M50 MATHEMATICA Policy Research

IssueBRIEF

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The Impact of Healthy Harlem on the Body Mass Index and Weight Status of Adolescents after Two and Three Years

The Harlem Children's Zone (HCZ)® is a nonprofit organization that provides a comprehensive set of free programs to address the social, health, and educational development of children in Central Harlem in New York City. HCZ recognizes that childhood obesity is a critical public health problem that can limit children's abilities to reach their full potential. In 2011, HCZ found that nearly half of students 12 and older who participated in HCZ programs were overweight or obese. As a result, HCZ sought out and received funding from The JPB Foundation to design and implement Healthy Harlem, a comprehensive program for promoting healthy lifestyles. The multifaceted program, implemented in HCZ's charter schools, after-school sites, and early childhood centers, has three main components: Prevention, Get Fit, and Medical Support. Students receive services based on their age group and health needs, as described in the box below.

This issue brief focuses on body mass index (BMI)-based outcomes of overweight or obese middle and high school students who received both the Prevention and Get Fit components, after two and three years of Healthy Harlem participation.

THE THREE COMPONENTS OF HEALTHY HARLEM

Prevention. All students attending HCZ after-school programs are exposed to this component, which includes 60 minutes of moderate-to-vigorous physical activity (MVPA) each day the student attends the program, healthy snacks, and nutrition education lessons. Parents of some students choose to participate in fitness activities and nutrition workshops, although their participation is not required.

Get Fit. Middle and high school students who are overweight or obese (with BMI measurements at or above the 85th percentile and less than the 99th percentile) are also asked to participate in an intensive, 12-week program in which students identify and work on specific goals for improving their eating and physical activity habits. Students participate in discussion sessions, one-on-one meetings with Healthy Harlem staff, activities with peers related to health and wellness, and daily physical activity. Students are expected to get five hours of MVPA per week. Families of students are also asked to participate in nutrition workshops, cooking demonstrations, family fitness activities, group counseling, and trips to farmers' markets and grocery stores.

Medical Support. HCZ staff provide families of students with BMI above the 99th percentile with health literacy workshops and tools to connect with their child's doctor. A medical provider is available to teach families how to speak with their doctors and develop an action plan.

THE JPB FOUNDATION

Healthy Harlem
Harlem Children's ZONE®

THE HEALTHY HARLEM EVALUATION

HCZ contracted with Mathematica Policy Research to design a comprehensive evaluation of Healthy Harlem, funded by The JPB Foundation. The implementation study examined program roll-out to help HCZ understand how activities and services were received by students, parents, and staff. The impact study assessed both short- and long-term impacts of Healthy Harlem across several sets of outcomes, including BMI and fitness. The interim report, *The Impact of Healthy Harlem on the Prevalence of Child Overweight and Obesity and Contributing Factors: Interim Evaluation Report*, includes a detailed study description and a complete set of findings.

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EVALUATION DESIGN AND SAMPLE

The evaluation builds on HCZ's three-year timeline for rolling out Healthy Harlem across its after-school sites, and measures both short- and longer-term impacts of the Prevention and Get Fit components. Healthy Harlem implementation began in some sites in fall 2012, and was rolled out to all HCZ sites by fall 2014.

The evaluation includes three cohorts of students, based on the year their after-school site first implemented Healthy Harlem. The study team collected baseline data for each cohort in the fall of the first year of implementation and collected follow-up data in the spring of each following year. The table below provides information about each cohort, including the initial year of Healthy Harlem implementation and the timing of data collection periods. All students at each site were asked to participate in BMI data collection activities. Students were excluded from the analysis sample if they did not attend an after-school site in its initial implementation year.

This issue brief focuses on overweight and obese students who received both the Prevention and Get Fit components, after two and three years of Healthy Harlem participation.

Student Cohorts

Cohort	Initial Year of Implementation	Baseline	2-Year Impacts	3-Year Impacts
1	2012-2013	Fall 2012	Spring 2014	Spring 2015
2	2013-2014	Fall 2013	Spring 2015	Spring 2016
3	2014-2015	Fall 2014	Spring 2016	--

MEASUREMENT OF BMI AND WEIGHT STATUS

The evaluation examined impacts on three outcomes constructed from BMI data:

- BMI z-score, which reflects the number of standard deviations a student's BMI is from the mean BMI for the CDC reference population. A positive z-score indicates a higher-than-average BMI compared with other children of the same age and gender, and a negative z-score indicates a lower-than-average BMI.
- The percentage of students who were overweight or obese.
- The percentage of students who were obese.

