

## Patterns of Obesity Among Men and Women In Rhode Island In 2007

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The proportion of adults who are overweight or obese has increased markedly in the past two decades,<sup>1</sup> both nationally and in Rhode Island.<sup>2</sup> These increases are alarming due to the anticipated increases in associated diseases<sup>3,4</sup> and in the associated health care costs and loss of productivity.<sup>5</sup> This report presents survey data on the differing patterns of obesity among Rhode Island adult men and women, and associated risk factors.

### METHODS

Overweight is defined as having a **body mass index (BMI)** (BMI = weight divided by the square of height measured in Kg/m<sup>2</sup>) of 25 or greater but less than 30; obesity is defined as having a BMI at or above 30. This analysis is focused primarily on obesity although any degree of overweight or obesity is associated with increased health risks. Obesity rates were calculated using heights and weights reported by respondents to the Rhode Island **Behavioral Risk Factor Surveillance System (BRFSS)** during 2007. The BRFSS is a telephone survey of randomly selected Rhode Island adults aged 18 or older.<sup>6</sup> Survey data are weighted to be representative of the Rhode Island adult population. During 2007, there were 4,499 respondents to the BRFSS. Data presented here are for adults ages 20 and older.

### RESULTS

In 1998, 46% of RI men and 27% of women were overweight, while 18% and 15%, respectively, were obese. By 2007 the proportion of overweight had increased to 51% for men and 29% for women, and to 23% and 22% obese. Because many respondents under-reported their weight, or over-reported their height, the actual proportions are likely to be higher.<sup>7</sup>

### WHICH ADULTS ARE AT RISK?

In 2007, Rhode Island men exceeded the national sample of men in the proportion who were overweight (51% vs. 43%), although they were less likely to be obese (23% vs. 27%).<sup>8</sup> In 2007 women in Rhode Island were less likely to be either overweight (29% vs. 30%) or obese (22% vs. 26%) compared to women nationally.<sup>8</sup>

Demographic disparities for obesity differ markedly between men and women in 2007. (Table 1) For men, small differences in obesity were not significant among racial and ethnic groups (23.9% of White non-Hispanic, 16.4% of Hispanic and 15.5% of Black non-Hispanic men were obese). On the other hand, White non-Hispanic women (20.7%) were significantly *less* likely to be obese than either Black non-Hispanic (37.5%) or Hispanic (29.0%) women.

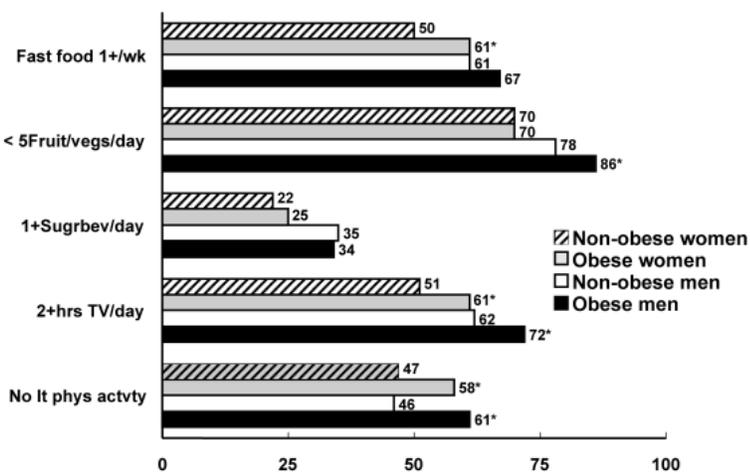
Similarly, differences in obesity by educational level or income status were noted for women, but not for men. The prevalence of obesity was lower for women of higher education, and for women of higher income. Women who are college graduates reported the lowest obesity proportion (16.7%) while women with less than a high school education have the highest obesity proportion (32.4%). The proportion of obese women with household incomes of \$75,000 or more is 18%, compared to 30.2% for women with annual household incomes less than \$25,000. In contrast, there is no significant difference in the rate of obesity for men by differing levels of education, or levels of income, but men did differ in risk of obesity by age group. Men from 45-64 years of age were at highest risk for obesity compared with other age groups, but for women, no differences in risk were found between age groups. (Table 1)

