Identifying Patients for Weight-Loss Treatment

An Empirical Evaluation of the NHLBI Obesity Education Initiative Expert Panel Treatment Recommendations

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Background: The NHLBI (National Heart, Lung, and Blood Institute) Obesity Education Initiative Expert Panel recently proposed that clinicians and other health care professionals use a new treatment algorithm to identify patients for weight-loss treatment. In addition to the usual assessment of body mass index (BMI, calculated as weight in kilograms divided by the square of height in meters), the new algorithm includes the assessment of abdominal obesity (as measured by waist circumference) and other cardiovascular disease (CVD) risk factors.

Methods: We examined the percentage of adults meeting the criteria of the panel’s treatment algorithm: BMI $\geq 30$ or $[\text{BMI}, 25.0-29.9 \text{ or waist circumference } > 88 \text{ cm (women)} > 102 \text{ cm (men)) and } \geq 2 \text{ CVD risk factors}]$ in a sample of 2844 black, 2754 Mexican American, and 3504 white adults, aged 25 to 64 years, from the Third National Health and Nutrition Examination Survey, 1988-1994.

Results: Across ethnic groups, more than 98% of adults (normal weight, overweight, and obese) received the same treatment recommendations using the panel’s algorithm and an algorithm based only on BMI and CVD risk factors, without waist circumference. For normal-weight adults, almost none (0.0%-1.8%) had a large waist circumference as defined above and 2 or more CVD risk factors. Using the usual criterion of a BMI of 30 or higher, a substantial percentage of at-risk overweight women and men (BMI, 25.0-29.9) with 2 or more CVD risk factors were missed (8.4% and 19.3%, respectively).

Conclusions: Despite the potential importance of abdominal obesity as a CVD risk factor, these results challenge the clinical utility of including waist circumference in this new algorithm and suggest that using BMI and CVD risk factors may be sufficient.

Arch Intern Med. 2000;160:2169-2176
METHODS

Conducted by the National Center for Health Statistics, Hyattsville, Md, NHANES III assessed the health and nutrition of the civilian, noninstitutionalized population of the United States using the same stratified, multistage probability design used in previous NHANESs. It was conducted in two 3-year phases. Phase I was conducted from 1988 to 1991 and phase II from 1991 to 1994. It included a total sample of 33994 persons aged 2 months or older.

The staff conducted NHANES III in households, administering questionnaires to families, adults, and children. Standardized medical examinations followed, conducted in NHANES III mobile examination centers. The household surveys included demographic, socioeconomic, dietary, and health history questions; the medical examinations included measurements of blood pressure and lipid and glucose levels.

The sample for our analysis included black, Mexican American, and white women and men aged 25 to 64 years who completed both the home questionnaire and medical examination. We used the lower age cutoff point of 25 years to ensure that most individuals had completed their highest level of education (a covariate included in our analysis) and the upper age cutoff point of 64 years to avoid problems of selection effects due to morbidity and mortality unrelated to CVD.10 We excluded data for adults in the following order: adults whose surveys were coded by NHANES III as unreliable (n=16), women who were pregnant (n=162), adults who did not complete both the home questionnaire and the medical examination (n=890), adults from other ethnic groups (n=488), and adults missing values for education level (n=107). The protocol for this analysis was approved by the Stanford University Administrative Panel on Human Subjects in Medical Research, Palo Alto, Calif.

DEFINITION OF VARIABLES

Participants who classified their race or ethnicity as black, Mexican or Mexican American, or white were included in our analysis. Participants reported the highest grade or year of school that they had completed. We selected years of education as a measure of socioeconomic status (SES) because of its strong association with indicators of overweight11 and its role as a possible confounder of ethnic differences in obesity.12 In addition, unlike income or occupation level, the measure of years of education is available regardless of employment status, is a more constant measure of lifelong SES, and is not affected by the risk factors we examined.13,14

The NHLBI Obesity Education Initiative Expert Panel treatment algorithm proposed that health care professionals assess patients’ BMI, waist circumference, and obesity-associated diseases and risk factors (eg, CVD risk factors, sleep apnea, gallstones, and stress incontinence) when identifying patients in need of weight-loss treatment.1 The primary outcome variable for the present study was the percentage of adults meeting the criteria of the panel’s treatment algorithm: BMI $\geq$30 or ($\text{BMI} \geq 25.0-29.9 \text{ or waist circumference} \geq 88 \text{ cm} \text{ (women)} >102 \text{ cm} \text{ (men)}$) and $\geq$2 risk factors.

