The relationship between various sedentary behaviors, especially prolonged television watching, and risk of obesity and type 2 diabetes in women	1	6
2003	Behavioral Therapy and Sibutramine for the Treatment of Adolescent Obesity	Berkowitz	Whether sibutramine contributes to weight loss in obese adolescents	0	4
2003	Low-Carbohydrate Diets and Realities of Weight Loss	Bray	Editorial that labels obesity an epidemic and disease, reviews available treatments and calls for more research	1	3
2003	Effect of Weight Loss and Lifestyle Changes on Vascular Inflammatory Markers in Obese Women	Esposito	The effect of a program of "changes in lifestyle designed to obtain a sustained reduction of body weight" on markers of systemic vascular inflammation and insulin resistance	0	2
2003	Treatment of Pediatric and Adolescent Obesity	Yanovski	Editorial sounding the alarm on increasing rates of pediatric and	1	2

2003	Recombinant Variant of Ciliary Neurotrophic Factor for Weight Loss in Obese Adults	Ettinger	adolescent obesity and calling for behavioral modification, research into pharmacotherapy and surgery, and prevention Study of the safety and efficacy of injections of rhvCNTF for weight loss	0	0
TOTAL				17	189

N.B. The number of press articles and press releases add up to more than the total number since some news articles or press releases reported on more than one scientific article.

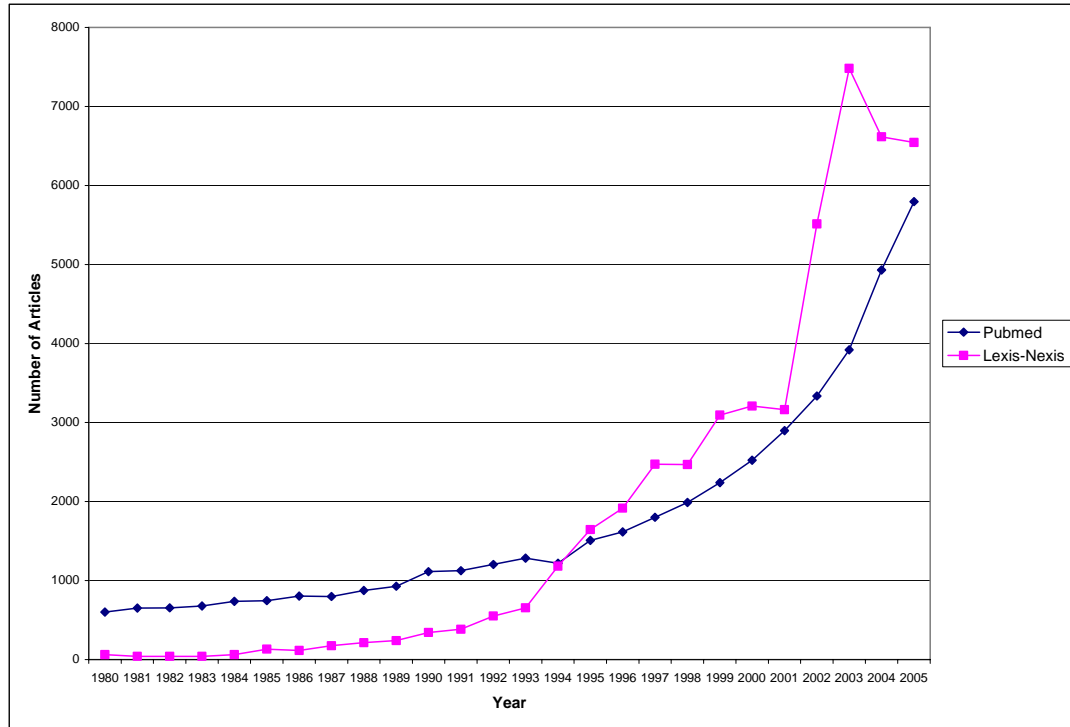
Figure 1: Media Reporting on Obesity Compared to Cigarette Smoking

Published in *Business Week*, *The New York Times*, *Newsweek*, *Washington Post*, or *US News and World Report*



N.B. Searches: 1) "Obesity" (Headline, Para, Terms) 2) "Smoking" AND "Cigarette!" (Headline, Para, Terms).

Figure 2: Science and News Reporting on Obesity



N.B. Searches: 1) "obesity" in the title/abstract in Pubmed ; 2) "obesity" in the heading or lead paragraphs in Lexis-Nexis U.S. News Sources

