

Dieting, Weight, and Health: Reconceptualizing Research and Policy

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The damaging side effects of the thinness pursuit are a growing social problem and public health threat causing concern for many health professionals. This concern stems from several areas of research outlined by the authors of this issue. First, research has consistently shown that weight loss programs do not have long-term positive outcomes. Continued participation in weight loss programs is associated with repeated weight loss and regain. This may cause problems, as weight fluctuation is associated with increased mortality and cardiovascular disease. Additionally, chronic restrictive dieting is a significant risk factor for the development of binge behavior and eating disorders. Direct adverse effects of weight loss programs and dangerous weight loss strategies such as laxative use, smoking cigarettes, very-low-calorie diets, prescription and over-the-counter diet pills, pose serious health risks. In a weight-centered approach toward health, thinness is viewed as a crucial goal for optimum health, and thus one to be strived for by all. Although thinness is believed to be synonymous with good health, this conclusion reflects only selective interpretations of research. There is considerable need to reinterpret previous data filtered through a thinness-biased lens that has led to inaccurate conclusions. The following past conclusions are reevaluated by the authors of this journal issue and summarized here: people can change their weight at will, dieting works and improves health, dieting makes you feel good, and fatness equals disease while thinness equals optimal health. Implications of this reconceptualization for a scientific and policy paradigm shift are discussed, and alternatives are proposed.

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As the health priority to eliminate and prevent obesity intensified over the decades, dieting and other weight loss behaviors increased in frequency. As much as 40% to 70% of the U.S. population is trying to lose weight at any given time, with young women the most likely to be struggling with their weight (CDC, 1991). The amount of money spent on weight loss products, commercial programs, and aids in the United States is more than \$33 billion annually (Wolf, 1991). This does not include the cost of medical and psychological interventions for weight loss, including diet drugs, alternative medicine practices, and weight loss surgery. Yet with much of the population dieting and millions pursuing stronger measures to lose weight, and so many resources consumed by a vast coordinated effort to eliminate the problem of obesity, the incidence of obesity has not declined but rather continues to rise (Miller, this issue; Ernsberger & Koletsky, this issue).

The prevalence of overweight in the United States was estimated at 33% of Americans in 1997, based on a Body Mass Index (BMI) cutoff of 27.3 (Kuczmarski, Flegal, Campbell, & Johnson, 1994). New, less strict criteria for overweight increase this proportion even further. The National Heart, Lung and Blood Institute (1998) lowered the cutoff for overweight to a BMI of 25 or higher, thus classifying 55% of the adult population as overweight.

Owing to associated health risks (see Ernsberger & Koletsky, this issue), obesity is defined as a medical condition, and the standard treatment is a form of restrictive dieting with the goal of weight loss (see Cogan & Rothblum, 1992, for review). For half a century, psychologists, physicians, nutritionists, other health professionals, and commercial weight loss organizations have directed the weight loss efforts of the obese and the not so obese. The federal government has spent millions of dollars on public health campaigns and other initiatives to alert the public about possible dangers of obesity, and urging weight loss for all those who do not conform to specific weight standards (Burton, Foster, Hirsch, & Van Itallie, 1985).

Is the Elimination of Obesity Through Weight Loss an Optimal Health Goal?

The tendency to continue promoting weight loss in the name of health, even in the absence of long-term outcome data, reflects what we term the “weight-centered approach toward health.” The monolithic focus on the elimination of obesity through weight loss has led to a high rate of dieting and other weight loss behaviors of concern to many health professionals (Berg, 1995; Garner & Wooley, 1991; Kassirer & Angell, 1998). This concern stems from several areas of research outlined by the authors of this journal. Evidence continues to accumulate that weight loss through restrictive dieting and other methods (1) has not cured obesity in a significant portion of participants, (2) is unsuccessful in producing even minimal permanent weight loss in the majority of cases, and (3) is not critical for improving health for those considered obese relative to exercise and healthful diet choices (Miller, this issue).

Additionally, continued participation in weight loss programs is associated with repeated weight loss and regain, which may cause problems, as weight fluctuation is associated with increased mortality and cardiovascular disease (Ernsberger & Koletsky, this issue). Integral to the weight-centered approach is “thinness bias,” a guiding principle rarely acknowledged and addressed by researchers and health professionals (see Cogan, 1999; Ernsberger & Haskew, 1987).

