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Chronic Disease in Vermont: Obesity

Obesity is a major cause of morbidity and mortality in both men and women in the United States and Vermont. Over the last several decades obesity has been increasing in prevalence according to self-reported data from the Behavioral Risk Factor Surveillance System (BRFSS)[1] and the National Health and Nutrition Examination Survey III.[2]

Data in this report reflect the characteristics and percentages of adult Vermonters in each body mass index (BMI) category and the relationship between selected chronic conditions and BMI. Body mass index, defined as weight in kilograms divided by squared height in meters, encompasses the range of weight categories including under healthy weight (BMI <19 kg/m^2), healthy weight (BMI 19–24.9 kg/m^2), overweight (BMI 25–29.9 kg/m^2), obese (BMI 30–39.9 kg/m^2), and class III obesity[3] (BMI ≥ 40 kg/m^2).

Consequences of Obesity

Men and women with BMIs above the healthy weight range have an increased incidence of Type 2 diabetes, hypertension, coronary heart disease and gallbladder disease.[4] Postmenopausal breast, endometrial, colon and kidney cancer, osteoarthritis and infertility are also related to excess body fat.[4]

The lowest rates of all causes of mortality are found among individuals with BMIs between 23.5 and 24.9 in men and 22.0 and 23.4 in women. Rates are highest among individuals with class III or extreme obesity (BMI ≥ 40).[5] Individuals with class III obesity have twice the risk for all causes of mortality compared to obese individuals.[6]

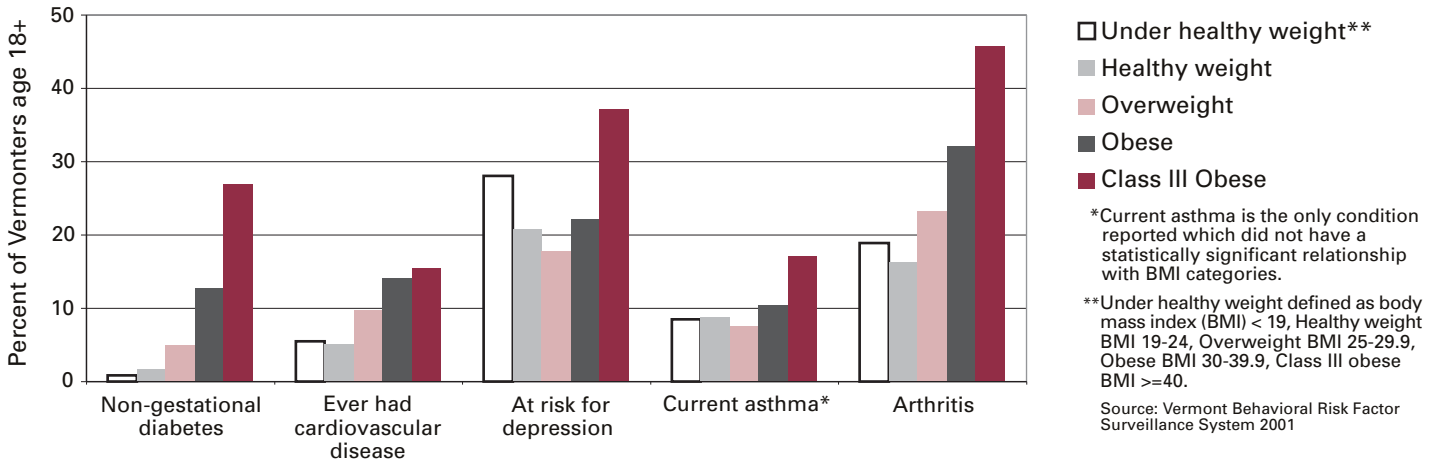
Vermont data substantiate the relationship between obesity and chronic disease. The percentages of adult Vermonters in each BMI category who reported ever being diagnosed with diabetes, cardiovascular disease (including coronary heart disease, stroke or myocardial infarction), or arthritis are shown in Figure 1. Percentages for individuals reporting current asthma or being "at risk for depression"[7] are also shown in Figure 1. In 2000, more Vermonters reported having a disability[8] if they were in the overweight (19%), obese (26%) or class III obesity (37%) categories than if they were in the healthy weight category (12%) (p<0.001).

Prevalence of Obesity

Six Healthy Vermonter 2010 goals relate to physical activity, nutrition and obesity. The goals directly related to obesity include 1) reducing the percentage of adults age 20 and older who are obese from 17.6 percent in 2001 to 15 percent by 2010, and 2) reducing the percentage of youth who are obese or overweight from 10 percent of children in grades 8–12 in 2001 to 5 percent by 2010.

Secular trends: From 1990 to 2001, the percentage of Vermonters in the under healthy weight category declined by 33 percent, from 4.3 percent to 2.9 percent, and in the healthy weight category by 19 percent, from 55.1 percent to 44.7

Figure 1. Vermont Adults Reporting Chronic Conditions by Body Mass Index Category



*Current asthma is the only condition reported which did not have a statistically significant relationship with BMI categories.

**Under healthy weight defined as body mass index (BMI) < 19, Healthy weight BMI 19-24, Overweight BMI 25-29.9, Obese BMI 30-39.9, Class III obese BMI >=40.

