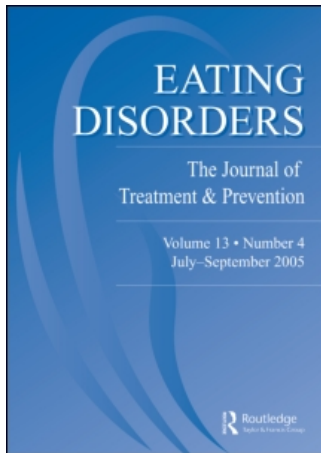


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The Risks of a Quick Fix: A Case Against Mandatory Body Mass Index Reporting Laws

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As the United States addresses obesity, a number of state legislatures are considering laws that require schools to track and report students' body mass index (BMI), a measurement of body weight (weight/height²). This article describes the state level activity on mandatory BMI reporting, offers numerous arguments against this practice, and suggests an alternative approach to promoting health in youth. Mandatory BMI reporting laws place a new and inappropriate responsibility on the schools. Proponents of such laws imply that BMI reporting will have positive outcomes, yet there is virtually no independent research to support this assumption. The authors argue that these laws could do significant harm, including an increased risk for children to develop eating disorder symptoms.

Reports consistently indicate that obesity has increased in all segments of American society. According to the Centers for Disease Control (2004), the number of obese children doubled and the number of obese adolescents tripled in the last 30 years. Public attention to the obesity epidemic has ballooned and rarely a day goes by without a news story of the latest diet product or trend. School systems and state legislatures are also grappling with how to address obesity in youth. In response, a number of state legislatures are considering laws that require schools to track and report

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students' body mass index (BMI), a measurement of body weight (weight/height²) to parents. In this article the authors describe the state level activity on mandatory BMI reporting, offer numerous arguments against this practice, and suggest an alternative approach to promoting health in youth.

OVERVIEW OF STATE ACTION

Since 2003, five states have enacted legislation requiring schools to calculate students' BMI. Currently, Arkansas, Pennsylvania, and Tennessee mandate that schools notify parents of their child's BMI results. Missouri and West Virginia track students' BMI scores and use the confidential data to measure the effectiveness of wellness programs but do not report the scores to parents. Additionally, both Florida and Illinois passed legislation that require schools to track students' height and weight but do not specify that BMI is the measurement tool used. Certain school districts do use the BMI to meet this requirement and some districts choose to report the scores to parents.

Fourteen other states introduced bills between 2005 and January of 2007 that, if passed, would mandate BMI reporting by schools. Oregon is one state that has introduced such legislation. The Oregon House Bill 2329 declares childhood obesity a state emergency and requires certain schools to participate in a pilot program testing students' BMIs. Health status report cards would be sent to parents, which include "recommendations for simple weight loss programs or other means by which a student whose body mass index indicates the student is overweight may attempt to lose weight." The same students would have their BMI recalculated during the following academic year for the purpose of determining weight loss progress. This bill language is the most troublesome as it explicitly uses the school structure to promote weight loss in children.

As states implement BMI-specific legislation, some lawmakers are encountering concerns. Most recently, Arkansas state Senator Keven Anderson introduced legislation in January 2007 that would repeal the state's BMI reporting mandate. Arkansas Governor Mike Beebe publicly supported a revocation of the BMI reporting mandate stating that parents, rather than schools, should take responsibility for keeping children in good health and commented that the BMI reporting was hurting children's self esteem (Nasaw, 2007). This recent legislation is the second attempt to rescind the BMI mandate. In 2005, state Senator Kim Hendren, an original supporter of the Arkansas legislation introduced a bill to retract the mandate, noting his reasons for doing so were twofold: 1) since the policy's enactment some athletes are being incorrectly labeled as overweight and 2) that school personnel should be focused on educating the states' children versus measuring their size (Health Policy Tracking Service, 2005).

Although legislation was introduced in Georgia in 2005 to mandate BMI testing and parental notification, one sponsor of the bill, Representative Stephanie Stuckey Benfield, chose to not support the legislation after hearing concern from constituents that it could harm students' self-esteem (Health Policy Tracking Service, 2005). In 2005, Maine enacted legislation to address childhood obesity yet eliminated an original provision requiring BMI testing. In 2006, a measure to implement mandatory BMI testing of all students in Maryland failed after receiving a negative report from the Education, Health and Environmental Affairs Committee. A position statement issued by the Maryland Association of Boards of Education (MABE) urging the Committee to issue an unfavorable report stated that, "MABE opposes [SB 329] because it would inappropriately impose a mandate on all public schools to conduct a medical screening of each public school student, repeatedly throughout the student's elementary and middle school years. In addition, this bill would impose on public school systems the responsibility for developing and disseminating the results of these screenings in the form of a newly mandated student health report card."

