Weight loss for adults at any age leads to cost savings, study suggests

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Helping an adult lose weight leads to significant cost savings at any age, with those savings peaking at age 50, suggests a new Johns Hopkins Bloomberg School of Public Health study.

The findings, which will be published online September 26 in the journal *Obesity*, suggests that a 20-year-old adult who goes from being obese to overweight would save an average of $17,655 in direct medical costs and productivity losses over their lifetime. If the same person were to go from being obese to a healthy weight, an average savings of $28,020 in direct medical costs and productivity losses can occur. Helping a 40-year-old adult go from being obese to overweight can save an average of $18,262. If the same person went from being obese to normal weight, an average savings of $31,447 can follow.

A high body mass index (BMI) is linked to a higher risk of serious conditions like diabetes, cardiovascular disease and some cancers. Subsequently, a high BMI and associated conditions can lead to high medical and societal costs and productivity losses. More than 70 percent of adults in the U.S. are considered to be overweight or obese, which in direct medical expenses alone costs nearly $210 billion per year.

"Over half the costs of being overweight can be from productivity losses, mainly due to missed work days but also productivity losses. This means that just focusing on medical costs misses a big part of the picture, though they're a consideration, too," says Bruce Y. Lee, MD, MBA, executive director of the Global Obesity Prevention Center (GOPC) at the Bloomberg School. "Productivity losses affect businesses, which in turn affects the economy, which then affects everyone."

When absenteeism occurs in the workforce, others, at times, have to take on a larger workload. This all funnels downstream and adds to the societal costs of obesity. And health insurance premiums increase across the board, even for healthy patients, as insurers spread the cost of obesity and its associated conditions.

For the study, the researchers developed a computational simulation model to represent the U.S. adult population to show the lifetime costs

and health effects for an individual with obesity, overweight and healthy weight statuses at ages 20 through 80 in increments of 10. The model used data from the Coronary Artery Disease Risk Development in Young Adults (CARDIA) and Atherosclerosis Risk in Communities (ARIC) studies and included 15 mutually exclusive health statuses that represented every combination of three BMI categories (normal weight, overweight and obesity) and five chronic health stages.

The model simulated the weight and health status of an adult as he or she ages year by year throughout his or her lifetime to track the individual medical costs and productivity losses of each person. The estimated direct medical costs to the insurer and health care facility, productivity losses and sick time were included.

The research team found that cost savings peak at age 50 with an average total savings of $36,278. After age 50, the largest cost savings occur when an individual with obesity moves to the normal weight category as opposed to the overweight category, emphasizing the importance of weight loss as people age. This finding is important because people aged 50 and older make up more than 60% incremental societal costs, which includes higher taxes to support government insurance and higher copays and other out-of-pocket expenses.

"Most previous models have taken into account one or a few health risks associated with obesity. Subsequently, the forecasted costs may be unrealistic," says Saeideh Fallah-Fini, PhD, a former GOPC visiting scholar who was part of the research team. "In our study, the model we developed takes into account a range of immediate health complications associated with body weight, like hypertension or diabetes, as well as all major long-term adverse health outcomes, including heart disease and some types of cancer, in forecasting the incremental health effects and costs to give a realistic calculation."

Results from this study could inform policymakers about the specific implications and costs associated with obesity in order to design more successful interventions that are tailored to specific groups (defined by age, current health condition and weight). Understanding the resulting lifetime costs and health effects for an individual with obesity at different ages can also aid physicians and other health care professionals in implementing more targeted preventive management decisions for patients with high BMIs and associated health conditions. On the flip side, it could be beneficial for patients to better understand the health outcomes associated with potential future health risks and impending medical costs, given their existing BMI status and health condition.

Finally, realizing the reverberating effects of obesity on the productivity of their employees and consequently their profits, employers may look to redesign or sponsor healthy lifestyle programs with weight-loss initiatives. In turn, this could decrease absenteeism and poor performance. "In the end, the heart of a business is its employees," says Lee. "Having employees who are overweight and unhealthy is akin to a football team trying to compete with chronically injured players."

More information: "The Additional Costs and Health Effects of a Patient Having Overweight or Obesity: A Computational Model" *Obesity*, 2017.

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