Thinness Bias

Bias is the systematic error introduced into the testing of phenomena and interpretation of results by selecting one outcome or answer over another. Thinness bias, then, is the error of seizing upon results that favor thinness or paying selective attention to thinness-promoting information (see Cogan, 1999). Information or content that does not support thinness as the optimal health and beauty standard is ignored or even attacked. Thinness bias is all-pervasive in the United States today. Such bias is manifested in everyday interactions between teachers and students (Rothblum, this issue) and coaches and athletes (Thompson & Sherman, this issue), on television screens and the pages of magazines (Thompson & Heinberg, this issue), in research journals (Ernsberger & Koletsky, this issue; Rothblum, this issue), and in health and public policy recommendations (Berzins, this issue; Cogan, this issue).

Biases are not uncommon; in fact it is difficult to avoid operating under a certain set of biases at any given time. Aesthetic biases favoring slender figures socially or in the media are deeply ingrained in our society. When such biases make themselves felt in the arena of health care and public policy, they move beyond the question of personal preferences and can have serious consequences (Berg, this issue). This is a central concern of the contributing authors.

Outlining the Problem

An unintended outcome of the current weight-centered approach toward health is that in the United States today people are literally dying to be thin through weight loss drugs (e.g., pulmonary hypertension after prolonged use of fen-phen), very-low-calorie diets, stomach stapling, rapid weight loss, diet-induced nutritional deficiency (e.g., adult osteoporosis), weight fluctuation, and eating disorders (see Berg, this issue). Unfortunately, the costs of thinness bias are great, with a host of iatrogenic problems and casualties. Those considered obese are blamed and judged for their “condition.” Women of all sizes and shapes suffer from body hatred (Striegel-Moore, Silberstein, & Rodin, 1987). Children are “afraid to eat” (Berg, 1997) and afraid of being fat, teased, and taunted. Millions of Americans have dieted unsuccessfully again and again, and they internalize their failure to maintain weight loss (Jeffery, French, & Schmid, 1990). Anorexic teenage girls are

at risk for adult osteoporosis and death (Berg, this issue). So many people are shunned and scrutinized by peers and strangers for not fitting the ideal health body size (see later discussion on obesity-related stigma). Families have lost their daughters, sisters, or mothers to anorexia, or diet drug-related deaths (see Berg, this issue).

The pursuit of thinness, therefore, is a growing social problem and public health threat. At a time, entering the 21st century, when medical technology has made revolutionary advances, how is it that we find ourselves facing this new health problem? We posit that the answer lies within the dominant approach toward health, which considers obesity a dire public health threat in urgent need of treatment and prevention (e.g., Institute of Medicine, 1995). Yet this conceptualization of obesity and health is incomplete and therefore problematic. Although fatness is believed to be synonymous with bad health, this conclusion reflects only selective interpretations of research (Berg, this issue; Cogan, 1999; Ernsberger & Koletsky, this issue; Kassirer & Angell, 1998). There is considerable need to reinterpret previous data that have been filtered through a thinness-biased lens. In this *Journal* issue we reinterpret past conclusions built up from such assumptions.

Organization of the Issue

Given that the authors are reinterpreting past assumptions, most articles in this issue are research reviews, with presentation of new original research and data analysis when available. The journal is organized into three sections. In the first section, *Physiological and Psychological Foundations for a Paradigm Shift*, the authors address a number of common misperceptions about weight, health, and dieting. Through the reanalysis of data and presentation of new or often-ignored research, the authors make a strong argument for shifting away from a weight-centered model toward health. In the second section, *The Damage Is Done: Consequences of the Thinness Pursuit*, authors focus on a number of rarely recognized negative outcomes of the weight-centered model with respect to health. The journal concludes with a section on *Strategies for Change: Shifting the Paradigm*. Two authors discuss policy efforts and recommendations to provide more accurate information to the public on health, weight, and dieting. Since offering alternatives to the current weight-based model of health is a unifying goal of all of the contributing authors, the reader will find such suggestions throughout this issue.

Physiological and Psychological Foundations for a Paradigm Shift

A coalescence of multiple incomplete and inaccurate notions about weight, health, and dieting, each reinforcing the other, and each widely accepted by

professionals and the lay public, compels a shift of paradigm. The authors in this section address the following misunderstood assumptions: (1) people can change their weight at will, (2) dieting works and improves health, (3) dieting is good for you, and (4) fatness equals disease and thinness equals health.

People can change their weight at will. The first common notion of obesity, dieting, and health addressed by the authors in this issue is that people can change their weight at will. The goal of every participant in a weight loss program is a thinner self. Promises are made and plans created specifying a schedule of declining body weight, always with the stipulation that the program must be followed exactly. The implication is that if participants fail to lose weight or regain the lost weight, the fault lies with them, and not with the program. Inherent in the expectation of weight loss is the belief that body weight is readily controlled through human behavior. Although seemingly obvious, assumptions about the voluntary nature of obesity do not account for the important role of biological factors, especially genetics, in determining body weight and size.