WHY IS MANDATORY BMI REPORTING A BAD IDEA?

The authors agree with the expressed concerns of these lawmakers that BMI reporting laws place a new and inappropriate responsibility on the schools. The mission of schools and educational settings is to promote learning and academic achievement for children. The ultimate irony is that well-intended school-based initiatives that encourage dieting and weight loss may actually compromise this goal. Children's brains are still forming and maturing from early childhood throughout adolescence. Nutritional intake directly affects brain maturation and functioning; skipping meals, restrictive dieting, or the consequences of purging lead to deficits in concentration, attention and memory (American Psychiatric Association, 2006). Learning, self-confidence and achievement all suffer when children are not fed well. Schools are in the business of teaching and creating the optimal context for learning, not promoting weight loss programs. Thus, the doctor's office, not the school, is the appropriate environment for measuring weight. This seems apparent to a number of policy makers as they reconsider their support of mandatory BMI reporting.

What follows are additional arguments that suggest mandatory BMI reporting laws are not the right answer to solving the problem of childhood obesity.

No Solid Research Basis

Proponents of mandatory BMI reporting imply that doing so will have positive outcomes, yet there is virtually no independent research to support this

assumption. They also argue that because the prevalence of obesity among children in the United States has reached such high levels, there is no time to wait for research to be conducted on the consequences of certain obesity interventions among youth. Though we understand the urgency, implementing widespread interventions based on non-existent or hasty research findings has the potential to exacerbate severe problems related to disordered eating and eating disorders. We should not cause harm when creating new policy. Currently the only information that is available on the efficacy and/or repercussions of this policy comes from the state of Arkansas after three years of mandatory BMI testing in the schools. According to a report of the University of Arkansas for Medical Sciences College of Public Health (2006), there were no negative outcomes associated with the BMI assessment and reporting process. While this report found no increase in skipped meals or use of dietary pills and supplements, and this may in fact be the case, this conclusion is premature given that eating disorder symptoms are not easily evident after such a short evaluation period. Those with eating disorders often do not disclose and sometimes overtly hide symptoms (Becker, Grinspoon, Klibanski, & Herzog, 1999). Additionally, up to fifty percent of eating disorder cases go unrecognized in clinical settings (Becker, et al. 1999). Given the difficulty in detecting eating disorders in such settings, it is unlikely that school professionals, with virtually no training in eating disorders, will recognize eating disorders. While there currently is no research proving that mandatory BMI reporting laws increase eating disorder symptoms in students, we offer a cautionary note that the potential is there.

The Body Mass Index is an Imperfect Measurement

The Body Mass Index (BMI) is based on the ratio of weight in kilograms to the height in meters. It has become the standard for defining obesity because it includes the calculation of height rather than just using weight and it can be easily computed. Though popular, the use of BMI¹ as an accurate measurement of obesity and a predictive tool of health has been called into question by leading experts and professional organizations.

According to a policy statement on the Prevention of Pediatric Overweight and Obesity (2004) by the American Academy of Pediatrics, BMI has its limits as an accurate measurement of obesity. For example, children often grow unevenly, gaining weight before growing in height. Some children are more muscular due to physical activity and genetic factors so, despite a lean body mass, their weight and, therefore, their BMI, will be higher and in the “obese” range. Hence, many athletes are miscategorized

¹ The authors are aware that *z*bmi may be a more sensitive measure for children than BMI. Since this is a *z*-score or percentage of BMI all the arguments still apply.

as obese. Frame size may also affect the BMI. A child can naturally have a larger body type, without having excessive fat or any health risks. The BMI formula can also fail to recognize children who have excessive adiposity, despite the fact that it is fat tissue and not weight per se that is considered the risk factor (Dietz & Bellizzi, 1999). None of these factors are accounted for in the BMI calculation.

The standard interpretations of the BMI do not include an analysis and understanding of race or ethnicity. These factors need to be considered as they will provide a more thorough picture of obesity among different populations. For example, American Indians at BMIs significantly higher than the accepted norm do not have an increased mortality or health risk (National Institutes of Health, 1998). Additionally, African-Americans with a BMI above the norm actually have a lower death rate than those who are in the normal or lower ranges (National Institutes of Health, 1998).

Lastly, when schools are asked to calculate BMIs, they may sometimes ask students for either their height or weight, or both, rather than doing their own measurements. These BMIs may be inaccurate as children often do not know their current measurements.

Guidelines from the Centers for Disease Control (CDC, n.d.) indicate that BMI alone does not signify if a child is overly fat and at increased health risk as a result. The CDC recommends an in-depth assessment of children whose BMI are above the 95th percentile, including:

- medical history of any underlying medical conditions or any weight-related health problems;
- family history of obesity, eating disorders, type 2 diabetes, heart disease, high blood pressure, and abnormal lipid profiles;
- dietary assessment of food intake patterns to indicate if caloric intake is excessive or imbalanced;
- physical activity assessment to evaluate the time spent in sedentary versus active behaviors;
- physical examination which includes examination of body frame and muscularity.

