

STATISTICAL BRIEF #247

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Trends in Health Care Expenditures by Body Mass Index (BMI) Category for Adults in the U.S. Civilian Noninstitutionalized Population, 2001 and 2006

Marie N. Stagnitti, MPA

Introduction

This Statistical Brief presents trends in health care expenditures for adults age 18 and older in the U.S. civilian noninstitutionalized population by body mass index (BMI) categories. Body mass index is a measure of body fat based on height and weight that applies to both adult men and women.

BMI categories for adults are the following:

- Underweight = BMI is less than 18.5
- Normal Weight = BMI is greater than or equal to 18.5 and less than 25.0
- Overweight = BMI is greater than or equal to 25.0 and less than 30.0
- Obesity = BMI greater than or equal to 30.0¹

The Brief compares, for the adult population, 2001 and 2006 total numbers of persons, total health care expenditures, and percentages of the population and total expenditures by BMI category. The expenditure estimates presented in the Brief are not adjusted for inflation. All expenditure estimates are in nominal dollars.² In addition, the Brief compares the percentage of the adult population reporting one or more selected chronic conditions by BMI category for the years 2001 and 2006.

The estimates in this Brief are derived from the Household Component of the 2001 and 2006 Medical Expenditure Panel Survey (MEPS-HC). All differences discussed in the text are statistically significant at the 0.05 percent level.

In the MEPS-HC, a single individual respondent reports for an entire household. Therefore, due to the MEPS-HC design, the height and weight for an individual in the MEPS is most often proxy reported but can be self reported if the individual is the household respondent.

¹ National Heart Lung and Blood Institute, National Institutes of Health, Department of Health and Human Services: <http://nhlbisupport.com/bmi/>

² Expenditures are in nominal dollars. If preferred, 2001 dollars can be inflated to 2006 dollars with the use of the GDP Price Index, National Income and Product Accounts, Bureau of Economic Analysis, available at <http://www.bea.gov/national/nipaweb/SelectTable.asp?Selected=Y> then select "Table 1.1.9 Implicit Price Deflators for Gross Domestic Product (A) (Q)", or the use of the CPI Index, All Urban Consumers, All Items, Bureau of Labor Statistics, available at <http://data.bls.gov/cgi-bin/surveymost?cu>.

Highlights

- Total health care expenditures for adults that were obese increased by more than 80 percent when comparing 2001 and 2006 (rising from \$166.7 to \$303.1 billion).
- The proportion of the adult population that was obese increased when comparing 2001 with 2006 (increasing from 23.6 percent to 27.2 percent), while the proportion of those adults with normal weight decreased (from 39.0 percent to 36.1 percent).
- When comparing 2001 with 2006, the proportion of total health care expenditures for obese adults increased from 28.1 percent to 35.3 percent while the proportion of total expenditures for adults that were normal weight decreased (decreasing from 35.0 percent to 30.3 percent).
- When comparing the years 2001 with 2006, the mean annual health care expenditure for the obese increased from \$3,458 to \$5,148.
- For adults in 2001 and 2006, when examining BMI category and the proportion reporting at least one chronic condition, the obese population had the highest proportion in both years (57.1 percent versus 59.7 percent).

Findings

In 2001, there were 204.0 million persons in the adult (age 18 and older) U.S. noninstitutionalized civilian population—48.2 million were obese, 72.3 million were overweight, 79.6 million were normal weight, and 4.0 million were underweight. In 2006, the total adult U.S. noninstitutionalized civilian population increased to 216.8 million persons—58.9 million were obese, 75.7 million were overweight, 78.3 million were normal weight, and 3.9 million were underweight. When comparing 2001 and 2006 population totals by BMI category, the obese population increased substantially (increasing from 48.2 million people to 58.9 million people) (figure 1).

In 2001, total health care expenditures for the adult population were \$593.4 billion and total expenditures by BMI category were: obese, \$166.7 billion; overweight, \$201.9 billion; normal weight, \$207.5 billion; and underweight, \$17.4 billion. In 2006, total health care expenditures for adults increased to \$857.7 billion and total expenditures by BMI category were: obese, \$303.1 billion; overweight, \$275.1 billion; normal weight, \$259.6 billion; and underweight, \$19.8 billion. When comparing 2001 and 2006 total health care expenditures for adults by BMI category, total expenditures for the obese population increased 81.8 percent (rising from \$166.7 billion to \$303.1 billion), total expenditures for the overweight population increased 36.3 percent (rising from \$201.9 billion to \$275.1 billion), and total expenditures increased 25.1 percent for the normal weight population (rising from \$207.5 billion to \$259.6 billion) (figure 2).