Though research establishing the genetic inheritability of human body size has existed since the 1920s, the genetic influence is still not widely acknowledged by professionals or the media. The role of genetics has been examined through both twin and adoption studies with the consistent finding that genetic factors are of overwhelming importance (Bouchard et al., 1990; Poehlman et al., 1986; Price, Cadoret, Stunkard, & Troughton, 1987; Stunkard, Harris, Pedersen, & McClearn, 1990; Stunkard et al., 1986). For example, in a study examining the relationship between body weight among fraternal and identical twin pairs reared together or reared apart, Stunkard and his colleagues (1990) found that twins were likely to be similar in body weight regardless of whether they were reared together or apart. A recent report by a panel of experts on weight loss concluded that the preponderance of data points to genetics as a central determinant of obesity (Institute of Medicine, 1995).

Body weight, however, is not completely controlled by genetics in lockstep. The genetic component is an inherited propensity toward weight gain. Some people gain weight readily because of a “thrifty gene” that favors the laying down of fat stores as a defense against periodic famines (Ernsberger & Koletsky, this issue). Others gain little weight even when they overeat and are inactive. The most famous example comes from the Vermont prisoner study by Ethan Allen Sims (1989), wherein inmates were paid to gain weight. Prisoners who had no family history of obesity were unable to gain enough weight to become overweight, even consuming up to 6,000 calories a day. When the study ended, they quickly lost the weight they gained. Prisoners with a family history of obesity gained weight readily and did not lose it again right away. Identical twin studies also show that the tendency to gain weight during overfeeding and the ability to lose weight after a bout of overeating are almost entirely determined by genetics (Bouchard et al., 1996).

The genetic influence on obesity, considered alongside other biological determinants of body weight, such as differences in resting metabolic rates and individual set points (see Bennett & Gurin, 1982, for review), clearly suggests that body weight and size are not solely determined by individual behaviors and therefore are not easily changeable.

As outlined by Wayne Miller in his article in this issue, permanent weight loss typically does not follow weight loss efforts whether through means of dieting or exercise. This further illustrates that body weight is not merely a result of human behaviors that simply need to be revised.

Dieting works and improves health. Many people still believe that dieting (1) is a safe, effective, and permanent means to thinness and (2) improves health. In his article, Wayne Miller reviews the literature on the effectiveness of restrictive dieting for long-term permanent weight loss and concludes that dieting does not work. He cites the conclusion of Stunkard and McLaren-Hume in 1959 that dieting was an ineffective strategy for weight loss for 95% of those in a hospital nutrition clinic. Although some challenge this commonly cited 95% failure rate for dieting, Miller's review of the obesity research reveals that we have not become any more effective in the use of diet and exercise for obesity therapy over the past 40 years. Additionally, he examines the literature on weight loss and health, finding that weight loss is not associated with improved health, but rather exercise is. Epidemiological studies indicate that fitness, not fatness, is related to disease and mortality. These health benefits of exercise accrue whether or not any weight is lost.

Adding to this discussion, Ernsberger and Koletsky review the evidence that weight loss is a cure for three conditions, namely type-2 diabetes, high blood pressure, and elevated cholesterol. Despite widespread claims of effectiveness, apparent improvements in these conditions during the process of losing weight are transitory and evaporate in the long term even when weight loss is maintained. If the weight is regained, these temporary benefits are nullified and risks associated with weight fluctuation are introduced. If dieting does not work and does not improve long-term health, why is it still enthusiastically endorsed as a prioritized health improvement strategy?

Dieting is good for you. A third common assumption about obesity, dieting, and health is that dieting is good for you, or that it makes you feel good. Indeed dieters often talk of a sense of euphoria and feelings of accomplishment upon embarking on a new diet. Yet, as is reviewed in the article by Traci McFarlane, Janet Polivy, and Randi McCabe, researchers have found that dieting through a restriction of calories has a host of negative consequences, including an adverse effect on cognitive performance and body image; dieting is associated with negative mood and depression, binge behavior, and the onset of eating disorders. Dieting also precipitates preoccupation with food and eating.

