

# Today's Research on Aging

PROGRAM AND POLICY IMPLICATIONS

Issue 13, September 2008

## Obesity, Economics, and Health

Rising obesity rates are a public health concern in the United States and around the world. Prolonged obesity has implications for health at older ages, and these health effects may increase the costs of health care for individuals and governments.

The Behavioral and Social Research Program at the National Institute on Aging supports research on the health consequences of obesity and the factors associated with becoming obese. By better understanding the causes and consequences of obesity, more effective and cost-efficient interventions may be identified. This newsletter discusses NIA-funded and other recent research on obesity in the older population.

### Effect on Life Expectancy

Projections of how long individuals may expect to live are usually based on historic trends. Studies of the effect of obesity on mortality often use data from populations whose obesity rates in their childhood and young adult years were considerably lower than obesity rates among these groups today (for example, see Flegal 2005). However, S. Jay Olshansky and a group of researchers (2005) showed that when emerging trends, such as a rise in obesity rates at all ages, are taken into account, forecasts of future life expectancy are lower than they would have been otherwise.

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This review summarizes research related to the objectives of the National Institute on Aging, with emphasis on work conducted at the NIA demography centers. Our objective is to provide decisionmakers in government, business, and nongovernmental organizations with up-to-date scientific evidence relevant to policy debates and program design. These newsletters can be accessed at [www.prb.org/TodaysResearch.aspx](http://www.prb.org/TodaysResearch.aspx).

In an analysis of the effect of obesity on longevity, researchers compared age and race-specific life expectancy in the absence of obesity with current life expectancy estimates, and concluded that U.S. increases in life expectancy may soon end if obesity rates continue to rise (Olshansky et al. 2005). However, the change in obesity rates is just one of many factors that need to be taken into account when predicting life expectancy. Education programs, changes in income distribution, and greater access to health care may also affect health. Still, while life expectancy may continue to increase, the work by Olshansky and his colleagues suggests that actual increases will not be as great as they would have been without rising obesity rates among people younger than 50.

### Disability Rates

Obesity is not as highly associated with mortality among the elderly as it is at younger ages, and may even be associated with survival among the elderly (Flegal et al. 2005; Grabowski and Ellis 2001). However, in a study that examined the association between body mass index (BMI) and disability in people ages 65 and older, researchers found that in the seven years after measurement of BMI, the risk of disability was higher in both those who were underweight and those who were overweight or obese (Snih et al. 2007). Another study compared obese adults ages 60 and older in two periods: 1988 to 1994 and 1999 to 2004 (Alley and Chang 2007). The researchers found that those participating in the later survey were more likely to have some functional impairment, with a greater proportion of these people unable to walk a quarter-mile, climb 10 steps, pick up a 10-pound weight, and bend over.

Analyses of disability rates for younger adults also support the finding that current obesity trends will increase disability among the elderly. Sturm and fellow researchers (2004) found that if current trends in obesity continue, disability rates (based on changes in the number of obese) will increase by 1 percent per year more in the 50-to-69 age group than if there were no further shifts in the distribution of the population among the normal weight, overweight, obese, and

severely obese. The link between obesity and chronic illnesses has contributed to higher disability rates among the working-age population (Bhattacharya, Choudhry, and Lakdawalla 2008). The increasing prevalence of obesity explains about 40 percent of the contribution of chronic diseases to the rise in disability rates between 1986 and 1994.

## The Economics

In a recent working paper, Philipson and Posner (2008) reviewed economic studies of obesity. They argued that several aspects of the issues surrounding the global rise in obesity rates lend themselves to economic study, including an individual's food consumption and physical activity choices; the rising trend in obesity rates and differences across countries; the public policy question of whether governments should intervene to reduce the social costs of obesity; and the determination of which medical and public health interventions are cost-effective means of reducing obesity.

Technological change in agriculture has both decreased the cost of food and effectively increased the cost of exercise. Household and work activities are less exercise intensive because more people can afford to buy food rather than

grow their own, fewer agricultural workers are needed to produce enough food for everyone, and much of agricultural work itself is not as physically demanding as it used to be. The result of technological change has been that people now eat more and exercise less. In comparisons across countries, the adoption of more sedentary and productive technologies increases both income and weight (see Philipson and Posner (2008) for review of studies).

