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Exposure to the Mass Media and Weight Concerns Among Girls

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ABSTRACT. *Objective.* To assess the influence of the media on girls' weight concerns, weight control/loss behaviors, and perceptions of body weight and shape.

Design. Cross-sectional survey completed in school. The questionnaire assessed body weight, dissatisfaction with body weight and shape, exposure to fashion magazines, the impact of media on feelings about weight and shape, attributes of and preferences for body types, and whether subjects had gone on a diet to lose weight or initiated exercise because of an article in a magazine.

Setting. Mandatory physical education class in public elementary, junior high, and high schools.

Participants. Subjects included 548 5th- through 12th-grade girls in a working-class suburb in the northeastern United States.

Outcome Measures. Perceived influence of fashion magazines on body dissatisfaction, idea of the perfect body shape, dieting to lose weight, and initiating an exercise program.

Results. Pictures in magazines had a strong impact on girls' perceptions of their weight and shape. Of the girls, 69% reported that magazine pictures influence their idea of the perfect body shape, and 47% reported wanting to lose weight because of magazine pictures. There was a positive linear association between the frequency of reading women's magazines and the prevalence of having dieted to lose weight because of a magazine article, initiating an exercise program because of a magazine article, wanting to lose weight because of pictures in magazines, and feeling that pictures in magazines influence their idea of the perfect body shape.

In multivariate logistic regression models controlling for weight status (overweight vs not overweight), school level (elementary vs junior high school, elementary vs high school), and race/ethnic group, girls who were frequent readers of fashion magazines were two to three times more likely than infrequent readers to diet to lose weight because of a magazine article (odds ratio [OR] = 2.11, 95% confidence interval [CI]: 1.19–3.75); to exercise to lose weight because of a magazine article (OR = 3.02, 95% CI: 1.77–5.17); and to feel that magazines influence what they believe is the ideal body shape (OR = 2.81; 95% CI: 1.72–4.58). In addition, moderate-frequency readers were more likely than infrequent readers of fashion magazines to report exercising because of a magazine

article (OR = 1.94; 95% CI: 1.14–3.30) and feeling that magazines influence what they believe is the ideal body shape (OR = 2.03; 95% CI: 1.30–3.15).

Discussion. The majority of the preadolescent and adolescent girls in this school-based study were unhappy with their body weight and shape. This discontentment was strongly related to the frequency of reading fashion magazines. Although previous studies have concluded that the print media promotes an unrealistically thin body ideal, which in turn is at least partially responsible for promoting eating disorders, the present study is the first that we are aware of to assess directly the impact of the print media on the weight and body shape beliefs of young girls. We observed that the frequency of reading fashion magazines was positively associated with the prevalence of having dieted to lose weight, having gone on a diet because of a magazine article, exercising to lose weight or improve body shape, and deciding to exercise because of a magazine article.

Given the substantial health risk associated with overweight and the fact that during the past 2 decades the prevalence of overweight has increased sharply among children and adolescents, it is not prudent to suggest that overweight girls should accept their body shape and not be encouraged to lose weight. However, aspiring to look like underweight models may have deleterious psychological consequences. The results suggest that the print media aimed at young girls could serve a public health role by refraining from relying on models who are severely underweight and printing more articles on the benefits of physical activity. Additional research is needed to assess whether articles on the health hazards of severe dieting, bulimic behaviors, and maintaining a very low body weight would be beneficial. *Pediatrics* 1999;103(3). URL: <http://www.pediatrics.org/cgi/content/full/103/3/e36>; female, preadolescent, adolescent, media, weight concerns.

ABBREVIATIONS. OR, odds ratio; CI, confidence interval.

In the United States, many young females are extremely concerned with their body weight and shape and may engage in unhealthy weight-control practices as a result.¹ A small proportion suffer from full-criteria eating disorders (0.1% have anorexia nervosa and 1% to 3% have bulimia nervosa) that can have serious mental and physical health outcomes such as depression, acute gastric dilation and rupture, metabolic alkalosis, cardiac arrhythmias, and death.²

Weight concerns, which are predictive of developing eating disorders of at least subsyndromal severity,³ are being seen at younger and younger ages. For example, Gustafson-Larson and Terry⁴ observed that

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more than half of the 4th-grade girls in their sample reported a desire to be thinner. During preadolescence and adolescence, concerns with weight and shape are so common among girls⁵⁻¹³ that they are considered normative.

Weight concerns and bulimic behaviors are assumed to primarily affect white females. However, several recent studies have documented that compared with white females, black and Hispanic females have equal or higher levels of weight concerns and weight control efforts.^{4,5,14,15} Whether the correlates of weight concerns vary by race/ethnic group is not known.

