

Resolution of Comorbidities and Impact on Longevity Following Bariatric and Metabolic Surgery



Tammy Fouse, DO, Stacy Brethauer, MD*

KEYWORDS

• Obesity • Mortality • Bariatric surgery • Metabolic syndrome • Cancer mortality

KEY POINTS

- Overweight is a modifiable risk factor directly linked to 3 of the 5 leading causes of death. This effect is seen most notably at body mass indexes greater than 35 (class II and III).
- Multiple studies have been conducted demonstrating the reduction in mortality associated with bariatric surgery. Most studies have been conducted on young females; however, the results have been reproducible in older, male patients within the Veterans Affairs health system.
- Recent systematic reviews and meta-analyses have shown dramatic reduction in rates of cardiovascular events, myocardial infarction, and stroke in patients undergoing bariatric surgery. Lower levels of medication use associated with hypertension have also been found in bariatric surgical patients.
- The increase in incidence of type II diabetes is rising commensurate with the increase in obesity rates. Bariatric surgery has been shown in multiple studies to be superior to medical management for treatment and remission of diabetes.
- Several cancers have been identified that are associated with obesity. Data are accumulating demonstrating reduction.

IMPACT OF OBESITY ON MORTALITY

Obesity is a global epidemic with well-documented links to decreased life expectancy. Overweight and obesity are linked to more deaths worldwide than underweight. According to the most recent data from the World Health Organization, most of the world's population live in countries where overweight and obesity result in more deaths than being underweight.¹

Digestive Disease Institute, Department of General Surgery, Cleveland Clinic, 9500 Euclid Avenue, Cleveland, OH 44195, USA

* Corresponding author.

E-mail address: brethas@ccf.org

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Among the 5 leading causes of death in the United States, being overweight is a major modifiable risk factor for 3 (cardiovascular, cancer, stroke).² In a comprehensive, quantitative assessment of the mortality burden of key modifiable risk factors, Harvard researchers found that, in those younger than 70 years, overweight and obesity causes more deaths than did high blood pressure. This modifiable risk factor was second only to tobacco smoking.³

The risk of increased mortality due to excess weight seems to vary based on the severity of the disease. In a 2013 meta-analysis, there was a significant increase in mortality among higher grades of obesity. Grades 2 and 3 obesity (body mass index [BMI] >35) were found to have an adjusted hazard ratio [HR] of 1.34 compared with 0.97 and 0.94 in grade 1 obesity (BMI between 30 and 35) and overweight (BMI between 25 and 30), respectively. Further analysis revealed that the overweight group was associated with a significantly lower overall mortality relative to the normal weight category (BMI 20–25) with an overall summary HR of 0.94.⁴ The cause for this decrease in HR in the overweight and grade 1 obese population is not clear. Possible explanations for this protective effect of overweight and mild obesity have included earlier presentation of heavier patients,⁵ greater likelihood of receiving optimal medical treatment,^{6–8} cardioprotective metabolic effects of increased body fat,^{9,10} and benefits of higher metabolic reserves.¹¹

The increase in rates of obesity over the past several decades in the United States are well understood. What is not frequently discussed though is that during the period between 1960 and 2006, the total US population has also increased. Therefore, the total number of Americans affected has also increased. Looking at the numbers of people affected, the overweight population has doubled, the obese population has increased 5-fold, and the population with extreme or morbid obesity has increased by a factor of nearly 12 (Figs. 1 and 2).^{12,13}

Given the detrimental effect of grade II and III obesity on mortality, coupled with the significant change in absolute numbers of Americans involved, it is clear that this is a public health crisis. Bariatric surgery remains the most cost-effective treatment of

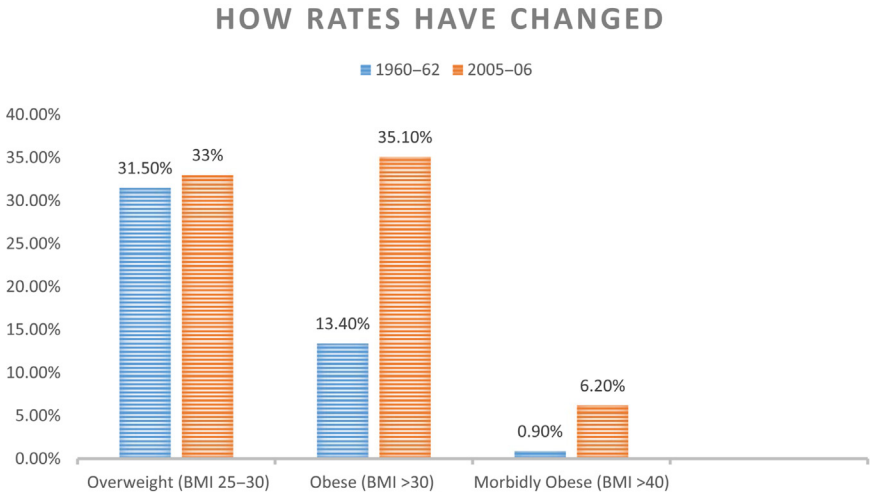


Fig. 1. Changes in the percentage of the US population who are overweight and obese over the last 4 decades. (Data from The Downey Obesity Report. Downey fact sheet 2 – quick facts. Available at: <http://www.downeyobesityreport.com/2009/09/fact-sheet-2-quick-facts/>.)

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