Anthropometric measures (height, weight, and waist circumference) were obtained according to standard protocols.15 The waist was measured at the iliac crest.16 Body mass index, a measure of relative weight, was calculated as weight in kilograms divided by the square of height in meters.

For this analysis, we focused on the 7 CVD risk factors recommended by the panel for assessment because of the strong associations of abdominal obesity with CVD risk factors.6 Physical inactivity was not included in the 7 primary CVD risk factors by the panel because of the lack of existing quantitative risk cutoff points.1 The 7 CVD risk factors are listed below.

1. Cigarette smoking. Participants were classified as current smokers if they reported that they had smoked at least 100 cigarettes during their lifetime and were currently smoking cigarettes.

2. Hypertension. Health examiners measured systolic and diastolic blood pressure from the right arm of participants while they were seated. Based on the mean of the second and third of 3 readings, participants were classified as having hypertension if their systolic blood pressure was...
140 mm Hg or higher and/or their diastolic blood pressure was 90 mm Hg or higher and/or they reported currently taking prescribed medicine for hypertension.

3. High level of non–high-density lipoprotein (non-HDL) cholesterol. The panel’s treatment algorithm recommended identifying patients with a high level of low-density lipoprotein (LDL) cholesterol (ie, LDL cholesterol level \( \geq 4.1 \text{ mmol/L} [160.0 \text{ mg/dL}] \)). For this analysis, we identified participants with a high level of non-HDL cholesterol rather than a high level of LDL cholesterol for 2 reasons. First, non-HDL cholesterol levels may be a better indicator of atherogenic lipoprotein particles than indirectly estimated LDL cholesterol levels. Second, the measurement of non-HDL cholesterol does not require fasting blood samples and, thus, allowed the use of the entire NHANES III sample (only half of the sample fasted overnight). Measurements were taken from serum specimens and analyzed by standard protocols. The non-HDL cholesterol value was calculated as the difference between total cholesterol and HDL cholesterol levels. Participants were classified as having a high level of non-HDL cholesterol if the serum concentration was 4.9 mmol/L (187.6 mg/dL for men and 187.8 mg/dL for women) or higher, a research-derived cutoff point corresponding to the LDL cutoff point of 4.1 mmol/L (160.0 mg/dL) or higher.

4. Low level of HDL cholesterol. Participants were classified as having a low level of HDL cholesterol if their HDL cholesterol level was less than 0.9 mmol/L (35.0 mg/dL).

5. Type 2 diabetes mellitus. The treatment algorithm recommended identifying patients with clinical type 2 diabetes (ie, fasting plasma glucose level \( \geq 7.0 \text{ mmol/L} [126.0 \text{ mg/dL}] \)). Fasting plasma glucose levels were determined using a microadaptation of the national glucose oxidase reference method and were available for the half of the sample that fasted. Therefore, participants were classified as having type 2 diabetes mellitus if they fasted for 8 hours or longer and had plasma glucose levels of 7.0 mmol/L (126 mg/dL) or higher and/or if they reported a medical history of diabetes mellitus (other than during pregnancy) with an age at onset older than 25 years.

6. Family history of premature CHD. The treatment algorithm recommended identifying patients with a family history of premature CHD if their father or other first-degree male relative (eg, brother) experienced a definite myocardial infarction or sudden death at or before 55 years of age or at or before 65 years of age for their mother or other first-degree female relative (eg, sister). Because a precise measure of family history of premature CHD was not available, we used a combination of the only 2 existing NHANES questions on family history of CHD. We identified participants with a family history of premature CHD if they reported that any of their blood relatives (including grandparents, parents, brothers, sisters, aunts, uncles, and cousins, living or deceased) had ever been told by a doctor that they had a heart attack before the age of 50 years and if the participants reported that at least one parent or sibling (first-degree relative) had experienced a heart attack.

7. Age. Age was classified as a CVD risk factor for men if they were 45 years or older and for women if they were 55 years or older.

RESULTS

Of the 9969 women and men in the sample, 867 (8.7%) could not be classified using the panel’s treatment algorithm because they had incomplete data for BMI (n = 4), waist circumference (n = 307), the presence of 2 or more CVD risk factors (n = 462), or some combination of these assessments (n = 94). Black participants were more likely to have incomplete data (12.0%) than Mexican American (8.3%) or white (7.3%) participants (\( \chi^2 = 22.7; P < .01 \)). However, there were no significant differences between those with complete and incomplete data for the 3 algorithm assessments by sex, age, years of education, or BMI.