The role of sociocultural factors in the etiology of eating disorders has been widely accepted. Nevertheless, how or by whom the pressure to be thin is transmitted to young girls remains unclear. The mass media have been implicated in the formation of unrealistically thin body ideals.¹⁶⁻²¹ Most research in this area has consisted of studies showing trends in the decreasing weight or increasingly androgenous shape of models in the media over time. Other studies have documented an increase in diet- and weight-related articles over time and have cited this increase as evidence that the media creates overconcern with weight. These ecologic studies have been used to support the position that the increase in weight concerns and eating disorders over time is caused at least partially by the unrealistic body weight and shapes portrayed by the mass media. However, ecologic studies can be difficult to interpret because the associations are not on the individual level.²² In other words, two trends may occur over time in a population, but have no causal relation to each other. To date, there is a lack of research assessing directly the influence of the media on weight concerns among young women. To assess the associations between frequency of exposure to the media, weight, weight concerns, and weight control/loss behaviors, we conducted a cross-sectional study among girls in a working-class suburb of a large city in the northeastern United States.

METHODS

Between February and May 1991, a questionnaire was administered to girls in grades 5 to 12 attending public schools in a working class suburb of Boston, MA. The study population was sampled so that its ethnic composition was representative of the entire school district. Thirteen elementary schools (grades 5 and 6), one junior high school (grades 7 and 8), and one high school (grades 9 through 12) were sampled. The composition of the total sample of 548 girls was 29.5% elementary school, 34.1% junior high school, and 33.3% high school students.

Before administration of the survey, the study was approved by the Human Subjects Committee at Massachusetts General Hospital, both the study design and the questionnaire were approved by the School Board, and parental consent was obtained. To ensure uniformity, all written and oral instructions were standardized and given by trained research assistants. The questionnaire was completed during physical education class time. Physical education is a mandatory class for all students in the school district. The response rate, adjusted for absenteeism, drop-outs, and moving out of the school district was 78%.

Height and weight were self-reported. A scale was available to anyone who was unsure of her weight. In a pilot study in the same sample, we found strong correlations between self-reported and measured height ($r = 0.73$; $P < .0001$) and weight ($r = 0.98$; $P < .0001$), leading us to conclude that self-reported measures were

valid. Overweight was defined as equal to or above the 85th percentile of body mass index ($\text{weight}/\text{height}^2$), according to age- and sex-specific reference data from the First National Health and Nutrition Examination Survey, which was collected between 1971 and 1974.²³

Exposure to fashion magazines was assessed with a question asking, "How often do you read magazines (for example, *Seventeen*, *Jet*, *Sassy*, *Glamour*. . .)?" The response categories ranged from never to daily. Students reporting "never" or "once a month" were classified as infrequent readers, those reporting "2-5 times a month" as moderate-frequency readers, and those reporting "twice per week" or "daily" as high-frequency readers. Two questions were used to assess the impact of media on feelings about weight and shape: "Do you think that pictures of women in magazines influence what you think is the perfect body shape?" and "Do pictures of women in magazines make you want to lose weight?" In addition, girls were asked whether they agreed with the following two statements: "I have gone on a diet to lose weight because of an article in a magazine" and "I have initiated exercise because of an article in a magazine."

Attributes of and preferences for body types were assessed by showing the girls four pictures of models representing different body types (very thin, overweight, athletic, and "normal" weight). Participants were asked to indicate which model they wanted to look like, did not want to look like, thought would be most popular with the boys, was the most healthy, was the least healthy, was most likely to be a success in life, and was most likely to be a failure in life.

Mantel-Haenszel χ^2 tests, with 1 degree of freedom, were used to test the significance (at the $\alpha = 0.05$ level) of the trends across level of frequency of reading women's fashion magazines. Multivariate logistic regression models were used to test the associations between levels of frequency of reading women's fashion magazines and dieting to lose weight because of a magazine article, initiating an exercise program because of a magazine article, and feeling that magazines influence their idea of a perfect body. In the logistic regression models, moderate and high frequency of reading fashion magazines were entered as separate dichotomous variables, thus a linear relation with frequency of reading fashion magazines was not assumed. School level (ie, elementary, junior high, and high school) and weight status (overweight vs not overweight) were adjusted for in the logistic regression models predicting dieting to lose weight because of a magazine article, initiating an exercise program because of a magazine article, and feeling that magazines influence their idea of a perfect body. The analyses also were conducted including three dichotomous variables for race/ethnic group (with whites as the referent). In the logistic regression models predicting whether girls aspired to look like the thinnest of the four models shown and whether they thought that boys would prefer the thinnest of the four models, only race/ethnic group (entered as three dichotomous variables) and frequency of reading fashion magazines (entered as two dichotomous variables) were included in the final models. All analyses were performed using SAS software.