**Table 1. Obesity Disparities by Gender**

	Percent Obese	
	Men	Women
<b>White NH</b>	23.8	20.7*
<b>Black NH</b>	15.5	37.5
<b>Hispanic</b>	16.4	29
<b>20-29</b>	15.7*	20.4
<b>30-44</b>	20.9	20.3
<b>45-64</b>	29.4	25.3
<b>&lt;HS</b>	26.8	32.4*
<b>HS Grad</b>	25.1	28.8
<b>Some College</b>	21.8	19.5
<b>College Grad</b>	20.9	16.7
<b>&lt;\$25,000</b>	26.6	30.2*
<b>\$25-74,999</b>	20.5	26.2
<b>\$75,000+</b>	24.4	18

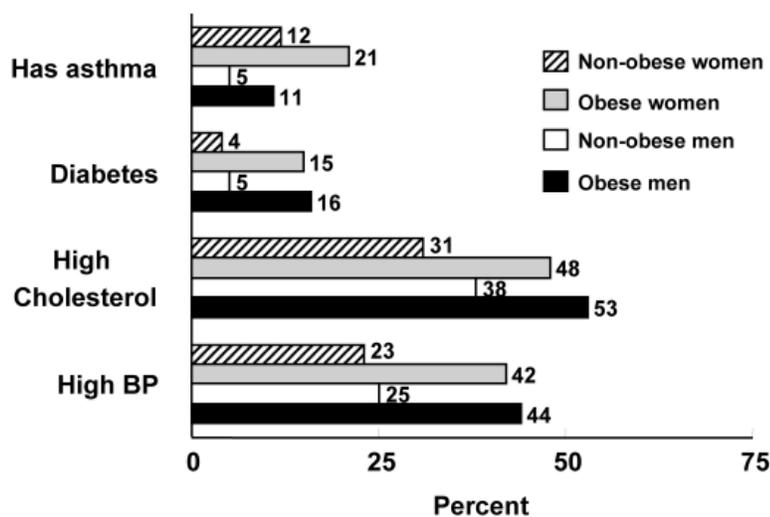
\* differences statistically significant at p < .01

**Figure 1. Behavioral risks among obese and non-obese adult men and women, ages 20+, RI 2007.**



\* differences between obese and non-obese women or men are statistically significant at  $p < .01$

**Figure 2. Health conditions among obese and non-obese adult men and women, ages 20+, RI 2007.**



All obese/non-obese differences for both men and women are statistically significant at  $p < .01$

### BEHAVIORAL RISK FACTORS FOR OBESITY

Several indicators of nutrition and physical activity were assessed comparing Rhode Islanders who are obese or not obese, and making those comparisons separately for men and women. These likely risk factors included: fruit and vegetable consumption, fast food consumption, sugar-sweetened beverage consumption, hours of TV viewing, and participation in non-work related regular physical activity. (Figure 1)

Obese men are significantly more likely to eat less than the recommended 5 or more servings of fruits and vegetables a day (86%) than non-obese men (78%). There were no differences in fruit and vegetable intake for obese and non-obese women (both about 70%). In contrast, obese women (61%) were significantly more likely than non-obese women (50%) to eat fast food one or more days each week, while the propor-

tion of men eating fast food were roughly the same for obese (67%) and non-obese men (61%). About 34% of men and 22% of women reported consuming one or more sugar-sweetened beverages per day, but no differences in consumption of sugar-sweetened beverages were found between obese and non-obese individuals for either men or women.

