RESEARCH LETTER

Body Size Misperception: A Novel Determinant in the Obesity Epidemic

The prevalence of obesity in the United States continues to rise and contributes to the incidence of cardiovascular disease.[1] One obstacle to effecting weight loss and a potential target for intervention is misperception of body size. Among obese individuals (body mass index [BMI] ≥30 [calculated as weight in kilograms divided by height in meters squared]), body size misperception is defined as failure to recognize the need to lose weight.

To further elucidate the extent and significance of body size misperception and its potential impact on cardiovascular disease prevention, we examined obese subjects (N=2056) from the Dallas Heart Study (DHS). In this multiethnic, urban cohort, we determined the prevalence of body size misperception and quantified its association with demographics, cardiovascular risk factors, anthropometric indices, and health beliefs and behaviors.

Methods. The DHS is a multiethnic, probability-based population sample of Dallas County adults aged 18 to 65 years (N=6101) designed to study cardiovascular disease, with participants enrolled from July 2000 to January 2002. African Americans were intentionally oversampled to comprise 50% of the study cohort. To allow extrapolation of DHS prevalence data to the general population of Dallas County, sample weights were calculated for each participant to reflect selection probability for the DHS based on ethnicity, age, sex, and geographic stratum. Details of the DHS study design and cohort have been reported previously.[2]

Participants were shown the Stunkard figure rating scale,[3] a well-validated gender-specific visual scale of 9 figures representing increasing body sizes from very thin (1) to very obese (9). Participants were asked to choose from the figures to answer the following questions about themselves: (1) "Choose your ideal figure" (perceived ideal body size) and (2) "Choose the figure that reflects how you think you look" (perceived actual body size). Among obese individuals, body size misperception was defined by selection of an ideal body size that was the same as or larger than the selected actual body size, representing failure to recognize a need for weight loss. This construct of body size misperception has been described and validated in prior studies.[4,5]

Using sample-weight adjustment, the prevalence of body size misperception was estimated for obese Dallas County adults overall and stratified by self-reported race/ethnicity. Characteristics for obese DHS participants with and without misperception were compared using the Fisher exact test for categorical variables and the unpaired *t* test or the Wilcoxon rank-sum test for continuous variables as appropriate.

Results. The sample-weight adjusted prevalence of body size misperception among obese Dallas County adults was 8%. Misperception was significantly more common among African American (14%) and Hispanic (11%) than white subjects (2%; $P<.001$ vs both African American and Hispanic subjects).

Despite significant differences in perceived actual and ideal body size between those with and without body size misperception, only small differences were observed in BMI, with no significant difference in waist to hip ratio observed. The prevalence of hypertension was lower among those with body size misperception, but hypercholesterolemia and diabetes prevalence did not differ between the 2 groups (**Table**).

A higher socioeconomic status was not associated with a lower prevalence of body size misperception ($P=.06$ for education and $P=.07$ for income); the prevalence of body size misperception remained substantial even among those in the highest income and education strata, with 8% of those with a college education and 10% of obese subjects with a yearly family income of more than $30 000 having body size misperception.

Individuals with vs without body size misperception were more satisfied with their overall health and more likely to express feeling healthier than people of the same age. A significantly higher percentage of those with vs without body size misperception believed they had a low lifetime risk of myocardial infarction, hypertension, and diabetes; two-thirds of these already obese individuals estimated that they were at low lifetime risk of developing obesity. Participants with body size misperception were also less aware of prevalent hypertension and diabetes (Table).

Finally, regarding health behaviors, obese subjects with vs without body size misperception reported less exercise and visited physicians much less often, and among obese subjects who did visit a physician, those with body size misperception were less likely to report that a physician discussed therapeutic lifestyle interventions with them. Disparities in physician visits were not explained by differences in health insurance or levels of trust in physicians (Table).

Comment. This study expands the available literature on barriers to the treatment and prevention of obesity, characterizing body size misperception as a unique challenge and novel potential target in the obesity treatment paradigm. Previous population-based studies have reported on obese individuals, predominantly African American or Hispanic, who were "underassessors" of weight, as shown in the Third National Health and Nu-

Table. Demographics, Anthropometric Measures, Cardiovascular Risk Factors, Health Beliefs, and Health Behaviors for Obese (BMI ≥30) DHS Subjects Stratified by Body Size Misperception