RESULTS

Among 548 5th- through 12th-grade girls, the prevalences of dissatisfaction with body shape (59%) and wanting to lose weight (66%) were higher than the prevalence of overweight (29%). These discrepancies indicated that some girls of healthy weights were not satisfied with their body weight and shape. Pictures in magazines had a strong impact on girls' perceptions of their weight and shape. Sixty-nine percent of the girls reported that magazine pictures influence their idea of the perfect body shape, and 47% reported wanting to lose weight because of magazine pictures.

Approximately 85% of girls had some exposure to fashion magazines; however, only 26% of girls read fashion magazines at least twice a week. The prevalence of high frequency of reading women's fashion magazines was similar among the girls in elementary

TABLE 1. Prevalence (%) of School Level, Overweight, Desire to Lose Weight, and Contentment with Body Shape by Frequency of Exposure to Women's Fashion Magazines Among 548 Preadolescent and Adolescent Girls

	Infrequent (n = 235)	Moderate Frequency (n = 170)	High Frequency (n = 143)
School level			
Elementary	51	24	25
Junior high	40	28	32
High	38	41	21
Overweight	25	22	25*
Want to lose weight	64	65	71**
Not happy with body shape	59	58	60***

* $P = .93$.

** $P = .90$.

*** $P = .17$.

(25%), junior high (32%), and high school (21%) (Table 1). However, the proportion of girls who were infrequent readers went down with age (ie, a higher percentage of high school than elementary school girls were moderate-frequency readers).

The perceived influence of the media was related to the frequency of reading women's fashion magazines. There was a positive linear association between the frequency of reading women's magazines and the prevalence of having dieted to lose weight because of a magazine article ($P = .02$), initiating an exercise program because of a magazine article ($P = .001$), wanting to lose weight because of pictures in magazines ($P = .004$), and feeling that pictures in magazines influence their idea of the perfect body shape ($P = .001$) (Table 2).

In multivariate logistic regression models controlling for weight status (overweight vs not overweight), school level (elementary vs junior high school, elementary vs high school), and race/ethnic group, girls who were frequent readers of fashion magazines were two to three times more likely than infrequent readers to diet to lose weight because of a magazine article (odds ratio [OR] = 2.11; 95% confidence interval [CI]: 1.19–3.75), to exercise to lose weight because of a magazine article (OR = 3.02; 95% CI: 1.77–5.17), and to feel that magazines influence what they believe is the ideal body shape (OR = 2.81; 95% CI: 1.72–4.58) (Table 3). In addition, moderate-frequency readers were more likely than infrequent readers of fashion magazines to report exercising because of a magazine article (OR = 1.94; 95% CI:

1.14–3.30) and feeling that magazines influence what they believe is the ideal body shape (OR = 2.03; 95% CI: 1.30–3.15).

We observed several racial/ethnic group differences in the perceived influence of the media on girls' weight concerns and beliefs. Independent of school level, weight status, and frequency of reading fashion magazines, Hispanics were more likely than whites to diet because of an article they read in a fashion magazine, whereas, independent of frequency of reading fashion magazines, blacks were more likely than whites to want to look like the thinnest model (OR = 4.91; 95% CI: 1.58–15.23) and to believe that boys would prefer the thinnest model (OR = 3.25; 95% CI: 1.32–8.04) (Table 4).

DISCUSSION

We observed that the majority of the preadolescent and adolescent girls in this school-based study were unhappy with their body weight and shape. This discontentment was related strongly to the frequency of reading fashion magazines, which was reported to influence their idea of the perfect body shape by 69% of girls. The effect of the media was so strong that even among girls who only infrequently read fashion magazines, almost 60% felt that the media influenced their idea of the perfect body shape. The frequency of reading fashion magazines was positively associated with the prevalence of having dieted to lose weight, having gone on a diet because of a magazine article, exercising to lose weight or improve body shape, and deciding to exercise because of a magazine article.

Although previous studies have concluded that the print media promotes an unrealistically thin body ideal that, in turn, is at least partially responsible for promoting eating disorders, the present study is the first that we are aware of to assess directly the impact of the print media on the weight and body shape beliefs of young girls. This study offers support for the strong impact of the print media on young girls' perception of their weight and body shape as well as on dictating the perfect body shape.^{18,21} However, on the positive side, the print media was effective at promoting physical activity as a healthy means of weight control. In fact, more girls reported exercising than dieting to lose weight.