DESCRIPTIVE RESULTS

The selected NHANES III sample included 2844 black, 2754 Mexican American, and 3504 white men and women, aged 25 to 64 years, who completed both the home questionnaire and the medical examination and had complete data for the 3 algorithm assessments. There were large numbers of women and men in 2 subgroups that are typically underrepresented in studies of ethnic differences in obesity: Mexican American adults with more than 12 years of education (209 women and 261 men) and white adults with less than 12 years of education (329 women and 318 men). Descriptive results for sociode-
mographic characteristics and CVD risk factors are presented by sex for the 3 ethnic groups in Table 1. Mexican American adults were younger, had fewer years of education, and were less likely to be born in the United States than black or white adults.

ADULTS NEEDING WEIGHT-LOSS TREATMENT

As previously mentioned, the panel recommended assessing 3 measures: BMI, waist circumference, and CVD risk factors. The treatment algorithm was constructed to rely on either 1 (eg, BMI $\geq 30$) or a combination of 2 of the 3 measures at a time (eg, BMI, 25.0-29.0 and $\geq 2$ CVD risk factors) to identify patients needing weight-loss treatment. Table 2 displays the percentage of black, Mexican American, and white women and men by all possible combinations of the 3 assessment measures for comparison. The treatment recommendations—either “advise to maintain weight/address other risk factors” (M) or “clinician and patient devise goals and treatment strategy for weight loss and risk factor control” (T)—are listed at the bottom of the column of each assessment combination.

Normal-Weight Adults

For brevity, the term normal-weight adults in the present study describes all adults with a BMI less than 25, including underweight adults. As shown in Table 2, when using the panel’s treatment algorithm to determine the appropriate treatment recommendation (M or T), it is only necessary to measure waist circumference for adults of normal weight with 2 or more CVD risk factors (column D). That is, almost no normal-weight adults were identified as needing weight-loss treatment perhaps in part because the correlation between BMI and waist circumference was high for all ethnic groups for both women (0.90-0.91) and men (0.92-0.93).

If the waist circumference cutoff point was lowered to 76.2 cm (30 in) for women, a value associated with a 2-fold higher risk of CHD in women, 4.0% of black women, 3.0% of Mexican-American women, and 6.9% of white women would be identified as needing weight-loss treatment (ie, normal-weight participants who met or exceeded the 76.2-cm waist circumference cutoff point and had $\geq 2$ CVD risk factors).

Overweight Adults

For overweight adults (BMI, 25.0-29.9), the panel’s treatment algorithm relies only on the assessment of BMI and the presence of 2 or more CVD risk factors to identify adults needing weight-loss treatment (columns G and H). In fact, the panel’s recommended waist circumference cutoff points (ie, $>$88 cm for women or $>$102 cm for men) could be increased or decreased without affecting the overall percentage of overweight adults identified as needing weight-loss treatment (ie, normal-weight participants who met or exceeded the 76.2-cm waist circumference cutoff point and had $\geq 2$ CVD risk factors).

Table 1. Characteristics of 9102 Adults Aged 25 to 64 Years

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Women</th>
<th>Men</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Black</td>
<td>Mexican American</td>
</tr>
<tr>
<td>US population, millions†</td>
<td>6.7</td>
<td>2.7</td>
</tr>
<tr>
<td>Analyzed sample‡</td>
<td>1563</td>
<td>1344</td>
</tr>
<tr>
<td>Sociodemographics§</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Age, mean, y</td>
<td>41.0</td>
<td>39.6</td>
</tr>
<tr>
<td>Married</td>
<td>44.2</td>
<td>72.0</td>
</tr>
<tr>
<td>Urban residence</td>
<td>59.7</td>
<td>59.3</td>
</tr>
<tr>
<td>Education, mean, y</td>
<td>12.1</td>
<td>9.1</td>
</tr>
<tr>
<td>Born in United States</td>
<td>93.2</td>
<td>48.3</td>
</tr>
<tr>
<td>CVD risk factors§</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Smoker</td>
<td>31.6</td>
<td>15.2</td>
</tr>
<tr>
<td>Hypertension</td>
<td>29.8</td>
<td>14.3</td>
</tr>
<tr>
<td>High non-HDL level</td>
<td>14.9</td>
<td>14.0</td>
</tr>
<tr>
<td>Low HDL level</td>
<td>4.6</td>
<td>8.2</td>
</tr>
<tr>
<td>Type 2 diabetes mellitus</td>
<td>8.1</td>
<td>7.5</td>
</tr>
<tr>
<td>Family history</td>
<td>9.4</td>
<td>7.9</td>
</tr>
<tr>
<td>Sex-specific age risk</td>
<td>16.2</td>
<td>11.6</td>
</tr>
</tbody>
</table>

