

Addressing Obesity in Rural Pennsylvania

Center for Schools and Communities

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Obesity is a major health issue for millions of individuals in the United States. Seventeen percent of children aged 2-19 are obese (i.e., having a body mass index (BMI) of 30 or above¹) and certain subpopulations have higher rates.² The Centers for Disease Control (CDC) reports that obese children and adolescents suffer serious health consequences, including type II diabetes, hypertension, high cholesterol as well as psychological risks resulting from social stigmatization that may accompany obesity.³ Compounding these health issues, are the economic consequences of being overweight, which account for 9.1 percent of all medical expenses nationwide.⁴ Even more alarming is the rise of obesity in youth. Among youth aged 12-19, obesity rates increased roughly three times between 1976 (5.5%) and 2008 (16.9%).⁵

Obesity is more common in rural areas,⁶ and given Pennsylvania's large rural population, responses to address obesity must consider community characteristics that are unique to rural areas. Furthermore, obesity is known to be associated with poverty, and rural counties in Pennsylvania have higher poverty rates than non-rural counties. To focus on the interplay between rural communities, poverty and obesity, the Center for Schools and Communities (CSC) conducted an analysis of BMI and Census data, as well as national data to highlight obesity related issues that are more prevalent in rural areas.

Methods

This Research Brief uses state and national data, respectively, to analyze obesity rates among the school age population and to examine elementary school nutritional practices. The state data consists of BMI-for-age percentiles data from all 500 Pennsylvania school districts at the county level.⁷ If a student is ranked at the 95 percentile or above, he or she is considered obese. These

data are compared to the percentage of county population that is rural and the percentage of residents 17 and younger who are in poverty, based on U.S. Census Bureau estimates. Counties are designated as rural when 50 percent or more of their population lives outside urban centers and areas.⁸ National statistics from the U.S. Department of Education's nationally representative Fast Response Survey System (FRSS) data on elementary school nutrition are then used to provide comparisons of nutritional practices in a sample of 1,198 of rural and non-rural schools.⁹

Obesity Among Rural and Impoverished Pennsylvania Students

Data show that obesity in Pennsylvania is associated with the proportion of the population living in rural areas and the proportion of children in poverty. Overall, about 19 percent of K-12 children are obese.¹⁰ On average, about 49 percent of Pennsylvania's population lives in a rural area, and 31 of Pennsylvania's 67 counties have at least 50 percent of their residents living within rural areas (designating those counties as rural for this analysis). Many of these rural counties have the highest poverty rates for children 17 years old and younger. Figure 1 shows the average obesity rate of K-12 students by county. Rural populations form a band of several counties that stretches along Pennsylvania's northern tier and its central region. The highest quartile obesity rates (blue) are in rural (dark outline) counties in all but a few instances, while all of the non-rural counties have the lowest obesity rates. *Counties with the highest obesity rates are also the same counties with the highest poverty rates;* while none of the lower poverty counties have the highest obesity rates. When controlling for the effects poverty has on obesity rates, a 10 percentage point increase in rural population is associated with a mere 0.4 percentage point

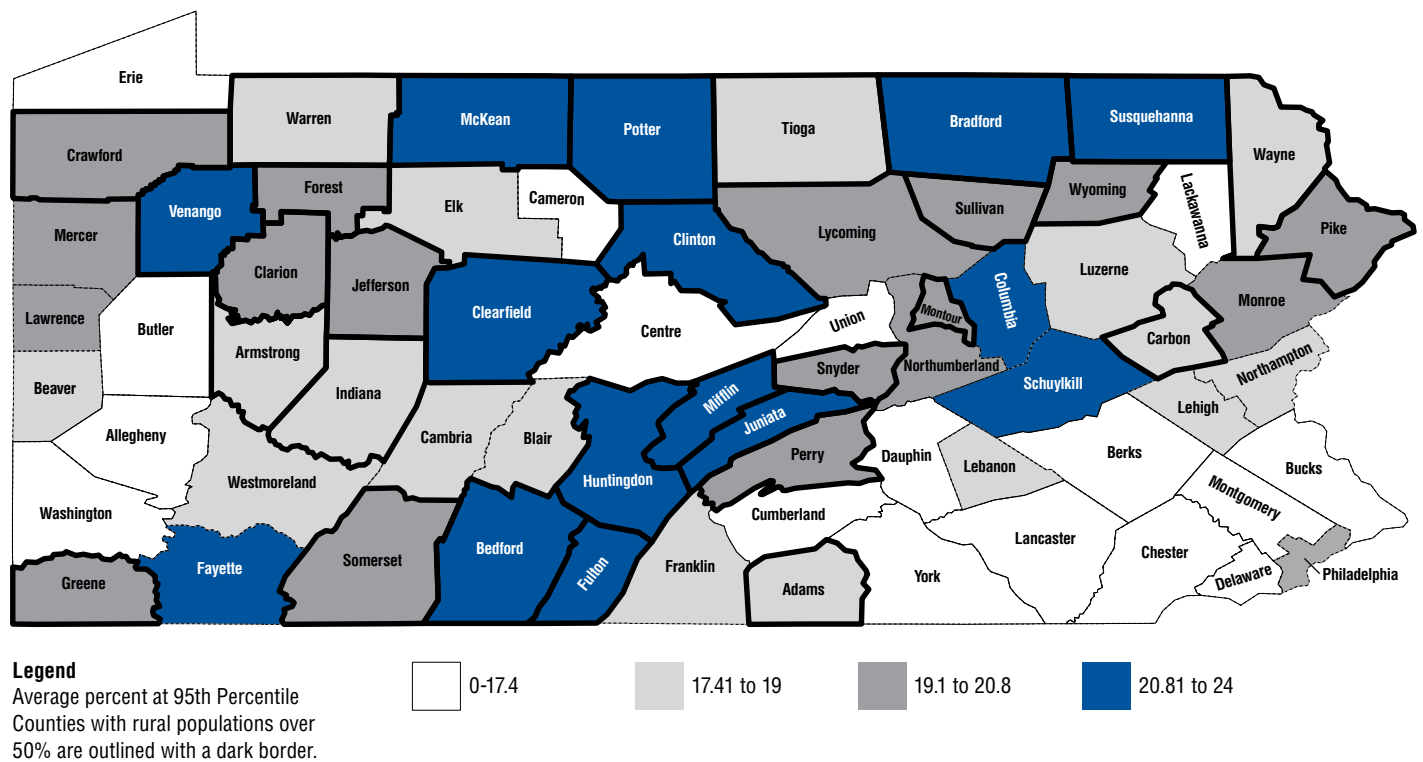
increase in obesity rates at the county level. However, controlling for the rural population, a 10 percentage point increase in county level poverty is associated with a 2.2 percentage point increase in obesity rates.