Dangerous weight loss strategies lead to health problems. In the 1970s a number of popular very-low-calorie diets such as the Cambridge diet resulted in the deaths of more than 50 people (see Berg, 1995, for discussion). The physiological consequences of restrictive dieting and risky weight loss strategies are the focus of Frances Berg's article in this issue. The many adverse physical effects of various weight loss methods in use today has received very little research attention. In her article, Berg reviews the health risks associated with prescription and over-the-counter diet pills, semistarvation and other diets that restrict entire categories of foods, stomach reduction surgery, purging, laxatives, diuretics, vomiting, and fasting.

For example, Berg discusses the health threat posed by the widespread and inappropriate use of certain diet drugs such as fen-phen. According to a recent *JAMA* study, adverse drug reactions are estimated to be the fourth to sixth leading cause of death for hospitalized patients (Lazarou, Pomeranz, & Corey, 1998). This is within a physician-controlled environment with constant professional attention. The degree of monitoring and medical supervision of patients taking diet drugs varies considerably. There is even greater potential for mishaps from the hazardous adverse reactions to prescribed drugs when there is little monitoring and supervision. The fen-phen regimen was dispensed typically after a single doctor visit with a cursory examination and often very little follow-up (Fraser, 1997).

In past decades, other dangerous weight loss methods were widely used, such as amphetamines, thyroid hormones, intestinal bypass, and the metabolic poison dinitrophenol (reviewed in Ernsberger & Haskew, 1987). The legacy of these weight loss methods is still with us and may serve as an important confound in our understanding of disease in obese people. To give one example, in an influential epidemiological study of residents in Framingham, Massachusetts, that began in 1948, two-thirds of all patients treated for obesity were given a prescription for amphetamines (Grinspoon & Hedblom, 1975). Medical problems known to be triggered by amphetamines when given in high enough doses for sufficient length of time include high blood pressure, stroke, and congestive heart failure (Ernsberger & Haskew, 1987; Kokkinos & Levine, 1993; Levine, Caplan, & Dixon, 1984; Yelnosky, Panasevich, Borrelli, & Lawlor, 1969). Not coincidentally, these three diseases were the ones most strongly linked to obesity in the Framingham study. Because prescription records were not kept for participants in that study, we may never know to what extent the high rates of cardiovascular disease in obese persons were induced or exacerbated by diet pills or other hazardous treatments.

Adding to this discussion, Wayne Miller provides a historical review of the risks and effectiveness of specific diets such as fasting, high-protein, low-carbohydrate diets, protein-sparing modified fasts or liquid protein diets, and the current popular very-low-calorie diets. His brief survey of the most popular dieting techniques used over the past 40 years shows that many are hazardous to

health and do not offer a permanent cure for obesity. The average amounts of weight lost from successful completion of such diets are 10 to 20 kg, and this weight is generally regained within three to five years once the particular diet is no longer used. In fact, the success rate of various diet programs may be overstated, because in many cases participants gain all the weight back and are on another weight loss regimen at the time they are contacted for follow-up. Furthermore, there is a documented publication bias wherein numerous trials of weight loss that fail to show positive outcomes are never published (Allison, Faith, & Gorman, 1996). Thus, the published literature may overestimate the effectiveness and beneficial outcomes from weight loss.

In light of these findings on the psychological and physiological consequences of restrictive dieting and risky weight loss strategies, we must reconsider the notion that dieting is good for people.

Fatness equals disease and thinness equals health. Another common misperception in the area of obesity, health, and dieting is that obesity directly causes disability and death and should be considered a disease itself, whereas thinness equals optimal health. As reviewed by Ernsberger and Koletsky (this issue), obesity experts have focused attention on a list of diseases that are more common in the obese than in the lean. This simple association in human populations is weak evidence for guiding public health policy. As Ernsberger and Koletsky address in their article, there are currently no data from controlled trials showing that weight loss reduces disease or extends life expectancy. Indeed, such trials are impossible owing to a lack of effective treatments. The best information available on health and weight comes from a large number of prospective studies that evaluated the BMI and health of several thousand people, then followed their health and time of death across a decade or more.

What can we learn from these prospective studies? As Ernsberger and Koletsky discuss, nearly all studies showed that overweight increased risk only when it was extreme, and that moderate levels of overweight do not pose serious health threats. A large study in Germany that focused exclusively on obese women and men found increased risk of death only when the BMI was higher than 32, corresponding to severe obesity (Bender, Trautner, Spraul, & Berger, 1998).

