

School obesity-prevention curriculum can reduce medical costs

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Teaching middle-school children about nutrition and exercise and encouraging them to watch less TV can save the health care system a substantial amount of money, suggests an economic analysis from Children's Hospital Boston and the Centers for Disease Control and Prevention.

Using data from a randomized, controlled study conducted at 10 Massachusetts middle schools, five of which adopted the [obesity prevention](#) curriculum Planet Health, the researchers created a model projecting a net savings of \$14,000 for the 254 girls receiving the curriculum, by averting the costs of treating obesity and [eating disorders](#). They project that expanding the program to even just 100 schools could save the [health care system](#) \$680,000.

The study, published in the August issue of the *Archives of Pediatrics & Adolescent Medicine*, was led by S. Bryn Austin, ScD, an epidemiologist in Children's Hospital Boston's Division of Adolescent Medicine, and CDC health economist Li Yan Wang.

Planet Health, developed at the Harvard School of Public Health, is a curriculum for academic, physical education and health education teachers to guide middle-school students in choosing healthy foods, increasing physical activity and limiting TV and other screen time. It provides teacher training, lesson plans, materials and FitCheck, a self-assessment tool for students.

In an earlier study of 10 middle schools, half offering the Planet Health program and half offering regular programs (schools were matched by town, school size and ethnic composition), obesity prevalence declined in the schools with Planet Health but increased in control schools over the two years of follow-up. In addition, overweight girls in Planet Health schools were twice as likely as girls in control schools to return to a healthy weight over the two years.(Gortmaker SL et al, 1999).

Unexpectedly, girls in Planet Health schools were also less than half as likely as girls in control schools to begin purging or using diet pills to control their weight (Austin SB et al, 2005); this study was later replicated in a separate group of middle schools (Austin SB et al, 2007). The effects were not statistically significant for boys.

"We were really surprised and encouraged to see how protective Planet Health was for eating disorder symptoms in girls," says Austin, the study's senior author. "When we found the same protective effect – cutting the risk for girls in half -- in a different set of middle schools several years later, we knew we were on to something important."

Bulimia typically develops in adolescence, and often begins with a few behaviors, such as using diet pills or purging to control weight. Full-blown bulimia is a life-threatening disorder that carries a variety of medical complications such as electrolyte imbalances, dehydration, metabolic alkalosis (an imbalance in the body's acid/base balance), heart rhythm disturbances, tooth erosion and bowel dysfunction.

"Eating disorders cause an enormous amount of suffering," says Austin. "They can also be chronic and expensive to treat, which is often a big financial burden on individuals, their families, and society. That's what led us to want to do the economic study."

In their economic analysis, Austin and Wang first estimate that 3.4 percent of girls receiving the Planet Health intervention would be

prevented from developing disordered weight-control behaviors by the age of 13 ½, based on numbers from the original randomized study (7 of 254 girls in the Planet Health schools, or 2.8 percent, developed these behaviors, versus 14 of 226 controls, or 6.2 percent). Based on current knowledge about the progression of eating disorders, they calculate that, in turn, 1 case of bulimia would be prevented by the age of 17 among the 254 girls.

Factoring in typical treatment costs -- which can be tens of thousands of dollars over a decade -- and known rates of remission and relapse, Austin and Wang estimate that an average of \$34,000 would be saved by preventing one girl in the five Planet Health study schools from developing bulimia nervosa. Adding Wang's previous finding of \$27,042 in savings resulting from prevention and reduction of obesity in the same schools (Wang LI et al, 2003), the program would yield a net savings of \$14,238 after subtracting the \$46,803 cost of offering Planet Health in those schools.

"Because eating disorders can be so expensive to treat, preventing even one case in the five Planet Health schools translated into reducing medical costs by \$34,000," says Austin. "But if we scale up our calculations to include, say, 100 middle schools in Massachusetts, the medical costs reduced by preventing bulimia increase to over half a million dollars. And if we scale up nationwide, to say 1,000 schools, the potential reduction in the medical cost burden is sizable."

Austin notes that obesity prevention programs that stigmatize obesity or create a sense of blame can actually contribute to eating disorders. "We need to be smart about choosing obesity prevention strategies that, at the same time, can prevent eating disorders," she says. "Our study shows that when we do both, we substantially increase the benefits, both in terms of health and reducing medical costs."

Provided by Children's Hospital Boston

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