

Data Limitations in Tracking Childhood Obesity in the United States

Abstract

The level of childhood obesity in the United States is high, and has increased over the past 10 years .In addition, adult obesity is projected to increase for the next several decades. Childhood obesity is of particular interest because of its long term effects on health, as well as the correlation of obesity in childhood with obesity in adulthood. There are two main limitations with current data on obesity for those under age 18 in the United States: 1) Surveys rely heavily on self-reported or parent reported height and weight to assess obesity, which is not as accurate as direct measurement of height and weight; and 2) State-level data are not available annually for all states. This poster will illustrate these data limitations and explore their potential impact for the design and implementation of policies and programs to reduce childhood obesity.

Extended Abstract:

The prevalence and geographic distribution of childhood obesity in the United States is difficult to track due to data limitations. These limitations include variation in estimates of obesity depending on whether they are based on self-report or direct measurement of height and weight, and lack of annual state-level data.

Currently, the CDC's annual National Health and Nutrition Examination Survey (NHANES) is the only survey that measures each child's height and weight. However, these data are only available at the national-level. The data sources that are available by state include the Youth Behavior Risk Survey (YRBSS) and the National Survey of Children's Health (NSCH) but these surveys rely on self-reported measures (YRBSS) or parent-reported measures (NSCH) of height and weight.

Typically, height and weight measurements are used to calculate a person's body mass index (BMI), which is a reliable measure of a person's body fatness. However, when height and weight are misreported, the BMI is skewed, making this otherwise reliable measure inaccurate.

For people under 20 years old, and especially for children, BMIs are more variable than for people over 20—the range of healthy and unhealthy BMIs is much smaller and it changes with each month of age.ⁱ A smaller range of healthy BMIs means that slight variations in height and weight could lead to more children and teens being misclassified as overweight and obese than it would for adults. For example, a 10-year-old girl who is:

- 4 feet 8 inches tall and weighs 80 pounds has a BMI of 17.9—a healthy range for her age.
- 4 feet 7 inches tall and weighs 87 pounds has a BMI of 20.2—she is now considered overweight.

Similar changes to an adult's height and weight would not have as significant an effect on their resulting BMI.

Using data sources that are currently available results in differing estimates of the number of children who are overweight and obese. Although the age groups are not comparable between these surveys, a comparison still provides some indication of the varying estimates of childhood obesity:

- The Youth Risk Behavior Survey (YRBSS) uses *self-reported measures* for high school students and found that overall 13 percent of the students were considered obese in 2009.ⁱⁱ
- The National Health and Nutrition Examination Survey (NHANES) used *measured height and weight* and showed that more than 18 percent of children and youth ages 12 to 19 were obese. For ages 2 to 19, almost 17 percent were found to be obese in 2009-2010.ⁱⁱⁱ
- From the NSCH, more than 13 percent of children ages 14 to 17 were found to be obese; at ages 10 to 17, more than 16 percent were obese in 2007.^{iv}

These measures listed above range from 13 percent to 18 percent of adolescents being considered obese—this difference of five percent represents about 1.5 million children ages 12 to 18 in the United States in 2010.^v This means that almost 1.5 million children would either be classified as obese when they *are not* or not classified as obese when they *are*.

Among adults, projections show that over the next two decades obesity will increase by 33 percent and severe obesity (where the BMI is greater than or equal to 40.0) will increase by 130 percent.^{vi} In order to fully assess obesity today and in the future, national, state and local policymakers need accurate, timely, sub-national information on childhood obesity in the United States.

Proposed Tables and Figures:

In the poster I propose to include many figures in tables in the place of the above text. In addition I propose to include the following graphics if data are available:

- 1) Figure with prevalence of obesity among adolescents from the NHANES, YRBSS and the NSCH over time to show the differences between the three datasets.
- 2) Figure showing the increase nationally from the NHANES data (by some age groups) compared to the state level changes in the NSCH (the 2011 NSCH will be available in January of 2013) to show the large differences that 4 years can make in accurately showing obesity trends.
- 3) Table with possible heaping of weights and heights on rounded numbers in the self-reported measures (YRBSS) and in parent-reported numbers (NSCH). Compare this to actual height and weight numbers from the NHANES to show the issues with the non-measurement based data.

ⁱ“About BMI for children and teens” Accessed online:

http://www.cdc.gov/healthyweight/assessing/bmi/childrens_bmi/about_childrens_bmi.html

ⁱⁱ “Youth Online” Accessed online: <http://apps.nccd.cdc.gov/youthonline/App/Default.aspx>

ⁱⁱⁱ Ogden, C.L., M.D. Carroll, B.K. Kit and K.M. Flegal. 2012. “Prevalence of Obesity in the United States, 2009-2010.” NCHS Data Brief, No. 82. Hyattsville, MD: National Center for Health Statistics.

Available online: <http://www.cdc.gov/nchs/data/databriefs/db82.htm>

^{iv} “Data Resource Center for Child and Adolescent Health” accessed online:

<http://childhealthdata.org/browse/survey/results?q=226&r=1>

^v U.S. Census Bureau, 2010 Census: Summary File 1, Table PCT12.

^{vi} Finklestein, E.A., O.A. Khavjou, H. Thompson, J.G. Trogon, L. Pan, B. Sherry, and W. Dietz. 2012. “Obesity and Severe Obesity Forecasts Through 2030.” *American Journal of Preventative Medicine*. 42(6):563-570.