Extreme thinness poses serious health risks. Contrary to the notion that thinness equals optimal health, in their article Ernsberger and Koletsky present research showing that extreme thinness is associated with increased mortality. For example, according to an epidemiological Norwegian study that followed 1.8 million people for 10 years, those in the lowest weight category (BMI equal to or less than 18) were at highest risk for death (Waalder, 1984). Many women looked to as role models, such as models and actresses, fall in this category, associated with an increased risk of premature death. Women who were considered morbidly

obese, weighing twice the weight of proposed weight standards ($BMI > 40$) had a higher chance of survival than women did in the leanest weight category. Similarly, Ernsberger and Koletsky review many other long-term studies that showed that those at either extreme of the weight continuum were at greatest risk for mortality. The consistent pattern appears to be that individuals in the lowest weight category are at greatest risk, those in the highest weight category are also at high risk, and those at average to slightly above average weight were at least risk in terms of mortality. This pattern is widely recognized by epidemiologists (Allison et al., 1996). However, the crucial fact that the relationship between body weight and life expectancy is U-shaped—low in the middle and high at either end—is not widely known to the public or even to health care professionals.

The Damage Is Done: Consequences of the Thinness Pursuit

The idea that thinness equals health is one of the most widely held half-truths today. Contrary to this notion, however, the pursuit of thinness also has negative consequences. The following consequences are addressed by the authors of this issue:

1. Eating disorders are prevalent and life threatening (Cogan).
2. Body dissatisfaction is widespread and can lead to depression (Grant et al.).
3. Thin images portrayed by the media negatively affect psychological health (Thompson & Heinberg).
4. Weight-centered criteria for determining success in sports lead to eating-disordered behaviors (Thompson & Sherman).
5. A weight-centered model of health leads to obesity-related stigma (Rothblum).

Eating disorders and athletics. In July 1997, at the age of 22, a ballerina in Boston, Heidi Guenther, died from anorexia-related complications after she had been asked by her nutritionist to lose a little weight. People were shocked that this could happen. Unfortunately, it happens much more than we ever hear about. People suffering from anorexia have an annual death rate of 0.5% per year at age 19 (Tolstrup et al., 1985). This contrasts with a death rate of average-weight young women of 0.04% per year (Waalder, 1984). Young women with a BMI under 19, a body build category that includes those with anorexia, have a death rate that is two-and-a-half times higher, or 0.10%. Another, more recent study reported an 18-fold increase in the risk of death for individuals with anorexia, making this the psychiatric disorder with the highest mortality rate (Norring & Sohlberg, 1993). These fatality rates are made even more remarkable by their occurrence predominantly in affluent young White women, who have the lowest overall mortality rate of any demographic group. Moreover, the follow-up in all of these studies extends

only into the third decade of life. People who have recovered from anorexia (and bulimia as well) may be at increased risk of chronic disease later in life.

As Ron Thompson and Roberta Sherman (this issue) discuss in their article on athletes and eating disorders, a popular assumption today is that a thin body is necessary for certain sports (e.g., ballet, gymnastics, cross-country running) and that weight reduction will lead to enhanced athletic performance. Therefore, when athletes are not performing up to coaches' standards, coaches often misattribute this to the athlete's weight and recommend weight loss. Unfortunately, centralizing weight in competitive sports is not without consequence; athletes in weight-centered sports have higher rates of eating problems (Thompson & Sherman, this issue).

Body dissatisfaction can lead to depression. According to research, girls experience a more intense pressure to fit in and strive for a thin health and beauty ideal than boys (e.g., Silverstein, Perdue, Peterson, & Kelly, 1986; Striegel-Moore, Silberstein, & Rodin, 1986). As Grant and her colleagues outline in their article, the pressures to be thin increase for girls just as their bodies gain the weight and fat associated with pubertal development. Whereas pubertal changes in males tend to be valued by society and by males, pubertal changes in girls, which often mean increased body fat, are devalued.

Additionally, research has consistently found that girls suffer from depression at higher rates than boys. Body image dissatisfaction is associated with psychological outcomes, including depression. Thus, as Kathy Grant and her coauthors posit, one plausible explanation for the increased rates of depression among girls is that they are more likely to suffer from negative body image. The authors tested the hypothesis that gender differences in poor body image actually account for gender differences in depression. Their results, presenting original data, indicated that indeed poor body image, alone, accounted for gender differences in depression among a low-income African American adolescent sample. This finding is important because depression is damaging to adolescent health. Depressive symptoms such as low self-esteem, poor concentration, lethargy, and hopelessness are distressing and debilitating to adolescents, and can lead to suicide.