The National Context

Examining nationally representative data on rural community resources helps us make greater sense of high obesity rates in rural Pennsylvania. Elementary schools' practices related to health and well-being, particularly their approaches to nutrition, are one community resource. FRSS data tell us that in rural schools, unhealthy nutritional practices are more common than in non-rural schools, although not in large measure. For instance, rural elementary schools are more likely to offer soda in their cafeterias and less likely to prohibit vending machines than non-rural schools. When they provide vending machines, rural schools are more likely to offer candy than non-rural schools. In their school stores, elementary rural schools more often offer candy and soda to their students than non-rural schools.¹¹

Beyond schools, other rural characteristics directly or indirectly impact obesity. For example, rural residents have access to fewer health care workers per capita than their peers in non-rural areas,¹² and they are less likely to receive preventative services and make fewer visits to their doctor.¹³ The physical environment is known to have some bearing on obesity as well. In one study, greater commuting distances in rural areas are associated with obesity rates¹⁴ while another study shows that the availability of more food options (uncommon in rural areas) correlates with lower obesity rates.¹⁵ In terms of their medical resources, rural areas have clinician shortages, few medical specialists, and hospitals that lack professional resources to handle complex disabilities. Residents in these areas more frequently receive lower

Figure 1: Percentage of Obese K-12 Students (Over 95th BMI Percentile): 2007-08



quality health care in terms of outpatient services. Complicated medical conditions (diabetes and heart attacks) are also more prevalent in rural areas.¹⁶

Addressing Systemic Factors That Impinge on Obesity in Rural PA

The predominance of rural areas in Pennsylvania is critical to consider in any interventions designed to reduce obesity because these communities tend to have a variety of systemic conditions that may increase obesity. Given the disparate resources in rural communities and obesity’s association with many community factors, effectively addressing obesity must take a systems change approach. Thus, solutions cannot focus on schools alone, but must realize the role of poverty, medical care and other community characteristics that relate to obesity. One recent study found that clinically significant weight loss was more common in children with greater parent engagement, thus one systemic approach to obesity

reduction is insuring parent engagement in medical interventions to increase adhesion to treatments.¹⁷ Another systems effort takes advantage of afterschool programs, because they are frequently venues in which physical activity can be organized and sedentary behavior minimized.¹⁸ Recognizing the need for these types of systemic change, both the CDC and the Robert Wood Johnson Foundation have published community obesity prevention strategies, including improving nutrition in public service venues, enhancing exercise opportunities like bicycling, purchasing food from farms, and increasing participation in coalitions that address obesity, among many others.¹⁹ Such changes rely on coalitions of government, nonprofit organizations, schools and parent engagement to be successful in making necessary systemic change. Pennsylvania has taken one of these steps by beginning the development of new nutrition standards for its schools, as well as parent engagement and afterschool networks.²⁰ But even more

immediately, additional research on obesity in rural Pennsylvania is necessary. Over 260,000 school-aged children live in Pennsylvania’s rural counties. We must learn exactly how to effectively engage the community systems which can make or break their health. ■

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Center for Schools and Communities is a division of the Central Susquehanna Intermediate Unit, a public education service agency. The Center provides training, technical assistance, resources, grant administration and program evaluation to programs serving children, families and communities in Pennsylvania. This brief is available on the Internet at www.Center-School.org.

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- ¹⁹ Kahn, et al. (2009) *op. cit.* See also the Robert Wood Johnson Foundation’s Center to Prevent Childhood Obesity at www.reversechildhoodobesity.org
- ²⁰ Additional information about the Pennsylvania Parent Information and Resource Center (PIRC) and the Pennsylvania Statewide Afterschool Youth Development Network are available at: <https://www.center-school.org/initiatives.php>