Figure 3: Proportion of Articles Dramatizing Risks

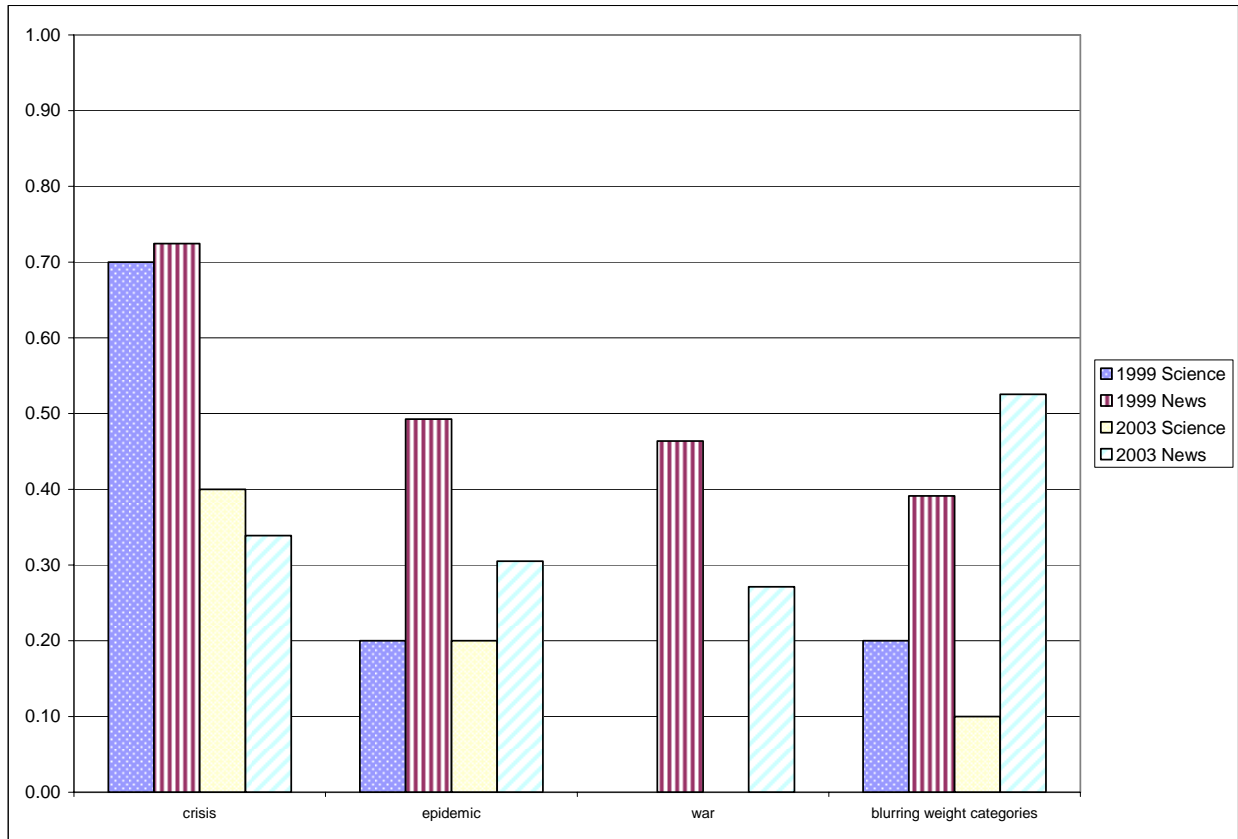


Figure 4: Discussion of Causes for Obesity, 1999 JAMA

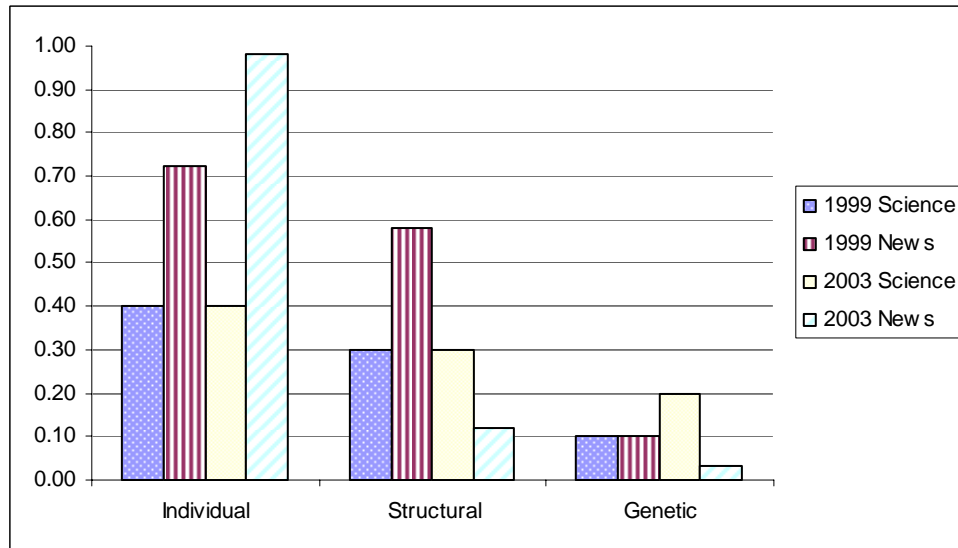


Figure 5: Discussions of Weight-Loss Techniques

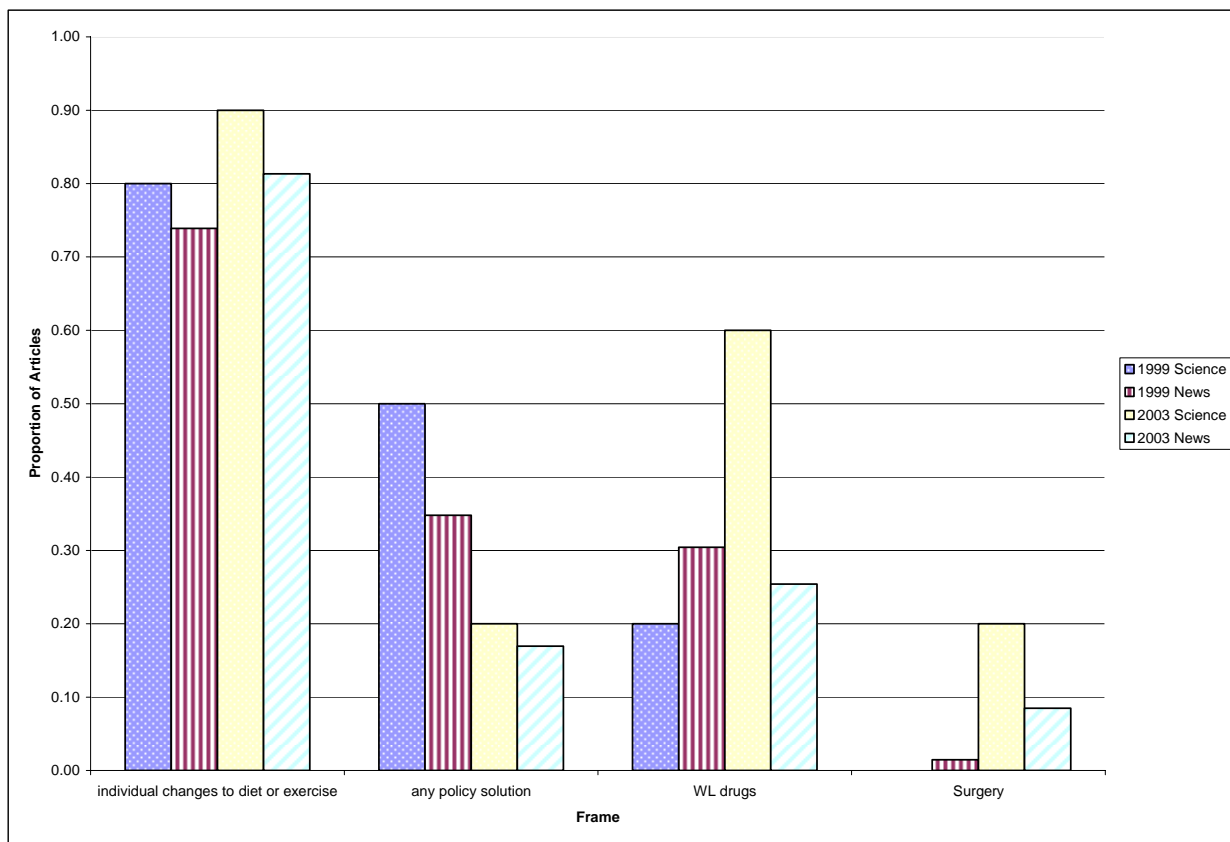
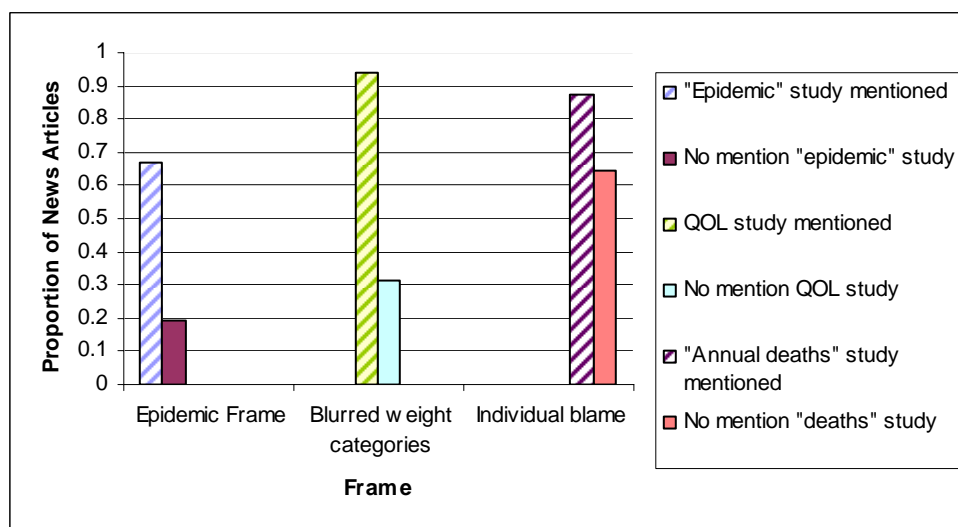


Figure 6: News Framing by Scientific Article Covered



N.B. Using a Fisher's Exact Test (two-sided), the difference in framing between news articles that mention or do not mention these scientific studies is significant at $p=.000$ for the "epidemic", $p=.001$ for the "quality of life," and $p=0.049$ for the "annual deaths" studies.

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