Social norms and networks may deter or encourage a person's food consumption as food prices fall. Studies of increases in the number of obese adults show that much of the obesity trend in the United States may be explained by lower prices (Lakdawalla and Philipson 2002; Chou, Grossman, and Saffer 2004). Effects of declining food prices may also vary with a country's level of development. Also, as the prevalence of obesity rises, sociocultural norms shift to a more favorable view of higher weight. Amnon Levy (2002) showed that theoretically, norms about appearance affect the prevalence of overweight and underweight in a group. One empirical study found that a person has a much higher chance of becoming obese if he or she has a friend, close relative, or spouse that becomes obese (Christakis and Fowler

### Obesity in Latin America and the Caribbean

Many countries of Latin American and the Caribbean are experiencing what some have dubbed the "nutritional transition," a change in diet and exercise that may result in higher rates of obesity, diabetes, and associated illness. Using the Survey of Aging, Health and Wellbeing in Latin America and the Caribbean (SABE), researchers found that the prevalence of obesity exceeded 15 percent among the elderly residents of selected urban areas in all seven countries studied except Cuba (Pelaez et al. 2003). The prevalence of diabetes was at least 13 percent, and at 22 percent, highest in Mexico and Barbados. At the time of the study, the reported prevalence

of obesity and diabetes in these countries was higher than U.S. prevalence rates in a similarly aged population.

In a study of the epidemiology of obesity among the elderly in Barbados, gender emerged as a predictor of obesity, independent of health status, the number of meals eaten per day, occupation, and marital status (Carter et al. 2006). Compared with men, women had higher rates of obesity (31 percent for women and 11.9 percent for men), greater high-risk waist circumference measurements (61.9 percent vs. 13.9 percent), and more risk of multiple illnesses associated with obesity (51.1 percent vs. 17.5 percent).

### Prevalence of Obesity by Sex and Country, Crude and Standardized Rates

Countries	Total Rate		Female Rate		Male Rate	
	Crude	Standardized	Crude	Standardized	Crude	Standardized
Barbados	23.9	24.2	32.3	32.6	11.5	11.8
Brazil	20.6	21.2	28.3	28.6	9.5	10.0
Chile	30.6	30.5	34.5	34.7	22.9	22.4
Cuba	14.5	14.4	19.3	19.7	6.3	6.2
Mexico	30.4	29.2	37.1	35.2	20.2	20.0
Uruguay	34.4	34.5	43.3	43.4	18.7	18.7

**Note:** The standard was obtained using the age and sex distribution of the six countries.

**Sources:** Andrade 2006; and SABE.

2007). In addition, racial variation in U.S. obesity trends within similar income groups also suggests that sociocultural norms have a strong effect. In their research, Chang and Lauderdale (2005) found different income and time patterns in obesity trends across race and ethnic groups.

In the United States, lower food prices have been associated with wider availability of fast-food restaurants and less-nutritious food (Lakdawalla and Philipson 2002; Lakdawalla, Philipson, and Bhattacharya, 2005). Rising obe-

sity in other countries has lagged behind the rise in the United States, causing some researchers to argue that obesity is an outgrowth of the spread of American culture. But obesity is by no means just an American problem (see boxes).

Public policy interventions and options for reducing rates of obesity have their opponents. One objection to public policy intervention is that there are no public consequences to individual obesity. While some argue that higher health care costs associated with obesity increase public expendi-

## Obesity in Europe

Using data from the 2004 Survey of Health, Ageing, and Retirement in Europe (SHARE), a RAND team compared the prevalence of obesity and obesity-related health conditions in the population ages 50 and older in 10 European countries—Austria, Germany, Sweden, the Netherlands, Spain, Italy, France, Denmark, Greece, and Switzerland.

Following guidelines of the National Heart, Lung, and Blood Institute, the researchers defined obesity status based on body mass index (BMI): underweight (BMI < 18.5), normal weight (BMI 18.5-24.9), overweight (BMI 25.0-29.9), moderate obesity (BMI 30.0-34.9), and severe obesity (BMI ≥ 35.0). Levels of obesity and overweight were, on average, high in the selected countries. Combined, about 50 percent of men were overweight, with 13.3 percent being obese, and nearly 3 percent severely obese. Only one-third of men qualified as having normal weight. Among women, 36 percent were considered overweight, 13.5 percent were obese, and 4.3 percent were severely obese. By education group, men and women with primary or no education had the highest rate of obesity (19.2 percent and 20.4 percent, respectively).

