

Schoolwide food practices are associated with body mass index in middle school students

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Kubik MY, Lytle LA and Story M. "Schoolwide food practices are associated with body mass index in middle school students." *Arch Pediatr Adolesc Med.* 159: 1111-1114 (December 2005).

Introduction

The increasing prevalence of childhood obesity in the U.S. has raised concerns among health care providers, parents, teachers, and others interested in the health of young people. The causes of the increase in obesity among even very young children have not been clearly identified, although a combination of factors are likely involved. The school environment has been under scrutiny for a number of reasons including the lack of physical education and recess, branded (a la carte) food items available in the lunchrooms, high-fat and/or sugar snack foods and beverages in vending machines, use of candy as rewards in classrooms, and fundraising activities involving candy or other foods of poor nutritional quality. Researchers in Minnesota (Kubik et al.) investigated the association between school food practices and body mass index among middle school students.

Methodology

Researchers collected data on **school food practices** and measured **body mass index** (BMI) of students at 16 schools in the St. Paul-Minneapolis metropolitan area. This study was conducted as part of a healthy lifestyles intervention, Teens Eating for Energy and Nutrition at School (TEENS), which was designed to reduce future cancer risk in the students.

Students self-reported their heights and weights which were used to calculate BMI. The authors indicate that in this age group, self-reported heights and weights correlated well with measured data ($r=0.92$). Information about school food practices was obtained by interviewing school administrators using a standardized interview schedule developed by the TEENS researchers, and used to generate a **food practice score** for each school. The seven items included in the food scale related to food used as reward or incentive; permission for students to have foods and beverages in the classroom and hallways; and use of food sales for fundraising in classrooms and school.

The researchers hypothesized that higher food practice scores would be positively associated with higher BMI of the students.

Results

Demographics of students. Most (70%) of the students were white, 51% were male, and 20% participated in the free or reduced-price lunch program. More than half of the students reported having two parents who worked full-time and 49% had at least one parent who completed college. The mean age was 14.2 years and mean BMI was 21 (range was 12.9 to 37.9). Fifteen percent of the sample was at risk for overweight (BMI between 85th and up to

the 95th percentile) and 8% were overweight (at or over the 95th percentile).

Prevalence of food practices. The food practice that was most commonly allowed (11 of 16 schools, 69%) was use of food or food coupons as reward or incentive for students and the second most prevalent practice (nine of 16 schools, 56%) was having classroom fundraising that includes food sales. The average food practice score was three (highest score possible was seven, and the range of scores among the 16 schools was 0 to seven).

Association between food practice score and BMI. As the researchers hypothesized, the school food practice score **was positively associated** with the students' BMI. In the school studied, with each additional food practice allowed within a school, there was a 10% increase in BMI.

Conclusion

One of the factors identified as part of our “obesogenic” culture is the constant exposure to and availability of food (particularly high calorie food) in our environment. In the study described, we see that most of the food practices addressed in this study related to availability of foods or beverages to students during the school day. Schools may be a significant source of excess calories among students and, therefore, a contributor to the rise in obesity among young people. With a change in food policies, schools could be one environment in which young people learn that food does not need to be constantly available. One particularly troublesome practice, which happened to be the most common one among the 16 schools studied, is the use of food or food coupons as a reward or incentive for students. Although this study was conducted several years ago, using food as a reward is still not uncommon in schools, but may be one of the food practices addressed by emerging school wellness policies. Another food practice that was commonly allowed in these schools was use of food in school fundraising. Alternatives have been identified and shown to be profitable for schools (Johansen et al.).

A recent study (Nollen et al.) found that high school principals and school food service personnel did not appear to recognize a significant role for the schools in limiting access to foods and beverages that might be contributing to excess calorie intake during the school day (e.g., vending sales and a la carte items in cafeterias). This could be a barrier to collaborative efforts to change school food policies that contribute to excess food intake and increased risk for obesity among young people.

Implications for Extension Programs

Addressing the issue of childhood obesity through healthy lifestyles programs for all children and youth (not just those identified as overweight) is within the scope of Extension's nutrition and health programs as well as work with 4-H youth programs in traditional as well as school enrichment environments. Extension can bring a variety of nutrition and physical activity programs into school classrooms and after-school environments to promote healthy lifestyle choices, and engage parents and teachers in this effort. In addition, this research points to the potential value of including the schools themselves as a target for changes that will contribute to a more positive environment for young people. Working in school and community coalitions to review and change school food policies addressed in this research study can be an additional way in which Extension can have an impact on the environment that fosters overeating and increased risk for obesity among young people. These activities already are being implemented in many county Extension programs.

In addition, being aware that school administrators and school food service personnel may be reluctant to acknowledge the potential negative effects of food fund raisers, poor a la carte food choices, and food used as classroom rewards, can help Extension faculty work effectively in the school environment to raise awareness in a non-confrontational and positive way.

Additional References

Johanson J. and Wootan MG. Sweet deals: school fundraising can be healthy and profitable. Center for Science in the Public Interest. Available at: www.cspinet.org/schoolfundraising.pdf. Accessed September 3, 2007.

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