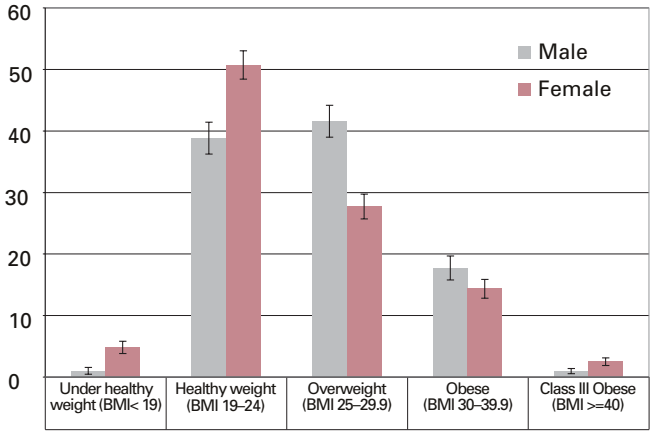
Source: Vermont Behavioral Risk Factor Surveillance System 2001

percent. The percentage of overweight adult Vermonters increased 16 percent, from 29.9 percent to 34.7 percent, while the percentage of obese Vermont men and women increased 55 percent, from 10.3 percent to 16.0 percent, during this period. A dramatic rise in the percentage of adult Vermonters with class III obesity was also seen with a 600 percent increase, from 0.3 percent in 1990 to 2.1 percent in 2000. The corresponding U.S. prevalence was 0.78 percent in 1990 to 2.2 percent in 2000.[4]

Characteristics of Vermonters over healthy weight: In grades 8–12, more Vermont boys [14.1%; 95% confidence interval (CI) =11.9–16.2] than girls [5.4%; 95% CI =4.0–6.9] were overweight.[9] For adult Vermonters, more men than women were obese, but more women than men reported extreme or class III obesity (See Figure 2).

For the period 1999–2000, the prevalence of obesity (BMI ≥ 30) was highest among adult Vermonters with education at the level of "some high school or less" (7.7%), adults age 55–64 (22.5%), and lowest among those with incomes over $75,000 (10.9%).[1]

Figure 2. Adult Vermont Men and Women by Body Mass Index (BMI) Category



Source: Vermont Behavioral Risk Factor Surveillance System, 2001

Physical Activity: the key to a healthy weight: The National Institutes of Health states, "Physical activity should be an integral part of weight loss and weight maintenance. Initially, moderate levels of physical activity for 30–45 minutes, 3–5 days per week should be encouraged. All adults should set a long-term goal to accumulate at least 30 minutes or more of moderate-intensity physical activity on most, and preferably all, days of the week."[4] In 2000, the percentage of adult Vermonters reporting 30 minutes of physical activity at least five times per week declined with increasing body mass index (healthy weight = 29% [95%CI =26–31], overweight = 24% [95%CI =22–27], obese = 16% [95%CI =13–19], and class III obesity = 15% [95%CI =7–23]).[1]

A combination of increased physical activity and reduced caloric intake produces greater weight loss than either alone.[5] Individuals who engaged in physical activity expending 1,500–2,000 calories per week maintained 76–85 percent of the weight loss at the end of two years.[10] This level of physical activity is equivalent to approximately five hours per week or 45 minutes a day, seven days a week.

Physician's advice: In 2000, of adult Vermonters advised to lose weight by a physician, 76 percent were trying to lose weight. Twelve percent of overweight Vermonters, 33 percent of obese Vermonters and 52 percent of individuals in the class III obese category reported they were advised by their physicians to lose weight.

Conclusion

According to the 2001 Vermont BRFSS, an estimated 151,490 adult Vermonters were overweight, 45,090 were obese, and 2,502 were in the class III obesity category. Nearly three-quarters of individuals who reported a physician's recommendation to lose weight were attempting to do so. More emphasis is needed in educating overweight and obese patients about the importance of physical activity and healthy eating in managing their weight long term. For more information on the identification, evaluation, and treatment of overweight and obesity, go to http://www.nhlbi.nih.gov/guidelines/obesity/ob_home.htm.

References

[1] Behavioral Risk Factor Surveillance System is an annual telephone survey of a random sample of non-institutionalized adult Vermonters (age 18+). For more details, visit: http://www.cdc.gov/brfss/

[2] Flegal KM, Carroll MD, Ogden CL, Johnson CL. Prevalence and trends in obesity among U.S. adults, 1999-2000. JAMA. *2002;288:1723-1727.*

[3] Freedman DS, Khan LK, Serdula MK, Galuska DA, Dietz WH. Trends and correlates of class 3 obesity in the United States from 1990-2000. JAMA *2002;288:1758-1761.*

[4] NHLBI. Clinical guidelines on the identification, evaluation, and treatment of overweight and obesity in adults: The evidence report. NIH Pub. No. 98-4083, September 1998, 228 pgs.

[5] NHLBI. The practical guide to the identification, evaluation, and treatment of overweight and obesity in adults. NIH Pub. No. 00-4084, October 2000, 56 pgs.

[6] Calle EE, Thun MJ, Petrelli JM et al. Body-mass index and mortality in a prospective cohort of US adults. N Engl J Med. *1999;341:1097-1105.*

[7] Depression defined as two or more weeks within the past year or two years of life feeling depressed or sad AND more than one day of the past week feeling depressed.

[8] The survey question reads: "Are you limited in any way in any activities because of physical, mental or emotional problems?"

[9] For children, overweight was defined as BMI > 95th percentile for age and gender, Youth Risk Behavior Survey 2001.

[10] Rippe JM, Hess Stacey. The role of physical activity in the prevention and management of obesity. J Am Diet Assoc 1998;98(suppl2):S31-S38.