Although BMI charts are convenient, they are not necessarily predictive of health or health risks for children. After an extensive review of the research on childhood obesity in 2005, the Childhood Obesity Task Force of the U.S. Preventive Services Task Force concluded that there were no accurate obesity or weight status criteria to identify children who are at risk for future adverse health outcomes (Moyer et al., 2005; Whitlock, Williams, Gold, Smith, & Shipman, 2005). One recent comprehensive study examining the relationship of childhood weight to adult cardiovascular disease concluded that childhood BMI does not appear to be associated with increased risk for cardiovascular disease later in life (Lawlor & Leon, 2005).

Could Do Harm

While there are virtually no data on the effectiveness of mandatory BMI reporting, research does suggest that the potential is there to do harm. A focus on weight often has a boomerang effect. The area of athletics is a prime example. When body weight is emphasized as a criteria for determining success in sports (such as wrestling, gymnastics or ballet), those sports are more likely to have a high prevalence of people with eating disordered behaviors and performance is adversely impacted (Thompson & Heinberg, 1999).

Underlying the notion that BMI reporting may help to decrease the rates of obesity is the assumption that the at-risk individual will begin to diet and will then lose weight. Dieting, however, is often associated with weight gain and not with weight loss, due to the incidence of binge-eating (Field et al., 2003; Stice, Cameron, Killen, Hayward, & Taylor, 1999). In fact, adolescent girls who diet are at 324% greater risk for obesity than those who do not diet (Stice et al., 1999).

An additional consideration is that there is no scientifically proven effective weight loss strategy. Decades of research on various forms of restrictive dieting have consistently found that most people do not maintain *long term permanent* weight loss (Cogan & Rothblum, 1992; Gaesser, 2002; Miller, 1999; Stunkard & McLaren-Hume, 1959). Those who are not successful internalize this as a personal failure (Jefferey, French & Schmid, 1990). Individuals told to lose weight can be at risk for using dangerous weight loss strategies such as the abuse of diet pills and diuretics, and use of thyroid hormones, intestinal bypass, vomiting, fasting, and very low calorie diets (Berg, 1999; Miller, 1999).

Project EAT, a population-based study of nearly 5,000 teens, reports that more than half of teen girls and one-third of boys use unhealthy weight control behaviors such as fasting, vomiting, laxatives, skipping meals, or smoking to control their eating/appetites. Notably, higher weight and overweight teens engage in both binge-eating and unhealthy weight control more often than normal weight teens. In fact, 20% of overweight girls and 6% of overweight boys engage in using laxatives, vomiting, diuretics, and diet pills (Neumark-Sztainer, Story, Hannan, Perry, & Irving, 2002). As overweight youth may already be engaging in risky weight control behaviors, the added pressure of a BMI report card may only intensify these behaviors and contribute to full blown eating disorders such as anorexia or bulimia, both dangerous and life threatening illnesses. Anorexia has the highest mortality rate of all psychiatric disorders. People with anorexia have an 18-fold increase in the risk of death when compared to those of similar age not suffering from the disorder (Birmingham & Beaumont, 2004; Noring & Sohlberg, 1993).

Information without Meaningful Strategies

The public is bombarded with contradictory information about healthy eating, healthy weight and effective strategies for weight loss daily. How do parents navigate all these data? Some parents may focus on the child's weight as another important arena for achievement and encourage diets and other weight loss strategies that could inadvertently be harmful. Mandatory BMI reporting laws force parents to walk the fine line between encouraging healthy eating and endorsing risky weight loss strategies that can put the child at risk for developing negative body image and eating disorder symptoms.

Puts Children at Risk for Bullying and Teasing

The central problem with BMI reporting is that it focuses on weight rather than health as the measuring stick for children. This weight-centered approach toward health is a result of a thinness bias, where all that is thin is good and all that is fat is bad (Cogan & Ernsberger, 1999). Studies have found that overweight and obese school-aged children are more likely to be the victims and perpetrators of bullying behaviors than their normal-weight peers (Janssen, Craig, Boyce, & Pickett, 2004). Additionally, obesity-related stigma where fat people are stereotyped, judged as morally lacking, or are considered otherwise inferior is very much alive today. Research shows that people who are obese are less likely to be chosen as friends, spouses and employees, and are more likely to face bias from healthcare professionals (Gortmaker, Must, Perrin, Sobol & Diets, 1993; Puhl & Brownell, 2001). Exposure to weight related comments or teasing increases the risk to develop an eating disorder (Fairburn et al., 1998). Mandatory BMI reporting feeds into and further perpetuates this obesity related stigma.