*Data are presented as percentages unless indicated otherwise. The adults participated in NHANES III (Third National Health and Nutrition Examination Survey). CVD indicates cardiovascular disease; and HDL, high-density lipoprotein.
†Projected estimates were based on weighted percentages from NHANES III for defined sample.
‡Number who participated in both the home questionnaire and medical examination, unweighted.
§Means and percentages were calculated with sample weights.
Obese Adults

For obese adults (BMI $\geq 30$), the panel's treatment algorithm relies only on the assessment of BMI to identify adults needing weight-loss treatment (columns I, J, K, and L). The panel stated that "it is not necessary to measure waist circumference in patients with a BMI $\geq 35$ kg/m$^2$; the measurement usually will be greater than the cutoff points."

In summary, despite the panel's recommendation to assess BMI, waist circumference, and CVD risk factors to identify adults in need of weight-loss treatment, it may be unnecessary to assess waist circumference in (1) normal-weight adults because so few individuals exist with a large waist circumference, (2) overweight adults because waist circumference does not add information that changes the treatment recommendation, and (3) obese adults because the majority have a waist circumference that exceeds the waist circumference cutoff point.

COMPARISON OF THE PANEL'S ALGORITHM WITH 3 LESS COMPLEX ALGORITHMS

A comparison of 4 treatment algorithms is shown at the bottom of Table 2. Across all ethnic groups, almost all women (98.4%) and men (99.9%) received same treatment recommendations using the panel's algorithm and a less complex algorithm based only on BMI and CVD risk factors (ie, BMI $\geq 30$ or BMI, 25.0-29.9 and $\geq$ 2 CVD risk factors). Comparing the pattern of treatment recommendations (M and T) for these 2 algorithms, there is no assessment combination for which the treatment recommendation for the panel's treatment algorithm is to maintain and the recommendation for the algorithm based only on BMI and CVD risk factors is to treat. Thus, the false-positive rate is 0% for both women and men across all 3 ethnic groups. In addition, there is only one assessment combination (column D) for which the treatment recommendation for the panel's treatment algorithm is to treat and the recommendation for the algorithm based only on BMI and CVD risk factors is to maintain. Thus, the false-negative rate is equivalent to the percentages listed for normal-weight adults with 2 or more CVD risk factors and a waist circumference that exceeds the cutoff point (column D; 1.0%-1.8% of women and 0.0%-0.2% of men).

Fewer women (83.3%) and men (77.5%) received the same treatment recommendations using the panel's algorithm and an algorithm based only on waist circumference and CVD risk factors (ie, waist circumference $>88/102$ cm and $\geq$ 2 CVD risk factors). The disadvantage of only using waist circumference and CVD risk factors is that a substantial percentage of adults would be advised to maintain rather than lose weight. This group includes, but is not limited to, overweight men with 2 or more CVD risk factors without a large waist circumference (column G; 13.2%-14.1% of men) as well as some obese women (add columns I, J, and K, resulting in 13.0%-26.3% of women).

The disadvantage of an algorithm based only on the usual assessment of a BMI of 30 or higher is that a sub-
stantial percentage of overweight adults with 2 or more CVD risk factors would be advised to maintain rather than lose weight (add columns G and H, resulting in 6.9%-9.4% of women and 16.1%-19.8% of men). Summarizing across the 4 algorithms, the algorithm based only on BMI and CVD risk factors identifies almost the same percentage of adults needing treatment as the panel’s more complex algorithm that incorporates waist circumference.

DIFFERENCES IN WEIGHT-LOSS TREATMENT BY ETHNICITY AND SES

We examined whether the percentage of women and men identified as needing weight-loss treatment differed by ethnicity and SES (as measured by years of education) using the less complex algorithm based only on BMI and CVD risk factors. Table 3 and the Figure present the main effects and interaction effects for logistic regression models by sex. Although less education was associated with a higher percentage of both Mexican American and white women needing weight-loss treatment, having more than a high school education was associated with a lower percentage identified for treatment for white women only (interaction effect of ethnicity \times education, Mexican American).

