Research Highlights

The Health Risks of Obesity

Worse Than Smoking, Drinking, or Poverty

Americans are getting fatter. One in five Americans is obese; three in five are either overweight or obese. The obesity rate has accelerated dramatically in the past 20 years, in conjunction with a national trend toward sedentary lifestyles.

Obesity is widely recognized as a health risk. The negative effects of obesity and other known health risks, such as smoking, heavy drinking, and poverty, have been well documented. But until now, no one has compared them. Is one problem worse than another? Or are they all equally risky?

Two RAND researchers, health economist Roland Sturm and psychiatrist Kenneth Wells, examined the comparative effects of obesity, smoking, heavy drinking, and poverty on chronic health conditions and health expenditures. Their finding: *Obesity is the most serious problem*. It is linked to a big increase in chronic health conditions and significantly higher health expenditures. And it affects more people than smoking, heavy drinking, or poverty.

Although obesity is a recognized health risk, there have been relatively few public policies designed to reduce its prevalence. Drs. Sturm and Wells note that "Americans haven't given obesity the same attention as other risks, like smoking, but it is clearly a top health problem and one that is on the rise in all segments of the population. More effective clinical and public health approaches are urgently needed."

This Highlight summarizes RAND research reported in the following publications:

Sturm R. The Effects of Obesity, Smoking, and Problem Drinking on Chronic Medical Problems and Health Care Costs. *Health Affairs*. 2002;21(2):245–253.

Sturm R, Wells KB. Does Obesity Contribute As Much to Morbidity As Poverty or Smoking? *Public Health*. 2001;115:229–295.

How Is Obesity Measured?

The body-mass index (BMI) is commonly used to measure obesity. This method may misclassify a few individuals, but it yields reasonably good results overall. BMI is the individual's weight in kilograms divided by height in meters squared. The standard categories are: underweight (BMI less than 18.5), normal (18.5 to 24.9), overweight (25 to 29.9), and obese (30 or more). Here are some examples, stated in pounds (pounds are rounded off):

Height	Underweight	Normal	Overweight	Obese
5' 3"	103 or less	104 to 140	141 to 168	169 or more
5'6"	114 or less	115 to 154	155 to 185	186 or more
5'9"	125 or less	126 to 168	169 to 202	203 or more
6'	136 or less	137 to 183	184 to 220	221 or more

Obesity Is Linked to Higher Rates of Chronic Conditions Than Are Smoking, Drinking, or Poverty

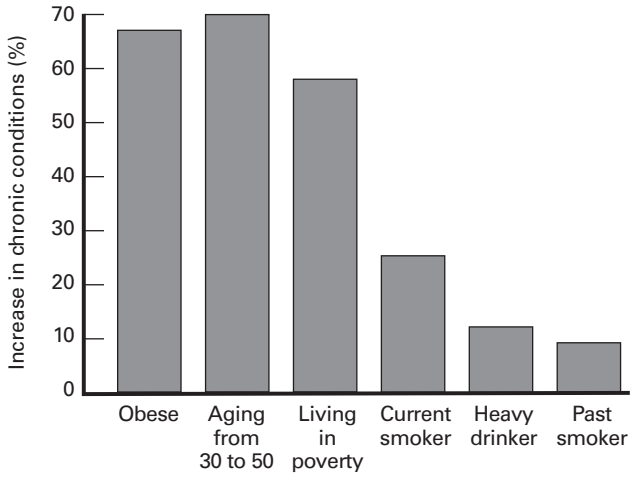
Sturm and Wells examined data from Healthcare for Communities, a national household telephone survey fielded in 1998. Approximately 10,000 respondents participated in the survey, which was designed to be nationally representative. Among other questions, the survey asked respondents to self-report on 17 chronic health conditions (including diabetes, hypertension, asthma, heart disease, and cancer), height, weight, poverty, smoking status, problem drinking, health-related quality of life, and a variety of demographic factors.

The study reveals that obesity is linked to very high rates of chronic illnesses—higher than living in poverty, and much higher than smoking or drinking.

Figure 1 compares the increase in chronic conditions related to obesity. When compared with normal-weight individuals of the same age and sex having similar social demographics, obese people suffer from an increase in chronic conditions of approximately 67 percent. In contrast, the increase for normal-weight daily smokers is only 25 percent; and for normal-weight heavy drinkers, only 12 percent.

A comparable factor is aging. In terms of chronic conditions, being obese is like aging from 30 to 50. Poverty is also a significant health threat: The increase in chronic conditions for people living in poverty is approximately 58 percent.