When comparing 2001 with 2006, the proportion of the adult obese population increased from 23.6 percent to 27.2 percent and the proportion of the adult population that was normal weight decreased (39.0 percent and 36.1 percent). When comparing 2001 and 2006 total expenditures for adults by BMI category a similar trend occurred. The obese population proportion of total expenditures for adults increased from 28.1 percent to 35.3 percent while the proportion of total expenditures for those adults that were normal weight decreased from 35.0 percent to 30.3 percent (figure 3).

The average annual health care expenditure increased for the obese population (rising from \$3,458 to \$5,148), the overweight population (rising from \$2,792 to \$3,636) and the normal weight population (rising from \$2,607 to \$3,315) when comparing the years 2001 and 2006 (figure 4).

When comparing the proportion of the adult population reporting one or more chronic conditions by BMI category for the years 2001 and 2006, the obese population had the highest proportion in both years (57.1 percent versus 59.7 percent, respectively) (figure 5).

Data Source

The estimates shown in this Statistical Brief are based on data from MEPS HC-105: 2006 Full Year Consolidated Data File and HC-060: 2001 Full Year Consolidated Data File.

Definitions/Methodology

Body Mass Index Categories

BMI categories for adults are the following:

- Underweight = BMI is less than 18.5,
- Normal Weight = BMI is greater than or equal to 18.5 and less than 25.0,
- Overweight = BMI is greater than or equal to 25.0 and less than 30.0, and
- Obesity = BMI is greater than or equal to 30.0

The following formula used to calculate the BMI for adults was taken from the Centers for Disease Control and Prevention (www.cdc.gov) Web site:

$$\text{BMI} = [\text{Weight in Pounds}/(\text{Height in Inches})^2] * 703$$

Specific steps on how the BMI was calculated for this Brief can be found on pages C-51 and C-52 of the documentation for the MEPS file, MEPS HC-105: 2006 Full Year Consolidated Data File and is available at the following link:

http://www.meps.ahrq.gov/mepsweb/data_stats/download_data/pufs/h105/h105doc.pdf

Height and Weight

In the MEPS-HC, a single individual respondent reports for an entire household. Therefore, due to the MEPS-HC design, the height and weight for an individual in the MEPS is most often proxy reported but can be self reported if the individual is the household respondent.

Age

Age is the last available age for the sampled person. For most persons, this was their age at the end of the year.

Expenditures

Expenditures are in nominal dollars. If preferred, 2001 dollars can be inflated to 2006 dollars with the use of the GDP Price Index, National Income and Product Accounts, Bureau of Economic Analysis, available at <http://www.bea.gov/national/nipaweb/SelectTable.asp?Selected=Y> then select "Table 1.1.9 Implicit Price Deflators for Gross Domestic Product (A) (Q)", or use the CPI Index, All Urban Consumers, All Items, Bureau of Labor Statistics, available at <http://data.bls.gov/cgi-bin/surveymost?cu>.

Chronic Condition Definitions

The indicator for chronic conditions was drawn from variables indicating presence of the following chronic conditions: diabetes, asthma, high blood pressure, ischemic heart disease (coronary heart disease, angina, heart attack, or any other heart related disease), stroke, emphysema and arthritis. For each of the conditions listed, the following question was asked: "(Have/Has) PERSON ever been told by a doctor or other health professional that PERSON had [condition]."

About MEPS-HC

MEPS-HC is a nationally representative longitudinal survey that collects detailed information on health care utilization and expenditures, health insurance, and health status, as well as a wide variety of social, demographic, and economic characteristics for the civilian noninstitutionalized population. It is co-sponsored by the Agency for Healthcare Research and Quality and the National Center for Health Statistics.

For more information about MEPS, call the MEPS information coordinator at AHRQ (301-427-1656) or visit the MEPS Web site at <http://www.meps.ahrq.gov/>.