Thin images portrayed by the media negatively impact psychological health. Another negative consequence of thinness bias is the consistent depiction of only thin female images in the media. According to a sociocultural model, the existence and influence of thinness bias, which is all-pervasive in the United States today, contributes to the development of negative body image and eating disorders (Striegel-Moore et al., 1986). Many theorists have long criticized fashion magazines, movies, television, and advertising for their consistent reproduction and communication of thinness-biased messages (e.g., Silverstein et al., 1986). In their article, Kevin Thompson and Leslie Heinberg illustrate how the mass media are one of the most potent and pervasive communicators of thinness bias. They review

the correlational and experimental research examining the relationship between media depictions and body image satisfaction and find that viewing depictions of thin women in advertising and other forms of the media has a negative impact on body image. They additionally find that a tendency to *internalize* media messages regarding ideals for attractiveness is an important mediator between exposure and the development of eating and shape-related disturbances. Individuals most likely to internalize have higher rates of body image disturbance after exposure to ideal images of health and beauty.

Weight-centered model of health leads to obesity-related stigma. An outcome of the overemphasis on body weight as the primary determinant of health has led to the stigmatization and stereotyping of the obese. Internalized negative images of obese persons influences researchers' interpretations and recommendations. Therefore, it is imperative that we better understand the social psychological dynamics of this stigma. Obesity-related stigma refers to how the fat person is stereotyped, morally judged, and viewed with disdain. This stigmatization is a source of great pain and suffering for those who are targeted. A 1996 story in *USA Today* tells about a 12-year-old boy, Samuel Graham, who hung himself because he could no longer bear the constant teasing and harassment of his classmates about his 174 pounds on his 5-foot-4-inch frame. Although research consistently shows that obesity is not associated with increased levels of psychopathology (Stunkard & Wadden, 1992) or lower self-esteem (Klesges, Klesges, Haddock, & Eck, 1992), individuals considered to be obese do experience overt forms of size discrimination that have serious social consequences (Gortmaker, Must, Perrin, Sobol, & Dietz, 1993).

The social psychological dynamics of obesity-related stigma. In what is perhaps the best known analysis of the dynamics of stigma, Erving Goffman (1963) defined stigma as "an attribute that is deeply discrediting within a particular social interaction" (p. 3). Stigma is not inherent in any attribute itself, but rather emerges in social interactions in which the attribute is given meaning based on the persons' expectations and ideas. Such an interaction leads to a discrepancy between social expectations and reality. This discrepancy is in an unfavorable direction; the individual is perceived as different and, whether accurately or not, as unable to fulfill fundamental role requirements. This "undesired differentness" overshadows all of the person's other attributes, feelings, and experiences (Goffman, 1963, p. 5). The stigmatizing attribute therefore attains a master status, which overrides all of the individual's other qualities and serves to define the individual as an "other," an outsider, one who is not part of normal society.

Following this definition, then, obesity is clearly a stigma (Allon, 1973). Research on attitudes and actions toward the obese is remarkably consistent. Those considered obese, when compared to nonobese counterparts, are less likely to be

accepted into elite colleges (Canning & Mayer, 1967), more likely to be discriminated against in their place of employment (Larkin & Pines, 1979; Rothblum, Brand, Miller, & Oetjen, 1990), more likely to be unemployed or living below the poverty level (Gortmaker et al., 1993), less likely to be chosen by land owners as renters (Karris, 1977), less likely to date in high school (Sobal, Nicolopoulos, & Lee, 1995), less likely to marry (Gortmaker et al., 1993), less likely to be chosen by their peers as friends (Harris, Harris, & Bochner, 1982; Lerner & Gellert, 1969), more likely to be economically downwardly mobile (Gortmaker et al., 1993; Rothblum, 1990), and more likely to have negative stereotypes associated with them, such as that they are lazy, ugly and gluttonous (Maddox, Black, & Lieberman, 1968; see Wooley, Wooley, & Dyernforth, 1979, for review). Children learn this stigma in early childhood. According to research with grade school samples, fatness is associated with such adjectives as *stupid*, *dirty*, *mean*, *ugly*, and *sad* (see Wooley et al., 1979, for review) and with poor social functioning and impaired academic success (Hill & Silver, 1995).

Even health professionals fall prey to obesity-related stigma. For example, Blumberg and Mellis (1985) surveyed 100 medical students and found that they described moderately obese patients as being more awkward, ugly, lacking in self-control, depressed, weak, difficult to manage, and unsuccessful than average-weight patients. Another survey found that medical students considered obese patients lazy and self-indulgent (Wiese, Wilson, Jones, & Neises, 1992). Fortunately, the students in the study were successfully educated to overcome these stereotypes by being given more information on the genetic basis for obesity. A study of nurses' attitudes showed that having a low BMI oneself was associated with a tendency to blame obese patients for their condition and to take a simplistic approach to weight loss (Hoppe & Ogen, 1997).

