Data Brief – Obesity and Severe Obesity among Philadelphia schoolchildren, 2006/07 – 2012/13

Executive summary

- From 2006/07 to 2012/13, the prevalence of obesity among Philadelphia schoolchildren declined from 21.7% to 20.3% (a 6.3% reduction) and severe obesity declined from 8.6% to 7.4% (a 13.5% reduction).
- Obesity declines were larger among boys than girls, and among African Americans and Asians than whites and Hispanics.
- Over the last three years (2009/10 – 2012/13), obesity declined to a lesser degree than in the first four years of study (2006/07 – 2009/10). It continued to decrease significantly among boys (including African Americans, Asians, and those in grades K-5), trended downward in girls, but increased significantly among Hispanic girls and girls in grades K-5.
- Over the last three years, severe obesity also continued to decrease significantly among both boys and girls (including African American girls).
- By 2012/13, Hispanics had the highest prevalence of obesity among boys (25.9%) and girls (23.0%). Hispanic boys (10.1%) and African American (8.6%) girls had the highest prevalence of severe obesity.
- Obesity and severe obesity have continued to decline among many children in Philadelphia, particularly boys, African Americans, and Asians, but obesity has increased among Hispanic girls and girls in grades K-5 after initial reductions. Further monitoring and interventions—especially among Hispanics and girls—are needed to effectively address childhood obesity in Philadelphia.

Background

- Multiple U.S. communities have reported reductions in obesity among school-aged children.¹
- In a 2012 paper,² the Philadelphia Department of Public Health (PDPH) documented a 4.8% reduction in obesity among Philadelphia public school students between 2006/07 and 2009/10. The largest reductions were seen among African American boys and Hispanic girls.
- With three additional years of data, we assessed trends in obesity and severe obesity among Philadelphia public school children between 2006/07 and 2012/13.

Methods

- Heights and weights for public schoolchildren were measured by school nurses, entered into a database along with age, gender, and race/ethnicity, and shared with PDPH.³
- Body mass index (BMI) and BMI percentiles were calculated using age- and sex-specific growth charts from the Centers for Disease Control and Prevention. Obesity was defined...
as a BMI percentile ≥ 95, and severe obesity as a BMI percentile ≥ 120% of the obesity threshold. Students who would have met adult criteria for overweight (BMI ≥ 25), obesity (BMI ≥ 30) or severe obesity (BMI ≥ 35) were also classified as such.

- Obesity and severe obesity were reported for the total population, for each gender, and within gender by grade and race/ethnicity.
- Trends over time were assessed in multi-variable models, including race/ethnicity, year of age, and grade. The three time periods of interest were 2006/07 to 2009/10 (the initial study period), 2009/10-2012/13 (the follow-up study period), and 2006/07-2012/13 (the entire study period).

**Results – study population**

- The number of enrolled K-12 students in the School District of Philadelphia declined from 186,176 in 2006/07 to 147,818 in 2012/13.
- The number of students with valid BMI assessments varied by school year, starting at 114,909 in 2006/07, peaking at 122,448 in 2009/10, and declining to 88,798 in 2012/13. The percentage with valid BMI assessments ranged from 62% in 2006/07 to 73% in 2010/11 to 60% in 2012/13.

**Results – obesity (Figures 1, 3, and 4)**

- From 2006/07 to 2012/13, obesity declined from 21.7% to 21.3%—a decline of 6.3%. Reductions were larger in the first four years (4.5%) than in the last three years (1.8%).
- Among **boys**, obesity declined from 21.9% to 20.1% over seven years—a decline of 8.1%.
  - The largest declines were seen in grades K-5 (8.8%) and among African Americans (11.3%) and Asians (18.8%).
  - All race/ethnicity groups saw declines between 2006/07 and 2009/10, but only African-American and Asian boys had significant continuing reductions in obesity between 2009/10 and 2012/13.
  - Boys in grades K-5 also saw a significant reduction in obesity in the last three years.
- Among **girls**, obesity declined from 21.5% to 20.6% over seven years—a decline of 4.3%. However, the declines were smaller (and not statistically significant) in the final three years.
  - The largest reductions were seen in grades 6-8 (6.1%) and among African Americans (3.7%) and Asians (7.1%).
  - Among Hispanic females, obesity initially declined from 22.7% to 20.9% from 2006/07 to 2009/10 but then increased significantly to 23.0% by 2012/13.
  - Girls in K-5 also experienced an increase in the last three years from 19.2% to 19.5%.
Results – severe obesity (Figures 2, 5, and 6)

- From 2006/07 to 2012/13, severe obesity declined significantly for all children (8.6% to 7.4%, a relative decline of 13.5%), boys (8.9% to 7.5%), and girls (8.3% to 7.4%). The largest reductions were seen among African Americans and Asians.
- Over the last three years, severe obesity continued to decline significantly for boys and girls. All race/ethnicity groups, except for Hispanics, saw continued declines. Notably, African American girls experienced a 7.4% reduction during this period. Hispanic girls experienced a non-significant increase in severe obesity over the final three years but a 7.4% decrease over the entire study period.

Discussion

- Obesity and severe obesity have continued to decline among many children in Philadelphia, particularly boys, African Americans, and Asians, but obesity has increased among Hispanic girls and girls in grades K-5 after initial reductions.
- Declines in obesity may be due to local initiatives—such as Get Healthy Philly—focusing on environmental change interventions in schools, after-school programs, communities, and the media, and state and federal efforts.
- Hispanic children and girls may face bigger challenges related to certain mediators of good nutrition and physical activity than other racial/ethnic groups and boys, respectively. For Hispanics, such challenges may include unhealthy food availability in schools, advertising of unhealthy foods and beverages on Spanish-language media, sugary drink intake, and limited moderate to vigorous exercise. For girls, social and biological factors may be at play, including significantly lower levels of moderate to vigorous exercise.
- Broader and more effective social, environmental, and clinical interventions are needed to sustain and advance reductions in childhood obesity in Philadelphia and across the U.S.
Figure 3: Obesity among male Philadelphia public school children, by race/ethnicity, 2006/07 - 2012/13

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Figure 4: Obesity among female Philadelphia public school children, by race/ethnicity, 2006/07 - 2012/13

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**Figure 5:** Severe obesity among male Philadelphia public school children, by race/ethnicity, 2006/07 - 2012/13

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**Figure 6:** Severe obesity among female Philadelphia public school children, by race/ethnicity, 2006/07 - 2012/13

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References

3. Since the prior analysis, datasets for 2006/07 – 2009/10 were updated based on current data on birthdates, race/ethnicity, and sex, and exclusion criteria were reapplied. This led to small changes in the total number of students included overall and by subgroup and small changes in obesity and severe obesity prevalence estimates for those years.