References

For a detailed description of the MEPS-HC survey design, sample design, and methods used to minimize sources of nonsampling error, see the following publications:

Cohen, J. *Design and Methods of the Medical Expenditure Panel Survey Household Component*. MEPS Methodology Report No. 1. AHCPR Pub. No. 97-0026. Rockville, MD: Agency for Health Care Policy and Research, 1997. http://www.meps.ahrq.gov/mepsweb/data_files/publications/mr1/mr1.shtml

Cohen, S. *Sample Design of the 1996 Medical Expenditure Panel Survey Household Component*. MEPS Methodology Report No. 2. AHCPR Pub. No. 97-0027. Rockville, MD: Agency for Health Care Policy and Research, 1997. http://www.meps.ahrq.gov/mepsweb/data_files/publications/mr2/mr2.shtml

Cohen, S. Design Strategies and Innovations in the Medical Expenditure Panel Survey. *Medical Care*, July 2003: 41(7) Supplement: III-5–III-12.

Ezzati-Rice, TM, Rohde, F, Greenblatt, J, *Sample Design of the Medical Expenditure Panel Survey Household Component, 1998–2007*. Methodology Report No. 22. March 2008. Agency for Healthcare Research and Quality, Rockville, MD.

http://www.meps.ahrq.gov/mepsweb/data_files/publications/mr22/mr22.pdf

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http://www.meps.ahrq.gov/mepsweb/data_files/publications/st247/stat247.pdf

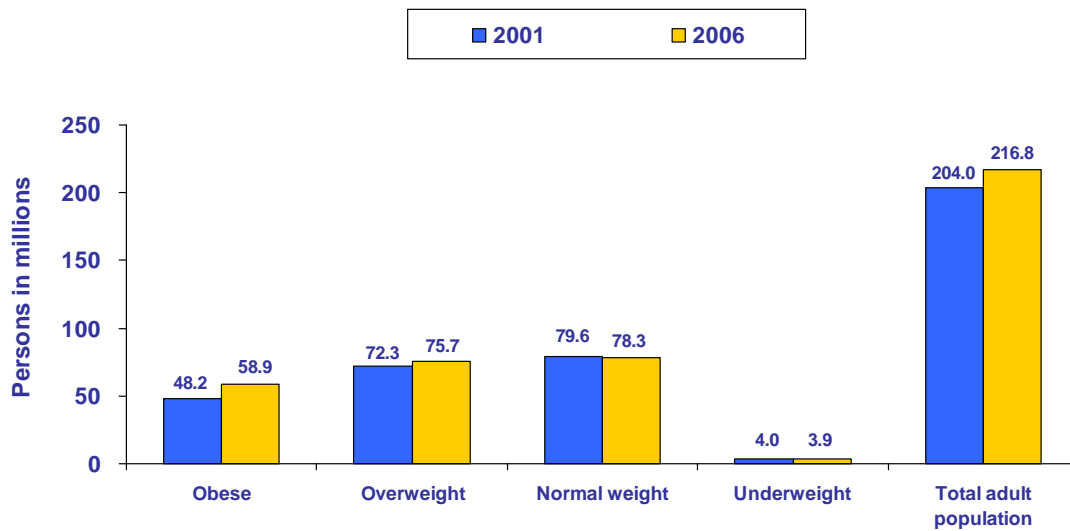
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AHRQ welcomes questions and comments from readers of this publication who are interested in obtaining more information about access, cost, use, financing, and quality of health care in the United States. We also invite you to tell us how you are using this Statistical Brief and other MEPS data and tools and to share suggestions on how MEPS products might be enhanced to further meet your needs. Please e-mail us at mepsdpd@ahrq.gov or send a letter to the address below:

Steven B. Cohen, PhD, Director
Center for Financing, Access, and Cost Trends
Agency for Healthcare Research and Quality
540 Gaither Road
Rockville, MD 20850



Figure 1. Total number of persons in the U.S. civilian noninstitutionalized population age 18 and older by body mass index, 2001 and 2006

