

School-based wellness initiative shown to reduce average student BMI

February 28 2023, by Ryn Thorn



Physical activity opportunities led by PE teacher “Mr. C.” at Flowertown Elementary School in Summerville, South Carolina. Credit: MUSC Boeing Center for Children's Wellness.

Health impacts students' ability to learn. Leaders at MUSC's Boeing

Center for Children's Wellness (MUSC BCCW) believe that lessons on healthy living can be part of every student's school experience.

"Healthier students are better learners, and better learners actually live healthier adult lives," said Kathleen Head, M.D., MUSC BCCW associate medical director.

In a recent study published in the *Journal of School Health*, a research team led by Head and BCCW director Janice Key, M.D., compared the average student body mass index (BMI) in schools both participating and not participating in the MUSC BCCW School-based Wellness Initiative. The team used BMI data from the SC FitnessGram project, a statewide program to collect and track student health and fitness data in [public schools](#).

Schools participating in the initiative saw their average student BMIs decrease significantly over time, regardless of [school](#) type. The average student BMI in the schools that used more [wellness](#) tools and programs was up to 15% lower than the schools that used fewer.

Implementing the School-based Wellness Initiative

Between 2014 and 2018, 103 South Carolina schools across five counties participated in the School-based Wellness Initiative. The program targets policy, systems and environmental (PSE) change, such as schoolwide gardening projects or class-wide stress reduction strategies, instead of solely individual changes.

To achieve this, the initiative uses the School Wellness Checklist (SWC). The SWC features seven categories of evidence-based strategies that schools can use to promote a culture of wellness that includes getting started, nutrition, physical activity, social-emotional wellness, wellness culture, staff wellness and sustainability. Schools can choose which SWC

items work best for them, and they are assigned points based on how many they use. One goal of the study is to determine which of these seven categories is most associated with average student BMI decreases.

Designing a wellness plan for a school using the SWC is a community effort. Head said that each school's Wellness Committee designs a wellness plan specific to that school's needs, explaining that the committee includes teachers, staff, administrators and parents, as well as [community members](#), some of whom may have children at the school or just live in the area and are invested in advocacy.

She emphasized that the school-based nature of the initiative is particularly important. "The environment surrounding us as humans is critically important to our overall wellness," she explained. "Children spend the majority of their day, five days per week, in school, eating, learning and playing."

Bringing the initiative to schools also ensures program equity, as school-based programs reach all children regardless of medical access. "We want to reach all children and provide more than we can at a doctor visit," said Key. "The BCCW must go where children are, which is school."

Defining wellness in childhood

Over the past 40 years, childhood obesity rates have gone up 240%. Obesity is the state of having a BMI greater than 30, and the term overweight applies to those with BMIs between 25 and 30. This category changed in 1998 from a BMI between 27 and 30, shifting 25 million Americans from the normal weight to the overweight category.

About one third of the students in the study had a BMI in the obese or overweight category. Because children are still growing, their weights

cannot be measured against preset ranges. Instead, pediatric BMIs are grouped together based on age and sex. Children in the 85th to 95th percentile of their group are considered overweight, and those above the 95th percentile are considered obese.

Though having an overweight or obese BMI is not a one-to-one guarantee of a negative health outcome, Head said that children who are categorized as obese are four times more likely to be diagnosed with diabetes by the time they're age 25.

Key expressed that there are instances in which the BMI does not give an accurate picture of a child's body composition, such as in an athletic [student](#) who may carry above average muscle mass.

"For something that is simple and easy to check for a whole classroom of kids, height and weight is the best we've got," she said. "But when you're looking at an individual patient, you would go beyond that."

Building equitable and effective systems of wellness

Average BMIs went down in schools that participated in the initiative and went up in schools that did not. Additionally, in schools that participated for two years or more, a higher SWC score was associated with greater BMI decreases. Students in schools that scored 250 SWC points were 15% less likely to have overweight or obese BMIs than students in schools that earned only 50 SWC points.

Just as importantly, however, results were spread evenly across schools, Head explained.

"Our results were the same regardless of if the school was elementary, middle or high school, or if it was rural or urban, or if it was a Title I school or a non-Title I school," she said.

Past school wellness programs have failed to deliver health benefits across different types of schools.

Though physical activity had the largest association with decreased BMI, followed by social-emotional wellness and staff wellness, nutrition education did not. "The disappointment to us was that decreased BMI wasn't associated with the score of nutrition interventions," Key said.

She explained that this may be because students can actively practice [physical activity](#) and social-emotional wellness at school. However, food choice does not happen in the same way. Most food choices and options for students, such as nightly dinners, happen outside of the school and the wellness initiative.

Despite such challenges, Key said that they will not give up on nutrition.

Team members also want to diversify the data they track to monitor the effectiveness of their program. "In the future," Head explained, "we'd like to measure knowledge, attitudes and behaviors associated with some of our interventions rather than skipping straight to BMI."

More information: Kathleen C. Head et al, Participation in a School-Based Wellness Initiative Associated With Improved K-12 Student Body Mass Index Trends, *Journal of School Health* (2022). [DOI: 10.1111/josh.13292](https://doi.org/10.1111/josh.13292)

Provided by Medical University of South Carolina

Citation: School-based wellness initiative shown to reduce average student BMI (2023, February 28) retrieved 23 June 2024 from <https://medicalxpress.com/news/2023-02-school-based-wellness-shown-average-student.html>

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