Defining overweight and obesity: what are the issues?1,2

Van S Hubbard

When prevalence data or other statistics related to overweight and obesity are presented, the criteria used to obtain such information must be defined. As described by Kuczmarski and Flegal (1), the definitions of overweight and obesity in adults have varied over time, and sometimes from study to study. Editors of both scientific and lay publications should be aware of the consequences and confusion of reporting statistics without providing the criteria used to define overweight and obesity. Overweight and obesity constitute an important public health problem because of the associated increased risk of hypertension, coronary heart disease, type 2 diabetes, stroke, gall bladder disease, certain types of cancer, osteoarthritis, sleep apnea, and other disorders (2). A World Health Organization (WHO) Consultation described obesity as a chronic disease that is so prevalent in both developed and developing countries that it is replacing the more traditional public health concerns, such as undernutrition and infectious diseases, as a significant contributor to ill health (3). In the United States, the significance of this observation has been emphasized in Healthy People 2010, a comprehensive nationwide health-promotion and disease-prevention agenda prepared under the leadership of the US Department of Health and Human Services (4). In fact, monitoring the proportion of children and adolescents who are overweight or obese and of adults who are obese has been identified as 1 of the 10 leading health indicators associated with Healthy People 2010 (5).

Ideally, health-oriented definitions of overweight and obesity should be used that are based on the amount of excess body fat at which health risks to individuals increase. In this manner, obesity would be identified such that individuals would have a weight-responsive comorbidity. Unfortunately, no such definition currently exists. Simplistically, obesity refers to an excess of body fat or adiposity. Body mass index (BMI; in kg/m²) is widely recognized as a weight-for-height index that has a high correlation with adiposity, but it does not quantify total body adiposity or convey information concerning regional fat distribution. However, as reviewed by Kuczmarski and Flegal (1), BMI is an easily obtained measure that has been recommended for use in all age groups. Most clinical studies assessing the health effects of overweight and obesity rely on BMI.

From a public health perspective, the use of BMI cutoff points to define overweight and obesity is a necessity to help describe populations. Kuczmarski and Flegal describe BMI as an index that can be used for comparisons across studies both in the United States and internationally. Although it may be useful to use similar criteria when comparing data from different studies and countries, health risks associated with overweight and obesity are part of a continuum and at a given BMI may vary when a specific population is observed. These BMI cutoff points should be considered as a guide to allow for the comparisons among various populations and over time. Currently, the National Institutes of Health (2), Healthy People 2010 (4), the 2000 Dietary Guidelines for Americans (6), and the WHO (3) all use similar cutoff points of BMI for defining overweight (BMI ≥ 25.0) and obesity (BMI ≥ 30.0).

Internationally, there has been some deliberation concerning the universal application of these cutoff points for overweight and obesity. A report cosponsored by the WHO Western Pacific Region (7) recently recommended different ranges for classifying overweight and obesity for populations within the Asia-Pacific region. Increases in health-related risk factors and comorbidities associated with obesity occur at a lower BMI in Asian populations than in other ethnic groups. By contrast, Pacific Islanders appear to be more muscular and have comparably lower levels of body fat at a given BMI. Thus, on the basis of the respective health-related risk factors and comorbidities in these populations, lower cutoff points for Asians were identified for overweight (BMI ≥ 23.0) and obesity (BMI ≥ 25.0) and higher cutoff points for both were suggested for Pacific Islanders (BMI ≥ 26 and BMI ≥ 32, respectively).

An extension of the rationale used in developing this regional WHO report (7) could be applied to subpopulations within other countries. In the United States, the health-related risks associated with obesity are commonly observed in Japanese Americans at lower BMIs than in whites, whereas, black Americans have been shown to have fewer health-related risk factors than do whites at a given BMI (8). The difference in health-related risk factors among various ethnic populations may be explained by data related to body fat distribution, including relative amounts of visceral adiposity or intraabdominal fat. The fact that BMI does not provide information concerning fat distribution re-emphasizes the concept that the BMI cutoff points should serve as guidelines and further assessment and characterization should be performed as needed. Currently, estimates of visceral adiposity can be made reliably only with use of computed tomography or magnetic resonance imaging. This technology is not practical for population

1 From the National Institutes of Health, Division of Nutrition Research Coordination, and the National Institute of Diabetes and Digestive and Kidney Diseases, Nutritional Sciences Branch, Bethesda, MD.
2 Address reprint request to VS Hubbard, NIH, Division of Nutrition Research Coordination, and Nutritional Sciences Branch, NIDDK, Rockledge 1, Suite 8048, 6705 Rockledge Drive, MSC 7973, Bethesda, MD 20892-7973. E-mail: vh16h@nih.gov.
surveys but can be included in smaller studies in which full characterization of the individual can be accomplished.

Another concept in using BMI to monitor the health status of a country or subpopulation is to determine the shift of the population BMI distribution over time. Most countries are observing a shift that signifies a trend toward a more overweight population. Correlations should be identified that document the associations of the change of the BMI distribution with a change in health-related risk factors, comorbidities, and health care costs. Provision of such data would be useful for the development of health care policy and community planning.

Although there are benefits to the identification of specific cutoff points for monitoring overweight and obesity, perhaps too much focus has been placed on these cutoff points. The health care work force and the public have begun to use them inappropriately as the diagnostic criterion for labeling individuals rather than using them as guidance for further assessment. As implied in the above discussion, health risks associated with increasing weight are part of a continuum. People can have weight-associated health problems at BMIs <25 and others can have no identifiable health problems at BMIs significantly >25 (4). If we are to stem the current trend of increasing prevalence of overweight and obesity, we need to identify individuals who are showing inappropriate weight gain, independent of where their BMI may currently place them. We need to provide appropriate education to health care providers and the public to help increase awareness of the interactions between modification of activity (decreasing sedentary activity and increasing physical activity) and dietary patterns in promoting weight management and overall health. This concept becomes more important as we consider children and adolescents. The release of the new BMI-for-age growth charts (9) will enable health care providers to easily assess the relative percentile ranking of BMI in youth. Again, heightened awareness will be needed to provide counseling to children whose BMI percentile is increasing inappropriately and to implement it before these children are considered to be overweight.

REFERENCES