For men and women, the proportion of individuals watching two or more hours of television a day was significantly higher for obese women (61%) and men (72%) compared with non-obese women (51%), and non-obese men (62%). Also, the proportion of individuals who did not engage in regular physical activity (less than 30 minutes of moderate, or 20 minutes of vigorous activity per day, five days or more per week) was significantly higher among obese women (58%) and men (61%) than among their non-obese counterparts (47% and 46% respectively).

For both genders, obesity was significantly related to an increased risk of asthma, diabetes, high cholesterol and high blood pressure. (Figure 2)

### DISCUSSION

All adults in Rhode Island are at high risk of overweight or obesity. For men, risk differs by age group, but otherwise men of all racial/ethnic, income or educational levels are at similarly high risk. For women, Black and Hispanic women, low-income women, and women with lower educational attainment are at higher risk of obesity than White women, higher-income and more highly educated women.

Inadequate fruit and vegetable consumption increases the risk of obesity for men as does frequent fast food consumption for women. Both men and women who

watch television and those who are not physically active in their leisure time are at higher risk of obesity than those who turn off the TV and/or are more physically active. The lack of association of consumption of sugar sweetened beverages by obesity status is perplexing, but a recent study in California documented a risk of obesity with soda consumption among adults.<sup>9</sup> To a lesser extent, a study in New York documented the same risk.<sup>10</sup> The risk has been consistently reported among children.<sup>11, 12</sup>

An unhealthy diet and sedentary life styles are concerns for all adults. But identifying demographic and behavioral differences between men and women might stimulate the creation of gender-specific strategies to promote an active lifestyle and healthy diet.

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## Disclosure of Financial Interests

The authors have no financial interests to disclose.

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## Point of View

# America's Multi-Tiered Healthcare System: Is Organ Transplantation Fair?

*Peter Than and Paul Morrissey, MD*

**Two high profile surgical cases recently** demonstrated that even for citizens with health insurance, America has a multi-tiered health care system. The champion of universal health care, Senator Edward Kennedy, chose to have his brain tumor surgery at Duke rather than accept the consensus recommendation from a panel at the Massachusetts General Hospital. Similarly Steve Jobs, CEO of Apple computer, traveled from northern California to Tennessee, for a liver transplant to treat a metastatic neuro-endocrine tumor. The *New York Times* opined, "Whenever someone rich and famous receives a transplant, suspicions inevitably arise about whether that person managed to jump to the head of the waiting list and take an organ that might have saved the life of somebody just as desperate but less glamorous."

When celebrities obtain organs quickly, it heightens awareness that inequities may exist and compels people to

question the process. In 1995, baseball's Mickey Mantle presented with a chief complaint of stomach pain. He was diagnosed with cirrhosis and liver cancer. Nine days later, he was placed on a waiting list for a liver transplant; two days, later he was transplanted.

We know that wealthy patients have greater access to care than poor patients; white patients receive better care than black patients; the insured receive better care than the uninsured; and celebrities receive greater care than the average person. These disparities assume greater importance in organ transplantation because of the limited supply of organs. These observations drive at the heart of the debate between balancing equity and utility.

Given the complexities of the organ allocation system, the public might understandably feel that the playing field is not level. Nonetheless, organs are allocated through a computer-generated list that is

based on objective criteria (laboratory data, HLA matching and waiting time). Deviations from the list are investigated and the few cases that have been identified resulted in harsh penalties for transplant centers. Why is it then that the Mickey Mantles of the world receive transplants expeditiously while other patients are relegated to long waiting times? The possibility is that personal resources allow them access to a nation-wide system whereby they are able to make use of super-specialized physicians and services or, in the case of organ allocation, to gain admission to centers with shorter waiting times.

Recently, Steve Jobs received a liver transplant in Memphis. The median waiting time for a liver in Tennessee was 143 days in 2007 compared to 1851 days in California for the commonest blood group. Organs procured from deceased donors are kept within designated regions in the United States. Patients may be listed