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Life Expectancy Drops for Some U.S. Women

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Historic Reversal, Found in 1,000 Counties, May Be Result of Smoking and Obesity

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For the first time since the Spanish influenza of 1918, life expectancy is falling for a significant number of American women.

In nearly 1,000 counties that together are home to about 12 percent of the nation's women, life expectancy is now shorter than it was in the early 1980s, according to a study published today.

The downward trend is evident in places in the Deep South, Appalachia, the lower Midwest and in one county in Maine. It is not limited to one race or ethnicity but it is more common in rural and low-income areas. The most dramatic change occurred in two areas in southwestern Virginia (Radford City and Pulaski County), where women's life expectancy has decreased by more than five years since 1983.

The trend appears to be driven by increases in death from diabetes, lung cancer, emphysema and kidney failure. It reflects the long-term consequences of smoking, a habit that women took up in large numbers decades after men did, and the slowing of the historic decline in heart disease deaths.

It may also represent the leading edge of the obesity epidemic. If so, women's life expectancy could decline broadly across the United States in coming years, ending a nearly unbroken rise that dates to the mid-1800s.

"I think this is a harbinger. This is not going to be isolated to this set of counties, is my guess," said Christopher J.L. Murray, a physician and epidemiologist at the University of Washington who led the study. It is being published in PLoS Medicine, an open-access journal of the Public Library of Science.

Said Elizabeth G. Nabel, director of the National Heart, Lung and Blood Institute of the National Institutes of Health: "The data demonstrate a very alarming and deeply concerning increase in health disparities in the United States."

The study found a smaller decline, in far fewer places, in the life expectancy of men in this country. In all, longevity is declining for about 4 percent of males.

The phenomenon appears to be not only new but distinctly American.

"If you look in Western Europe, Australia, Japan, New Zealand, we don't see this," Murray said.

About half of all deaths in the United States are attributable to a small number of "modifiable" behaviors and exposures, such as smoking, poor diet and lack of exercise. Although it is impossible to know exactly what is going on in the 1,000 counties, Murray thinks it "would be a reasonably obvious strategy" to target them for aggressive public health campaigns.

Life expectancy is not a direct measure of how long people live. Instead, it is a prediction of how long the average person would live if the death rates at the time of his or her birth lasted a lifetime.

For that reason, life expectancy can dip or rise abruptly. The death rate from the Spanish flu was so high, especially among the young, that life expectancy fell by about seven years in 1918. But it rebounded quickly when the epidemic was over.

In general, though, it takes huge forces to drive down life expectancy over longer periods. The AIDS epidemic has done so in some African countries. In the early 1990s, the social disruption following the collapse of the Soviet Union decreased life expectancy of Russian men by six years and of women by three years -- an unprecedented decline in a modern industrialized nation.

In the study, Murray and collaborators at the Harvard School of Public Health examined mortality and cause-of-death data for the United States from 1961 through 1999. They divided the country into 2,068 units, including cities, counties or combinations of counties.

Across that four-decade period, average life expectancy nationwide increased from 66.9 years to 74.1 years for men, and from 73.5 years to 79.6 years for women.

From 1961 to 1983, life expectancy went up everywhere for both sexes. This was largely because the death rate from heart attacks, which had been rising for half a century, began to fall in the late 1960s. There were two reasons.

Huge numbers of people lowered their chances of having a heart attack by modifying "risk factors," such as smoking, hypertension and high cholesterol. Improvements in medicine -- coronary care units, use of aspirin and beta-blocker drugs, and various surgical procedures -- greatly increased survival in patients with heart disease. About two-thirds of the longevity gained over the past four decades has come from the decrease in cardiovascular deaths.

These changes were so dramatic that even the poorest and least healthy groups benefited. In fact, counties with low life expectancy in 1961 had steeper rises over the next dozen years than counties that started out with high life expectancy. Overall, the drop in heart attack deaths more than offset rising mortality from cancer, emphysema and diabetes during this period.

By the early 1980s, however, the rapid gains were coming to an end. The low-hanging fruit on the tree of heart-attack prevention and treatment had been picked. Further strides tended to happen mostly in places where people were already healthy and long-lived.

As a consequence, the rise in longevity began to stagnate in places with the least-healthy people. In those counties, life expectancy increased by only one year (from 74.5 to 75.5) between 1983 and 1999, while in the healthiest places the life expectancy of women had reached 83.

It was during this interval that women's life expectancy fell in nearly 1,000 counties. If one adds counties where it rose only insignificantly, then 19 percent of American women -- nearly 1 in 5 -- are now experiencing stagnating or falling life expectancy.

The trend was far less pronounced for men. That is because they entered the 1980s with higher death rates from heart attacks than women, and thus gained more from better prevention and better treatment. In the 1990s, however, AIDS and homicide began to take large tolls, depressing male life expectancy in some places.

Murray's team, which also included Ari B. Friedman of Harvard and Sandeep C. Kulkarni of the University of California at San Francisco, used Internal Revenue Service data to check whether high levels of migration, or migration of people with particularly high or low incomes, might explain the discrepancy

between the 1,000 counties and their neighbors. They found no evidence for it.

Unlike some European countries, the United States does not collect health information other than birth and death statistics at the local level. Instead, there are national, state and regional surveys of people's health, behavior and access to medical care. Trends those studies have picked up shed light on what is happening in the 1,000 counties.

Obesity has risen markedly in the past two decades, with women more affected than men. About 33 percent of women are now obese, compared with 31 percent of men. Extreme obesity is twice as common in women (7 percent) as in men (3 percent).

Being overweight greatly increases the risk of developing Type 2, or "adult-onset," diabetes. A national survey in 2002 found that 85 percent of diabetics were overweight or obese.

In recent years, the prevalence of high blood pressure has been increasing in women, as well -- partly the result of weight gain. In 1990, 42 percent of women older than 60 had hypertension; by 2000 it was 51 percent. (In men, the trend is still dropping, as it has been for several decades.)

"This is a story about smoking, blood pressure and obesity," said Majid Ezzati, of the Harvard Initiative for Global Health, a co-author of the paper.

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