Less education was associated with a higher percentage of both black and white men identified for weight-loss treatment (main effect of education). Having a high school education or less was associated with a higher percentage of white men needing weight-loss treatment than Mexican American men; however, having more than a high school education was associated with a lower percentage identified for treatment for white men only (interaction effect of ethnicity \times education, Mexican American).

**Table 3. Logistic Regression Models for Adults Identified for Weight-Loss Treatment Using the Algorithm Based on Body Mass Index and Cardiovascular Disease Risk Factors Only**

<table>
<thead>
<tr>
<th>Factor</th>
<th>Women</th>
<th>Odds Ratio (99% Confidence Interval)</th>
<th>Men</th>
<th>Odds Ratio (99% Confidence Interval)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intercept</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Education</td>
<td>( \beta ) (SE)</td>
<td>( P )</td>
<td>60</td>
<td></td>
</tr>
<tr>
<td>Ethnicity</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Black</td>
<td>0.59 (0.10)</td>
<td>&lt;.001</td>
<td>1.81 (1.38-2.36)</td>
<td>-0.25 (0.10)</td>
</tr>
<tr>
<td>White</td>
<td>0.18 (0.13)</td>
<td>.17</td>
<td>1.20 (0.85-1.69)</td>
<td>-0.20 (0.12)</td>
</tr>
<tr>
<td>Education x Ethnicity</td>
<td>0.00 (0.00)</td>
<td>. .</td>
<td>1.00 (Reference)</td>
<td>0.00 (0.00)</td>
</tr>
</tbody>
</table>

Percentage of adults who participated in NHANES III (Third National Health and Nutrition Examination Survey), by ethnicity and level of education, who were identified for weight-loss treatment using the algorithm based on body mass index and cardiovascular disease risk factors only.

**Comment**

Despite the potential importance of abdominal obesity as a predictor for CHD,\(^4\)\(^5\) the results of the present study call into question the clinical utility of measuring waist circumference to identify patients in need of weight-loss treatment. More than 98% of women and 99% of men...
received the same treatment recommendations using the panel's algorithm (based on BMI, waist circumference, and CVD risk factors) and a less complex algorithm (based on BMI and CVD risk factors only). In addition, the less complex algorithm based only on BMI and CVD risk factors identified a substantial percentage of at-risk overweight women (8.4%) and men (19.3%) with 2 or more CVD risk factors in need of treatment. These at-risk overweight adults, for whom treatment could prevent subsequent obesity, would be missed using only the usual criterion of a BMI of 30 or higher. Given increasing time demands on clinicians and other health care professionals, using the less complex algorithm based only on BMI and CVD risk factors appears to be sufficient for identifying patients in need of weight-loss treatment.

**IS WAIST A WASTE?**

In this study, almost no women (1.0%-1.8%) and men (0.0%-0.2%) were of normal weight, had a large waist circumference as defined by the panel, and had 2 or more CVD risk factors. Thus, it is tempting to conclude that waist circumference may not be useful for identifying normal-weight patients who need weight-loss treatment. However, in a recent epidemiological study examining the relationship between self-reported waist circumference and incidence of CHD in women, a smaller waist circumference cutoff point of 76.2 cm was associated with a 2-fold higher risk of CHD. Thus, a lower cutoff point may be more appropriate for normal-weight women. Clearly, further research is needed to determine whether cutoff points for waist circumference exist that are indicative of disease in normal-weight men, too.

In the panel's algorithm, measuring waist circumference does not add independent information for identifying which overweight patients (BMI, 25.0-29.9) need weight-loss treatment nor does it make recommendations for different types of treatments for overweight patients with and without a large waist circumference. In fact, the waist circumference cutoff points can be raised or lowered without affecting the overall percentage of overweight adults identified for weight-loss treatment. Thus, the recommendation to assess waist circumference in addition to BMI and CVD risk factors to screen all overweight patients may be undermined because of the added time and cost involved for clinicians. However, assessing waist circumference may be helpful when tracking and motivating subgroups of patients for whom it is important to measure treatment efficacy using multiple outcomes over time. Such patients include those with metabolic complications due to CVD and those who are unaccustomed to thinking that they are at risk and need to lose weight.