ANALYSIS

The impacts reported here examine the combined effect of participation in both Get Fit and Prevention. All students were eligible to receive Prevention, and middle and high school students who were overweight or obese were eligible to receive Get Fit, as well. Impacts were estimated only for students who received both components during their baseline year, by comparing baseline measurements with follow-up measurements collected in the spring, two and three years later (see table below). In years two and three, students in the analysis sample continued to receive Prevention and were offered Get Fit if they still met BMI-eligibility requirements. Analyses were done using a pre-test/post-test framework. A detailed description of data collection procedures, analysis methods, and comprehensive findings are described in the full evaluation report.

A random assignment design was used in the full evaluation to measure one-year impacts of Get Fit. It was not possible to maintain the random assignment design when measuring the longer-term impacts reported here, as students assigned to the control group that received Prevention-only services in the first year were eligible to participate in Get Fit the following year if they still met BMI-eligibility requirements.

Analysis Sample

Analysis	Cohorts	Grades at Baseline	Grades at Followup	Sample Size
2-Year Impacts	1,2, and 3	6—11	7—12	168
3-Year Impacts	1 and 2	6—10	8—12	102

MEASUREMENT OF BODY MASS INDEX (BMI):

BMI is a commonly accepted measure for assessing weight status and classifying an individual as overweight or obese, based on a ratio of weight to height. Among children and adolescents, BMI is assessed on the basis of age and gender using percentiles established by the Centers for Disease Control and Prevention (CDC). The study team estimated BMI-for-age percentiles using the CDC's Children's BMI Tool for Schools, which defines four cutoffs for classifying children's weight status:

- **Underweight:** less than the 5th percentile
- **Normal weight:** 5th to 84th percentile
- **Overweight:** 85th to 94th percentile
- **Obese:** 95th percentile or higher

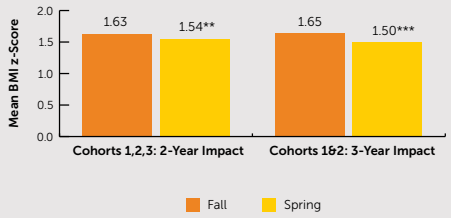
THE LONG-TERM IMPACT OF HEALTHY HARLEM ON THE BMI AND WEIGHT STATUS OF OVERWEIGHT OR OBESE ADOLESCENTS

Students who were overweight or obese and participated in Get Fit and Prevention during their baseline year had significantly lower BMI z-scores two and three years later. These changes were concentrated among boys.

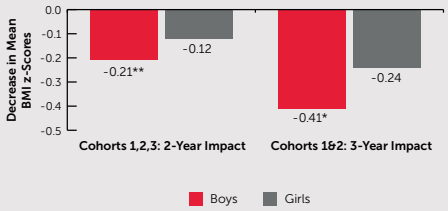
The percentage of students who were overweight or obese after two and three years of participation was significantly lower than at baseline.

The percentage of students who were obese after two and three years was also significantly lower than at baseline, although these changes were smaller and concentrated among boys.

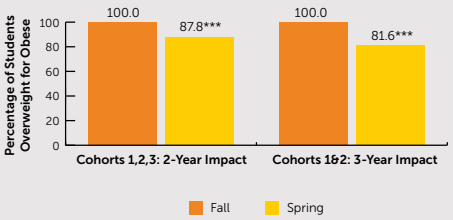
Significant decreases in BMI z-scores over two and three years



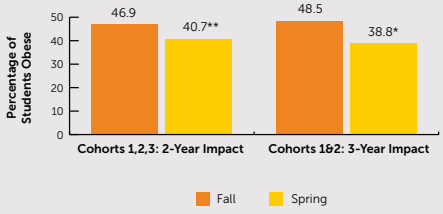
Decreases in BMI z-scores were larger for boys than girls



Significant decreases in the percentage of students who were overweight or obese



Significant decreases in the percentage of students who were obese



***Difference is statistically significant at the p < .001 level.
**Difference is statistically significant at the p < .01 level.
*Difference is statistically significant at the p < .05 level.

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