Redundant and Inappropriate

The American Academy of Pediatrics (2004) recommends periodic calculations of BMI throughout a child's life at routine annual health exams. Pediatricians are trained on how to measure and calculate weight, height and BMIs as well as how to professionally advise parents and children if BMIs rise or fall significantly. School personnel receive no such training. Pediatricians provide children and families with professional guidance regarding how to shape a child's physical activity, eating, and health status. These interventions can be individualized and comprehensive, thus more likely to respond to the child's situation than a screening at school with little feedback to parents other than that their child is overweight or obese.

SOLUTION: PROMOTE HEALTHY ENVIRONMENTS THAT SUPPORT HEALTHY BEHAVIORS

We recommend some relatively simple changes to be implemented within the school system that are consistent with schools' aim of creating an optimal learning environment and would also have an immediate positive impact on children's health. The recommendation is that schools provide opportunities for exercise and nutritionally balanced meals to students. Given the consistent evidence of both the physical and mental health benefits of exercise (e.g., Miller, 1999), schools should reinstitute mandatory physical education. Schools also should offer nutritionally healthy food options not only in the lunch rooms but in school vending machines. Soft drinks that are high in simple sugars have no nutritional content, impact concentration and swell caloric intake. A recent study tracked notable changes in nutritional choices among a group of fourth-graders who had access only to USDA-backed school lunches in fourth grade which changed when they moved to fifth grade and gained access to school vending machines, snack bars and other food sources. With this access to food in vending machines and snack bars as fifth-graders, their consumption of fruit dropped 33 percent, their consumption of vegetables dropped 42 percent and their consumption of milk dropped 35 percent. Additionally, they ate 68 percent more fried foods and drank 62 percent more soft drinks and other sweetened beverages (Cullen & Zakeri, 2004). Soft drinks can be easily replaced with juice and water as has been successfully done in certain school districts such as North Community High School in Minneapolis.

Children are more likely to choose healthy food options if they are available. In 2002 Senator Tom Harkin passed a bill that provided free fresh fruits and vegetables to students in 100 schools, 25 of them in his home state of Iowa. This is a proactive approach to attending to the nutritional needs of children. Rather than promoting mandatory BMI reporting laws, federal and state governments and local school districts can work together to replace non-nutritious foods with healthy alternatives.

Addressing Eating Disorders and Obesity in Tandem

Although the attention paid to obesity in our youth is enormous, eating disorders are important co-existing and widespread problems. Thirty percent of high school girls and 16% of boys suffer from disordered eating (binging, fasting, vomiting, laxatives, diet pills or excessive exercise (Austin, Ziyadeh, Leliher, Zachary & Forman, 2001). The American Psychiatric Association estimates that as many as 7.9% of young women have anorexia nervosa or bulimia nervosa (2006); this does not include the number of cases of Eating Disorders Not Otherwise Specified, which are equally serious. The broad

range of eating and weight issues suggests the need for a comprehensive and well-planned proactive approach. Many of the risk factors leading to obesity and to eating disorders are similar (Neumark-Sztainer, 2005). These include dieting, self-esteem, media exposure, family meal patterns, eating and health practices of parental role models, exposure to weight related teasing and criticism, food availability in schools, social norms and expectations regarding food intake, exercise, appearance and body image (Neumark-Sztainer, 2005). The authors would add genetics as another important risk factor for both obesity and eating disorders that need to be better understood and incorporated into well-grounded proactive approaches (Striegel-Moore & Bulik, 2007).

Furthermore, goals to prevent and address both eating disorders and obesity also include some common features (Neumark-Sztainer, 2005), including:

- normalizing eating, both amounts and frequency;
- learning to recognize internal cues of hunger and satiety;
- enjoying moderate physical activity.

SHIFTING THE PARADIGM

A longer-term but equally important goal is to shift our paradigm of how we approach obesity and health in this nation (Cogan & Ernsberger, 1999). We must rethink the dangerous trend in public health policy that minimizes the structural and organizational forces on health and places sole responsibility on the individual (Cogan, 1999). The US has developed systemic approaches in response to many issues affecting child welfare. For example, in response to large numbers of accidental deaths and injuries in children, the public and families have shaped effective educational campaigns and joined manufacturers for creating safer guidelines, standards and products. Such campaigns have been very successful, but they have taken time, coordination and forethought. When it comes to obesity, we seem to lack the bigger picture of how many factors came together to create the problem. Instead, we take a blaming and stigmatizing approach, targeting the individual rather than also acknowledging the systemic factors of the problem. We need to come up with balanced policies to obesity prevention in which both the individual and the culture are viewed as playing a significant role.

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