Figure 1. Obesity Is Linked to a Significant Increase in Chronic Conditions



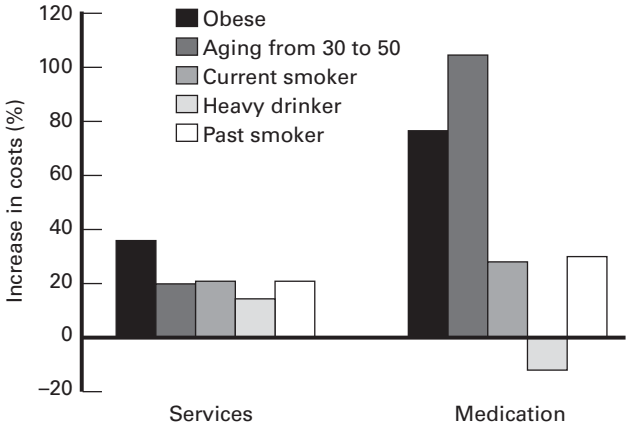
Baseline = comparable normal-weight individuals with no history of smoking or heavy drinking.

Obese Individuals Spend More on Health Care

Figure 2 shows health care expenditures for obese individuals, current smokers, past smokers, heavy drinkers, and people who have aged from 30 to 50, as compared with a baseline of normal-weight individuals of the same age and sex with similar social demographics. The bars on the left show expenditures for such health services as inpatient care and visits to the doctor's office; the bars on the right show expenditures for medication (both prescription and over-the-counter).

Obese individuals spend more on both services and medication than daily smokers and heavy drinkers. For example, obese individuals spend approximately 36 percent more than the general baseline population on health services, compared with a 21 percent increase for daily smokers and a 14 percent increase for heavy drinkers. Obese individuals spend 77 percent more on medications. Only aging has a greater effect—and only on expenditures for medications.

Figure 2. Obese Individuals Spend More on Health Care Than Smokers and Heavy Drinkers; Only Aging Has a Greater Effect on Medication Costs



Baseline = comparable normal-weight individuals with no history of smoking or heavy drinking.

Obesity Has Become an Epidemic

Not only does obesity have more negative health consequences than smoking, drinking, or poverty, it also affects more people. Approximately 23 percent of Americans are obese. An additional 36 percent are overweight. By contrast, only 6 percent are heavy drinkers, 19 percent are daily smokers, and 14 percent live in poverty.

Obesity rates are increasing dramatically. These rates used to be fairly stable: Between 1960 and 1980, there was only a minor increase in the number of Americans who were overweight or obese. Since 1980, however, not only has the percentage increased, but much of the increase is concentrated in the "obese" category, which grew by 60 percent between 1991 and 2000. Because this increase is relatively recent, its full impact is not known. Some chronic conditions take years to develop. Current research may, if anything, understate the public health consequences of obesity.

The past 20 years have witnessed a significant lifestyle change: Americans are exercising less while maintaining at least the same caloric intake. Desk jobs, an increase in the number of hours devoted to television watching, and car-friendly (and pedestrian- and bike-hostile) urban environments are some of the environmental changes that have combined to discourage physical activity.

These changes affect other industrialized countries, too. For example, over the past 20 years, Great Britain and Germany have experienced obesity growth rates similar to those in the United States. But because they started from lower levels, obesity in those countries has not yet become an epidemic-level threat to public health.

What Can Be Done?

The dangers of both smoking and heavy drinking have been on the national health agenda for years. A variety of measures, such as increased education, access control (including smoking bans in many buildings nationwide), taxation, better enforcement of laws relating to minors, curbs on advertising, and increased clinical attention, have resulted in decreased rates for both smoking and drinking.

RAND's findings suggest that weight reduction should be an urgent public health priority. The prevalence of obesity, and its strong association with chronic conditions, indicate that weight reduction would mitigate the effects of obesity on the occurrence of specific diseases and would significantly improve quality of life.

Abstracts of all RAND Health publications and full text of many research documents can be found on the RAND Health web site at www.rand.org/health. *RAND is a nonprofit institution that helps improve policy and decisionmaking through research and analysis. RAND Health furthers this mission by working to improve health and health care systems and advance understanding of how the organization and financing of care affect costs, quality, and access. RAND® is a registered trademark.*

RAND
1700 Main Street, P.O. Box 2138, Santa Monica, California 90407-2138 • Telephone 310/393-0411 • Fax 310/393-4818
1200 South Hayes Street, Arlington, Virginia 22202-5050 • Telephone 703/413-1100 • Fax 703/413-8111
201 North Craig Street, Suite 102, Pittsburgh, Pennsylvania 15213-1516 • Telephone 412/683-2300 • Fax 412/683-2800

RB-4549 (2002)