There are several limitations to this study. First, the study is cross-sectional, thus causality cannot be inferred. Girls who feel dissatisfied with their body weight and shape may be more likely to read mag-

TABLE 2. Prevalence of Dieting, Exercising to Lose Weight, and Influence of the Media by Frequency of Exposure to Women's Fashion Magazines Among 548 Preadolescent and Adolescent Girls

	Frequency of Reading Magazines			P
	Infrequent (n = 235)	Moderate (n = 170)	High (n = 143)	
Have dieted to lose weight (%)	34	37	45	.03
Diet frequently (%)	6.8	5.3	11.9	.11
Have dieted to lose weight because of a magazine article (%)	13	16	22	.02
Exercise to lose weight (%)	48	51	64	.004
Exercise to improve shape (%)	71	78	85	.002
Initiated exercise because of a magazine article (%)	14	23	29	.001
Pictures in magazines influence their idea of a perfect body shape (%)	59	74	79	.001
Pictures in magazines make them want to lose weight (%)	41	48	57	.004

TABLE 3. ORs and 95% CIs for the Associations of School Level, Weight Status, Race/Ethnic Group, and Frequency of Reading Fashion Magazines With the Influences of the Media on Dieting, Exercise, and Perception of the Perfect Body Shape

	Diet to Lose Weight Because of a Magazine Article	Exercise to Lose Weight Because of a Magazine Article	Believe that Magazines Influence Their Idea of the Perfect Body Shape
School level			
Elementary	1.00 (Referent)	1.00 (Referent)	1.00 (Referent)
Junior High	0.76 (0.42–1.38)	0.79 (0.46–1.36)	1.03 (0.65–1.64)
High	1.01 (0.56–1.82)	1.41 (0.82–2.40)	1.09 (0.68–1.76)
Weight status			
Not overweight	1.00 (Referent)	1.00 (Referent)	1.00 (Referent)
Overweight	1.61 (0.96–2.72)	0.82 (0.49–1.39)	1.12 (0.72–1.74)
Race/ethnic group			
White	1.00 (Referent)	1.00 (Referent)	1.00 (Referent)
Black	1.77 (0.94–3.30)	0.66 (0.34–1.29)	0.65 (0.39–1.09)
Hispanic	2.05 (1.01–4.15)	1.22 (0.62–2.39)	1.51 (0.78–2.90)
Other	3.75 (1.85–7.59)	2.23 (1.13–4.40)	2.29 (1.09–4.81)
Frequency of reading fashion magazines			
Low	1.00 (Referent)	1.00 (Referent)	1.00 (Referent)
Moderate	1.44 (0.80–2.58)	1.94 (1.14–3.30)	2.03 (1.30–3.15)
High	2.11 (1.19–3.75)	3.02 (1.77–5.17)	2.81 (1.72–4.58)

TABLE 4. ORs and 95% CIs for the Associations of Race/Ethnic Group and Frequency of Reading Fashion Magazines With the Attributes Assigned to the Very Thin Body Types Depicted in the Fashion Magazines

	Want to Look Like the Thinnest Model	Believe That Boys Prefer the Thinnest Model
Race/ethnic group		
White	1.00 (Referent)	1.00 (Referent)
Black	4.91 (1.58–15.23)	3.25 (1.32–8.04)
Hispanic	0.91 (0.12–7.73)	0.98 (0.21–4.51)
Other	2.57 (0.49–13.41)	—*
Frequency of reading fashion magazines		
Low	1.00 (Referent)	1.00 (Referent)
Moderate	0.53 (0.11–2.83)	1.71 (0.58–5.08)
High	2.96 (0.95–9.26)	2.23 (0.78–6.48)

* None of the girls of other or mixed race believe that boys prefer the thinnest model.

azines that enforce their negative and perhaps distorted beliefs about weight and shape. Ideally, children would be followed over time to assess whether girls who read fashion magazines are more likely than their peers with low exposure to the media to become preoccupied with their weight and develop maladaptive behaviors (eg, use of diet pills, laxatives, self-induced vomiting, etc, to control weight). Another limitation is that the questionnaire did not contain detailed questions about the influence of television on desires to lose weight and change body shape.

In conclusion, we observed that dissatisfaction with weight and shape were very common among preadolescent and adolescent girls. The frequency of reading fashion magazines was positively and independently associated with dieting and exercising to lose weight. Moreover, the more frequently girls read fashion magazines, the more likely they were to report that they had dieted or initiated an exercise program to lose weight because of a magazine article. Furthermore, the frequency of reading fashion magazines was positively associated with feeling that magazines influenced their idea of the perfect body. Given the substantial health risk associated with overweight^{24–27} and the fact that during the past 2 decades the prevalence of overweight has increased sharply among children and adolescents,²⁸ it is not prudent to suggest that overweight girls should accept their body shape and not be encour-

aged to lose weight. However, aspiring to look like underweight models may have deleterious psychological consequences. The results suggest that the print media aimed at young girls could serve a public health role by refraining from relying on models who are severely underweight and printing more articles on the benefits of physical activity. Additional research is needed to assess whether articles on the health hazards of severe dieting, bulimic behaviors, and maintaining a very low body weight would be beneficial.

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