Characteristic	Body Size Misperception (n=266)	No Body Size Misperception (n=1790)	*P* Value
Demographics			
Age, mean (SD), y	40 (13)	42 (12)	.009
Male sex, No. (%)	121 (45)	649 (36)	.004
Ideal body size by Stunkard figure rating scale,[3] mean (SD)	4.7 (1.4)	3.7 (1.0)	<.001
Perceived body size by Stunkard figure rating scale,[3] mean (SD)	4.2 (1.2)	6.2 (1.2)	<.001
Anthropometric measures, mean (SD)			
BMI	34.6 (4.6)	36.6 (6.0)	<.001
Waist to hip ratio	0.9 (0.08)	0.9 (0.1)	.49
Cardiovascular risk factors, No. (%)			
Hypertension	92 (35)	752 (43)	.02
Hypertension awareness[a]	54 (59)	533 (71)	.02
Diabetes	20 (14)	251 (20)	.11
Diabetes awareness[a]	8 (40)	176 (70)	.01
Hypercholesterolemia	21 (15)	183 (15)	.90
Current smoker	73 (27)	414 (23)	.12
Health beliefs, No. (%)			
Health better than most your age	130 (50)	567 (32)	<.001
Perceived low lifetime risk of MI	151 (61)	789 (46)	<.001
Perceived low lifetime risk of diabetes	156 (63)	814 (47)	<.001
Perceived low lifetime risk of high blood pressure	129 (52)	590 (34)	<.001
Perceived low lifetime risk of obesity	166 (66)	594 (34)	<.001
Health behaviors			
Exercise per week, median (IQR), MET, min/wk	0 (0-319)	60 (0-479)	<.001
No physician encounters in 12 mo, No. (%)	117 (44)	472 (26)	<.001
Discussion with health care provider[b]			
Dietary habits or changes	56 (38)	846 (64)	<.001
Physical activity	65 (45)	873 (66)	<.001
Weight loss	51 (38)	849 (68)	<.001
Barriers to care and trust in physicians			
Lack of health insurance over 12 mo	31 (16)	263 (20)	.21
Complete trust of physicians/health professionals	130 (50)	592 (33)	<.001

Abbreviations: BMI, body mass index (calculated as weight in kilograms divided by height in meters squared); DHS, Dallas Heart Study; IQR, interquartile range; MET, metabolic equivalent; MI, myocardial infarction.

[a] Percentage of those with disease.

[b] Includes only those participants who have visited a physician's office in 12 months at least 1 time (total, n=1463; 149 with body size misperception and 1318 without misperception).

trition Examination Survey,[6] or with body size misperception, as shown in the Coronary Artery Risk Development in Young Adults study.[5] However, neither study described the cardiovascular phenotype and health beliefs associated with body size misperception.

We have shown that obese individuals with body size misperception have generally similar anthropometric measurements as obese individuals who appropriately recognize the need to lose weight. Moreover, the prevalence of cardiovascular risk factors was not lower among those with vs without body size misperception. The high prevalence of cardiovascular risk factors among obese individuals with body size misperception emphasizes that misperception not only is an interesting psychosocial phenomenon but also has important public health implications.

Among obese individuals with body size misperception, we identified lower awareness of prevalent risk factors and overly optimistic beliefs about personal health and cardiovascular risk. This knowledge deficit was compounded by lower utilization of the health care system and less discussion of lifestyle modification during physician encounters, factors that may impede cardiovascular prevention for those with obesity and body size misperception.

In conclusion, body size misperception is surprisingly prevalent among obese adults from the general population, particularly among ethnic minorities. Overestimation of health and underestimation of risk, lower utilization of the health care system, and inadequate physician counseling all appear to contribute to this phenomenon, suggesting that a multifaceted intervention may be needed to counter the effects of body size misperception. Physicians must not only identify and counsel patients with body size misperception in the clinical setting but also partner with public health and community advocates to develop treatment programs that reach these individuals in their own communities.

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COMMENTS AND OPINIONS

Proton Pump Inhibitor Dose for Ulcer Bleeding: Is Less Really More?

In their recent meta-analysis, Wang and colleagues concluded that high-dose intravenous proton pump inhibitor (PPI) regimens were not superior to non–high-dose regimens for patients with recent ulcer bleeding.[1] However, we consider these conclusions to be premature, possibly flawed, and potentially misleading.

Although Wang et al[1] stated that they conducted their meta-analysis according to the recommendations of the Cochrane Collaboration, they graded the quality of trials according to the Jadad classification. This is contrary to the recommendations of the Cochrane Collaboration, which discourages the use of quality scales. Rather, it proposes the assessment of risk of bias separately in a number of domains, with concealment of allocation being the most important criterion in determining overall trial quality.[2] The Jadad scale does not take concealment of allocation into account. Moreover, had the totality of evidence been assessed using the approach recommended by the Grading of Recommendations Assessment, Development, and Evaluation (GRADE) working group,[3] it would have been graded as "low-quality evidence" rather than as "7 high-quality randomized studies." Their literature search may have been incomplete, since recent major conference proceedings were not searched. Therefore, the results of this meta-analysis should be interpreted with great caution.

Only high-dose intravenous (IV) PPI regimens have been shown to reduce all-cause mortality after ulcer bleeding,[4] and they are the only IV regimens to have been endorsed by a recent international expert consensus group.[5] While PPIs are not approved by the Food and Drug Administration for the management of upper gastrointestinal tract bleeding in general or for the management of ulcer bleeding in particular, they have essentially become the standard of care by extrapolating from the results of randomized controlled trials (RCTs) performed elsewhere. Regrettably, it is unlikely that further high-quality trials investigating this issue will be conducted in North America because of potential problems with patient recruitment and financial support. The only RCT to have been undertaken in the United States had to be terminated prematurely because of problems with recruitment. There is no evidence to support the use of less than high-dose IV PPI regimens among North American patients with serious ulcer bleeding, who, essentially, are those requiring endoscopic treatment.

We applaud the *Archives* for expressing interest in the concept of "Less is More" but believe that there may be more fruitful areas of potential research and commentary than the use of IV PPIs in ulcer bleeding.

Sometimes less is not more; sometimes more is more.

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