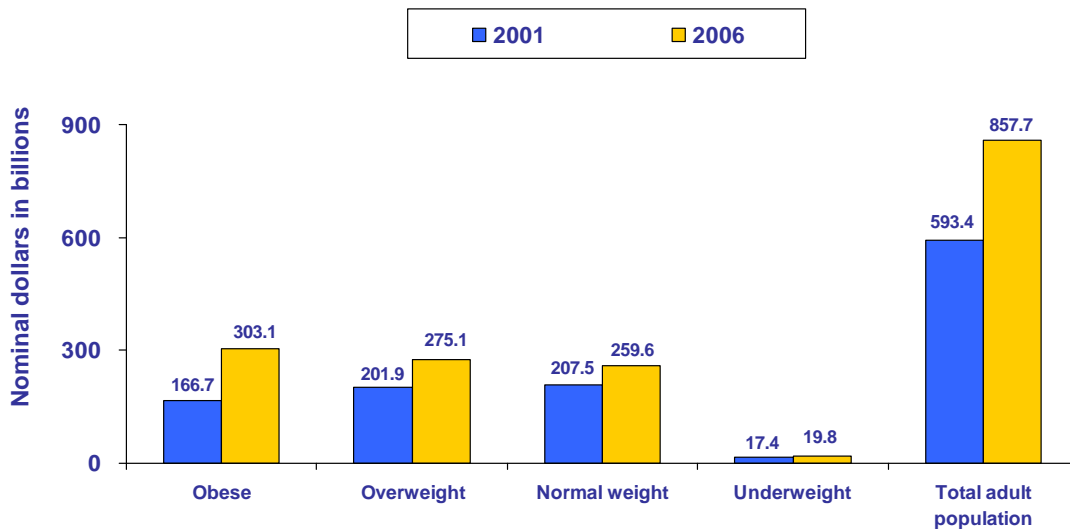


Note: Detail may not sum to total due to rounding.

Source: Center for Financing, Access, and Cost Trends, AHRQ, Household Component of the Medical Expenditure Panel Survey, 2001 and 2006



Figure 2. Total health care expenditures for the U.S. civilian noninstitutionalized population age 18 and older by body mass index, 2001 and 2006

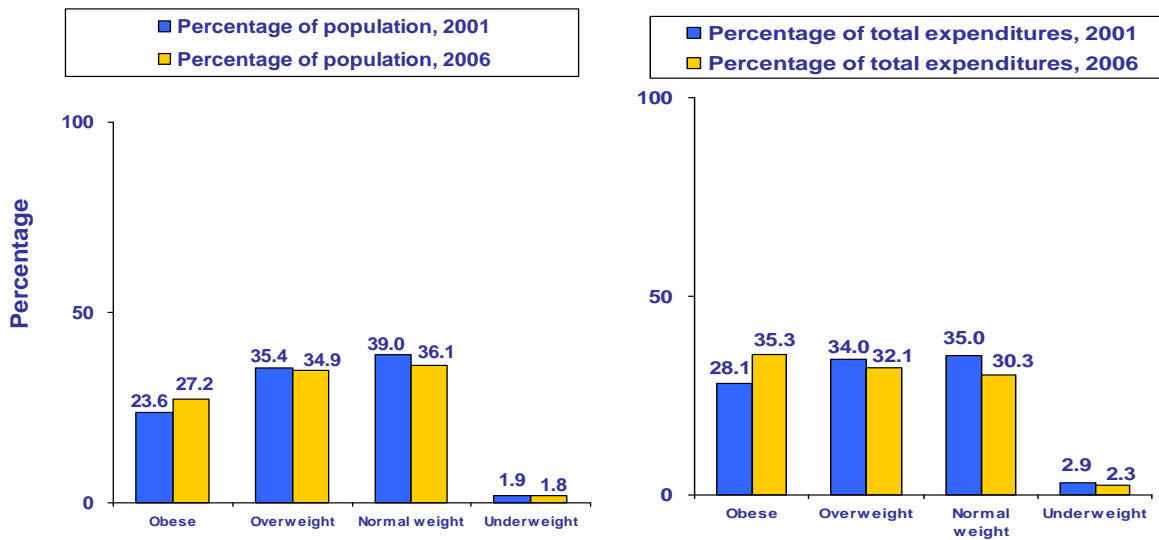


Note: Detail may not sum to total due to rounding.