Yet when we look to cross-cultural research, it becomes evident that obesity is not universally stigmatized. Many developing nations consider obesity a sign of status and wealth (Cassidy, 1991; Sobal, 1991; Sobal & Stunkard, 1989; see Rothblum, 1990, for review), do not evaluate thinness as the ideal image of health and beauty (e.g., Cogan, Bhalla, Sefa-Dedeh, & Rothblum, 1996), and have lower rates of disordered eating and negative body image (Cogan, et al., 1996; Furnham & Alibhai, 1983; Raich et al., 1992; Tiggemann & Rothblum, 1988). Additionally, acceptance of larger body size is more common among African Americans in the United States than other racial groups (Stevens et al., 1992), although there is some evidence that this seems to be changing. Poor body image and eating disorders appear to be on the rise among girls and women of color, suggesting that even groups once presumed to be immune to the pressures toward thinness are becoming increasingly vulnerable to weight loss messages (see Grant et al., this issue).

Addressing the influence of obesity-related stigma, in her article Esther Rothblum discusses how such stigma enters the scientific process. She outlines three confounds in obesity research that paint a more rosy picture of weight loss

programs as a cure for obesity: the focus on specific treatment conditions rather than poor outcome, the lack of focus on change from clinical to nonclinical levels of obesity, and the lack of focus on physical health correlates. Additionally, she highlights how psychology plays a role in perpetuating obesity-related stigma by the often incomplete and one-sided coverage of the literature on obesity and dieting in undergraduate psychology textbooks. Through her analyses it becomes clear that clinical psychologists are often part of the problem. In research, teaching, and media, respectively, it is not uncommon for them to perpetuate misinformation about weight and dieting.

Strategies for Change: Shifting the Paradigm

There are many possible strategies for shifting the paradigm away from one that centralizes weight to one that centralizes health (e.g., Garner & Wooley, 1991; Polivy & Herman, 1992). One such avenue is public policy. In her article, Lisa Berzins describes the process of using social science data to write and pass the first ever diet law in the country. She outlines how despite a proliferation of diet aids, products, and programs, there is little to no information available to the consumer on the efficacy and safety of these weight loss methods. Additionally, there are currently no federal guidelines for regulating the dieting industry. This is fertile ground for harm to consumers who cannot provide truly informed consent. For this reason, Berzins began working with the Connecticut state legislature to pass the 1996 Connecticut Diet Disclosure Law, designed to require diet companies to disclose scientifically rigorous data on program efficacy. She offers a model for succeeding in passing state legislation as she describes the process from educating policy makers, to writing the bill, to implementing the law.

In addition to state policy, federal policy is an important avenue for moving toward a new health model. Tying together the many points articulated by the authors of this *Journal* issue, Jeanine Cogan suggests that the primary objective of the federal government should be to provide the public with more complete and accurate information about health, weight, and dieting. In order for federal agencies and Congress to promote a new national health agenda that reflects a more accurate understanding of the relevant research, she suggests that the following policy changes are needed:

1. the recognition of the health threat imposed by the thinness pursuit and eating disorders
2. the promotion of weight stability rather than weight loss
3. ensuring the conclusions of federal agencies are unbiased rather than serving special interest groups
4. protecting the consumer from harmful diet programs and drugs

5. providing public education campaigns emphasizing physical and psychological health rather than body weight.

She concludes her article with a summary of successful federal policy efforts for advancing such a national health-centered agenda.

In addition to state and federal policy initiatives for changing our approach toward health, the authors in this issue have proposed a range of other alternatives:

1. a nondiet approach toward health in which individuals improve their health through exercise and healthy eating rather than a restriction of food intake (Miller; McFarlane et al.)
2. promoting health through the consideration of interdependent health factors, such as positive body image, eating well (e.g., low fat consumption), maintaining a healthy relationship with food (e.g., not bingeing), self-acceptance, and enjoying physical activity (Berg; Cogan)
3. inoculation, through media literacy and activism, against toxic media messages that promote extreme thinness as the ideal for beauty and health (Thompson & Heinberg)
4. deemphasizing weight when determining successful athletic ability, since the state of underweight and eating disorders are unhealthy and not conducive to optimal athletic performance (Thompson & Sherman)
5. providing more accurate and complete information to students, the media, and the public about the documented health threats associated with certain weight loss strategies and with weight fluctuation, the role of genetics in regulating body size, the psychological consequences and high failure rates of restrictive dieting, and the dynamics and consequence of obesity-related stigma (Berzins; Cogan; Ernsberger & Koletsky; Rothblum)

What Is the Standard for a Scientific Shift of the Paradigm?