### Prevalence of Overweight by Country and Gender, Adults Ages 50 and Older

	Overweight Men (Percent)	Overweight Women (Percent)
Austria	51.9	35.3
Germany	50.9	37.7
Sweden	47.1	33.8
Netherlands	48.5	36.1
Spain	49.9	41.6
Italy	50.1	36.4
France	48.2	29.9
Denmark	45.3	30.9
Greece	54.3	41.9
Switzerland	46.6	29.2
Total	49.8	36.0

Source: Andreyeva, Michaud, and van Soest 2005.

Stratifying by smoking status, current smokers had the lowest rate of obesity (14.2 percent for men and 12.1 percent for women).

Across the 10 countries, overweight and obesity rates varied greatly. Spain had the highest prevalence of obesity among men (20.2 percent) and women (25.5 percent). Sweden had the lowest rate of moderately or severely obese men (12.8 percent), and Switzerland had the lowest rate among women (12.3 percent). Switzerland, the Netherlands, Denmark, and Sweden had significantly higher rates of normal-weight men than the 10-country average. The Nordic countries, Switzerland, and France had higher rates of normal-weight women than the SHARE average.

Overall, this study of the elderly in selected European countries found that obesity is strongly associated with major health risk factors, but there are cross-national differences in the extent to which obesity is related to depression, heart disease, and high cholesterol levels. Moderate to severe obesity was significantly linked to poor or fair self-reported health, high cholesterol levels, hypertension, arthritis, and heart disease in both men and women. Spain had the highest prevalence of obesity and the highest prevalence of diabetes (14.3 percent for men; 13.5 percent for women). In Switzerland, the low obesity rate was mirrored in the low prevalence of diabetes (7.2 percent for men; 4.1 percent for women). However, France, with relatively low obesity rates, had the highest rate of doctor-diagnosed high cholesterol levels in men (23.2 percent) and women (25.8 percent). Dietary, behavioral, cultural, and genetic differences may be responsible for these variations and for differences in overall obesity rates among the countries.

The RAND team also examined a possible link between obesity and depression. Among men, no link was found. For women, a link was found in some countries, but with no geographic or cultural pattern. A larger study examines obesity among older Americans and Europeans (Michaud, van Soest, and Andreyeva 2008). Factors associated with obesity include lack of physical activity, calorie intake, time spent on cooking, and eating away from home. However, reasons for variations across countries have not yet been determined.

tures for programs such as Medicare and Medicaid, others argue that these costs are offset by lower Medicare costs for obese individuals because they die at younger ages.

Lakdawalla, Goldman, and Shang (2005) used a simulation of the lifetime costs of obesity to assess whether reduced longevity among the obese would offset the increased health care costs for Medicare. They found that because obese 70-year-olds live about as long as those with normal weight, increased Medicare health care costs were not offset by shorter lives. However, this analysis does not take into account the potential effect of rising obesity rates among young adults on future life expectancy of 70-year-olds. Nor, according to Tatiana Andreyeva of Yale University, does this study account for potential future developments in medical care and drugs that would allow obese people to manage multiple chronic health conditions and live longer overweight lives (Andreyeva, Michaud, and van Soest 2005).

Proposed policy options for reducing the social costs of obesity through prevention measures include higher taxes on unhealthy foods and beverages such as soda; regulation of fast foods; regulation of food advertising; education of specific populations regarding food choices through a variety of means including mandatory inclusion of calories on menus in restaurants; and increasing education levels of certain population groups.

## Solutions

Although factors such as improved access to health care, improved medical technology, new drugs, and reduced smoking will improve life expectancy, rising obesity may detract from these gains. Being overweight may not significantly increase the number of elderly deaths as being underweight does (Flegal et al. 2005). However, the chronic conditions associated with obesity may, all else being equal, increase the public and private cost of health care for the elderly (Lakdawalla, Goldman, and Shang 2005).

Disability appears to be on the increase in the obese U.S. elderly population and is at least partially the result of multiple obesity-related conditions (Alley and Chang 2007). Such disability might be avoided if interventions were directly aimed at reducing disability in at-risk populations (Gregg and Guralnik 2007). Structured exercise and weight loss programs may be among the most promising interventions because they can prevent conditions such as Type 2 diabetes and arthritis, which result from long-standing obesity. However, preventing obesity in the first place would have greater benefits.

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## The NIA Demography Centers

The National Institute on Aging supports 13 research centers on the demography and economics of aging, based at the University of California at Berkeley, the University of Chicago, Harvard University, the University of Michigan, the National Bureau of Economic Research, the University of North Carolina, the University of Pennsylvania, Pennsylvania State University, Princeton University, RAND Corporation, Stanford University, the University of Southern California/University of California at Los Angeles, and the University of Wisconsin.

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