The high correlation between BMI and waist circumference found in the present study for women and men across different ethnic groups suggests that it may be difficult to discern the independent contribution of waist circumference to either total or abdominal obesity. In a recent critique of the literature, Molarius and Seidell called for more rigorously defended theoretical and biological rationales when identifying anthropometric indicators for abdominal obesity, such as waist circumference and waist-hip ratio. Likewise, our findings underscore the need for future scientific evaluation of anthropometric indicators and cutoff points before implementing health care policy.

**NEED FOR TAILORED WEIGHT-LOSS INTERVENTIONS**

Based on the less complex algorithm of BMI and CVD risk factors only, the percentage of adults identified as needing weight-loss treatment is staggering, especially among those with lower educational attainment. For instance, among those without a high school degree, more than 57% of black women and more than 45% of Mexican American women and white women were identified as needing weight-loss treatment. Yet, a recent report indicated that 58% of obese patients (BMI $\geq 30$) are not advised by their health care professional to lose weight. Sociodemographic characteristics appear to influence the likelihood of being advised to lose weight. For instance, patients who were either male or had less education were less likely to have received such advice. According to our findings, some patients in greatest need of weight-loss treatment, for instance, 50% of white men and more than 40% of black and Mexican American men who had not completed high school, would be missed.

Given that both lower educational attainment and ethnic minority status were related to the need for treatment, innovative tailored treatment programs and behavioral strategies need to be developed that take literacy, cultural, and language needs into account. Unfortunately, behavioral weight-loss interventions often are tailored for white well-educated women, the group of women least likely to be identified as needing weight-loss treatment in our study. It has been hypothesized that the content or delivery of existing weight-loss programs may be less appropriate for some ethnic minority groups, perhaps due to differences in perceptions of body image and attractiveness or other cultural influences. Preliminary studies described weight-loss programs specifically designed to be sensitive to educational level and cultural values. However, more research is needed that systematically evaluates the efficacy of different components of such interventions. In addition, further research is needed to examine the efficacy of strategies for men of all ethnic backgrounds, especially those with less education.

**LIMITATIONS AND STRENGTHS**

One limitation of the present study was that 8.7% of the adults were missing 1 of the 3 assessments (BMI, waist circumference, or CVD risk factors). Conceivably, the extremely low percentage of normal-weight adults with a large waist circumference and 2 or more CVD risk factors could be due to differential missing data. However, there were no differences in BMI between those with and without missing data, making this hypothesis unlikely. Another limitation is that we only examined how the assessment of a constellation of CVD risk factors (ie, the presence of 2 CVD risk factors) affected the percentage of adults identified for treatment. Future studies need
to investigate how the assessment of individual CVD risk factors, such as age or smoking status, affect the percentage identified for treatment, especially for diverse ethnic and socioeconomic groups. A further limitation is that we only examined CVD risk factors, a fraction of the obesity-associated risk factors recommended for assessment by the panel (eg, gout and gallstones). As previously mentioned, we focused on the CVD risk factors because of their strong associations with abdominal obesity. One might expect that the percentage of adults identified for weight-loss treatment might increase with the addition of other obesity-associated risk factors. However, the addition of other obesity-associated risk factors would not affect the findings in the present study regarding waist circumference, such as the lack of normal-weight adults with a large waist circumference as defined by the panel.

Despite these limitations, the use of NHANES III to empirically evaluate the treatment algorithm of the NHLBI Obesity Education Initiative Expert Panel had a number of strengths: The 2 largest ethnic minority populations in the United States, blacks and Mexican Americans, were oversampled to provide reliable health estimates across more than 1 ethnic group; the sample included sufficient numbers of men and women aged 25 to 64 years at the extremes of SES for all ethnic groups; the noninstitutionalized population of the United States was nationally sampled, allowing for broad generalizability; and objective measures of height, weight, waist circumference, and some of the primary CVD risk factors (eg, blood pressure and lipoprotein cholesterol level) were used.

In summary, this study empirically evaluated the panel’s treatment algorithm to identify patients in need of weight-loss treatment. Although waist circumference is 1 of the 3 key components of the algorithm, it did not contribute independent information for identifying adults in need of treatment. The results of this study have important implications for the use of the panel’s treatment algorithm as currently written but do not negate the potential value of abdominal obesity as an important indicator of disease and mortality.

Accepted for publication February 1, 1999.

REFERENCES


CONCLUSIONS

We thank Helena C. Kraemer, PhD, and Dr Winkleby’s research group for their valuable suggestions.

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