In using the term “paradigm,” we mean it as was defined by Kuhn (1962) in *The Structure of Scientific Revolutions*. A paradigm shift occurs when “normal science,” which makes incremental advances in a set framework, reaches a crisis and suddenly shifts course as a new set of operating principles and assumptions takes hold. The primary example used by Kuhn is the Copernican revolution wherein the sun was accepted as the center of the solar system. Obesity research, we believe, has reached just such a crisis, and the largely unspoken assumptions that drive obesity research in diverse disciplines must be replaced. Current obesity research should probably be considered technology rather than true science, because it represents the application of behavioral and biomedical science toward the narrow goal of weight loss. Open inquiry into the ramifications of obesity for the individual and society by means of hypothesis testing has been lacking. An

unspoken assumption underlying current obesity research in most fields is that body fat is toxic to the body and psyche, and all means necessary must be taken to minimize adipose tissue, almost without regard for the potential costs: medical, fiscal, and psychological. A new, health-centered paradigm would free obesity research from its devotion to technological fixes, which would represent a profound revolution in this field.

Additionally, in medical research there is an important difference between experimentation and validated therapeutic treatment (Lustig, 1991). In the latter, a procedure is validated through repeated and systematic testing of its efficacy and safety. For other health issues, there is an accepted hierarchy of information that can be relied on. At the pinnacle is the randomized controlled trial, followed by prospective epidemiological studies, retrospective case control studies, and finally cross-sectional correlations in a population at a single time. Obesity experts have relied solely on cross-sectional studies, although they are the least reliable. Such a trial is not even possible for obesity treatment, because no intervention can produce the necessary long-term weight loss so that the impact on chronic diseases and life expectancy can be assessed. Given this standard, weight loss research is in its experimental stage at best. Yet perhaps more accurately, the various weight loss methods as a strategy for curing obesity have been found to lack effectiveness and can be considered unproved health practices (see Miller, this issue). Moreover, besides being ineffective, weight loss methods are also often unsafe (see Berg, this issue; Miller, this issue).

Another criterion for measuring the current state of the weight loss literature is to examine internal validity, or a degree of certainty that one event causes another. Research may lack internal validity when many other unknown factors could affect the results (Smith & Mackie, 1995). Obesity research has, out of necessity, relied heavily on observed correlations rather than manipulation of the independent variable of body weight. Therefore, intervening or confounding factors are highly probable, as illuminated by recent research. As covered in the article by Cogan (this issue), research on weight fluctuation calls into question studies finding a relationship between obesity and poor health that did not account for weight fluctuation. For example, the main studies used for a report by the National Institutes of Health (1985) that concluded obesity was a health threat did not control for weight fluctuation. Yet weight fluctuation is associated with some of the very risk factors that obesity has been associated with, such as coronary heart disease, hypertension, and overall mortality (Cogan, this issue; Ernsberger & Koletsky, 1993). Another confounding factor is socioeconomic status. As discussed by Ernsberger and Koletsky (this issue), obese persons are much more likely to live in poverty and lack education, and these socioeconomic factors are powerful predictors of health and longevity, independent of body weight.

Concluding Thoughts

A logical conclusion, when considering the typical standards for shifting paradigms and all of the central findings reviewed by the authors of this *Journal* issue concurrently, is that there needs to be a new approach toward health. Centralizing health rather than weight may be of special importance for the well-being of children and adolescents, since research shows that young girls are dieting in large numbers and at early ages (Grant et al., this issue), engaging in risky weight loss behaviors, and developing eating disorders (Berg, this issue). In fact, women and girls are disproportionately affected by eating problems and eating disorders (Grant et al., this issue), and more likely to be the consumers of diet products (Cogan & Rothblum, 1992) and to suffer the negative consequences of dangerous weight loss methods and obesity-related stigma (Gortmaker et al., 1993).

Additionally, research shows that eating problems, though once considered more of a White, upper-middle-class phenomenon, are becoming more common among women of color and people of all socioeconomic groups (Grant et al., this issue). Given the high prevalence of obesity among minority women, the health consequences of adopting risky weight loss strategies may be enormous.

By shifting to a more comprehensive approach toward health we can prevent new populations once considered immune and another generation of children, women, and men from developing eating problems, loathing their bodies, engaging in risky weight loss strategies, and dying to be thin.

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