Source: Center for Financing, Access, and Cost Trends, AHRQ, Household Component of the Medical Expenditure Panel Survey, 2001 and 2006



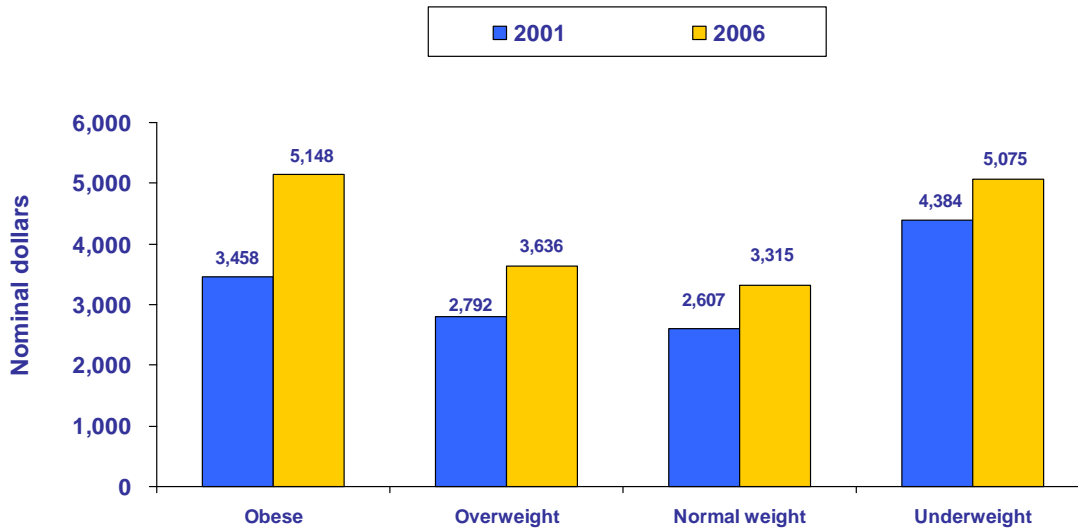
Figure 3. Percentage of population and total health care expenditures for the U.S. civilian noninstitutionalized population age 18 and older by body mass index, 2001 and 2006



Source: Center for Financing, Access, and Cost Trends, AHRQ, Household Component of the Medical Expenditure Panel Survey, 2001 and 2006



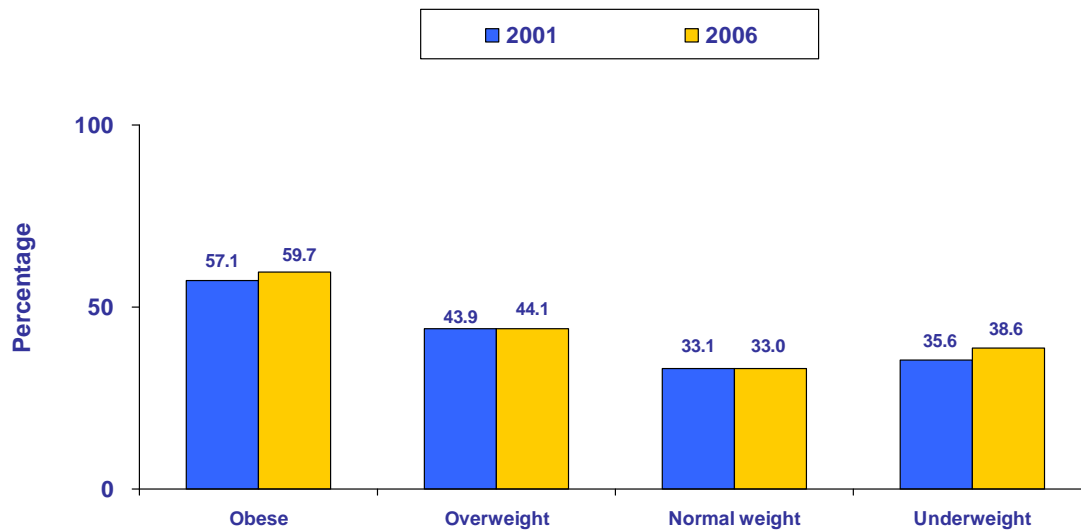
Figure 4. Mean total expenditure for the U.S. civilian noninstitutionalized population age 18 and older by body mass index, 2001 and 2006



Source: Center for Financing, Access, and Cost Trends, AHRQ, Household Component of the Medical Expenditure Panel Survey, 2001 and 2006



Figure 5. Percentage of population reporting one or more chronic conditions for the U.S. civilian noninstitutionalized population age 18 and older by body mass index, 2001 and 2006



Source: Center for Financing, Access, and Cost Trends, AHRQ, Household Component of the Medical Expenditure Panel Survey, 2001 and 2006