

Assessing the Environment for Support of Youth Physical Activity in Rural Communities

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ABSTRACT

Objective: Assess environmental support of physical activity (PA) in rural areas and determine whether there is a correlation between the measured environment for PA and participant perceptions of the environment for PA.

Design: The PA environment was assessed using the Active Neighborhood Checklist (ANC) and the Physical Activity Resource Assessment (PARA). Youth behavior and perceptions related to PA and the local environment were assessed using 5 questions from previously validated tools.

Setting: Four rural low-income communities in South Dakota and Kansas.

Participants: Sixth- through eighth-grade youth.

Variables Measured: Physical Activity Resource Assessment, ANC, behavior, and perception.

Analysis: The authors used ANOVA to determine whether there were differences in ANC, PARA, and Perception of the Environment scores among communities. Pearson correlations were used to assess associations between ANC and student perception of the environment and PARA and student perception of the environment.

Results: There were no differences in total ANC or total PARA among communities. Perception was weakly correlated with total ANC (multivariate coefficient, 0.016; $P = .026$; $n = 308$) but not total PARA.

Conclusions and Implications: Perception of PA in rural communities may not match objective measures. Future research should work toward refining and improving existing environmental audit tools and developing new, comprehensive, location-specific tools.

Key Words: physical activity, perception, adolescent, obesity, environment (*J Nutr Educ Behav.* 2016;48:234-241.)

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INTRODUCTION

Obesity is a significant health concern in the US. In 2012, more than one third of all US children and adolescents were

overweight or obese.¹ The causes of obesity are complex and include a variety of behavioral, social, biological, and environmental factors.^{2,3} In the past, obesity prevention strategies

centered on education and behavior modification.⁴ Despite the focus on education, individual dietary changes, and lifestyle adjustments, the number of overweight and obese individuals in the US continues to rise.⁵ Focusing on early prevention and targeting youth to encourage healthful behaviors is paramount in preventing obesity.

Early adolescence is a period marked by physical, mental and emotional growth, and personal maturation. It is a time that presents both challenges and opportunities to the individual, because identities are being formed and a sense of autonomy is being developed.⁶ During the transition from childhood to adolescence and into adulthood, individuals become more independent and begin making decisions that can have a lasting impact on their lives.⁷ Therefore, adolescence is not just a period of substantial

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physical growth but a period in which an individual has the power to make important decisions and control some health outcomes.

There is growing consensus among researchers that the physical environment has a significant role in influencing an individual's dietary choices and physical activity behaviors.^{2,3,8-16} The built environment is a multi-dimensional concept that encompasses (1) urban design, or the design of the city and the different elements within it; (2) land use, or the way in which the land is used for residential, commercial, office, and industrial activities; and (3) transportation systems, which include the roads, sidewalks, bike paths, and other avenues used for transportation.¹⁷

Although obesity is considered a complex, multifactorial disease, inadequate physical activity and poor nutrition have long been identified as critical factors in its development.^{3,18,19} According to Maley et al,¹⁶ physical environments that encourage sedentary lifestyles and the consumption of calorically dense foods are major contributors to the obesity epidemic. When observing the nation's obesity problem in the context of the physical environment, one can begin to understand why past intervention strategies had only modest long-term success. Educating the general public about proper nutrition and the importance of an active lifestyle is of little worth when the physical environment prevents people from putting that information into action.^{10,20} Understanding the link between the built environment and the physical activity choices that people make is a crucial step in the fight against obesity.

Despite the significant role the environment has in influencing behavior^{3,8,21} and the limited success of individual-based interventions on long-term obesity prevention,²² protocols for assessing the built environment are still relatively new.^{23,24} Gasevic et al²⁵ believe environmental audit tools are necessary to enhance built environment knowledge and identify environmental features that may be linked to obesity and other obesogenic behaviors. Several tools are available to assess the food and physical activity environments in a community. Unfortunately, most of these tools are targeted toward urban

community structure and urban city design. There are significant differences between urban and rural communities in terms of natural landscape, societal culture and norms, transportation infrastructure, and built environment design. Therefore, the findings from urban studies may not be applicable as a basis for rural community intervention strategies.

The lack of assessment tools and targeted interventions for rural communities is concerning, especially because compared with urban US residents, rural residents experience a higher prevalence of physical inactivity and obesity.²⁶ To make matters worse, compared with their urban peers, rural children are approximately 25% more likely to be overweight.²⁷ Rural areas face unique challenges in addressing the obesity epidemic. A lack of exercise facilities and sidewalks, safe walking and play areas, and limited access to healthy foods, may be potential challenges that rural communities face.

Whereas previous studies have linked obesity prevalence with objective neighborhood measures, there is a gap in the literature in correlating environmental assessment data, environmental perceptions, and weight status.²⁸⁻³⁰ Powell-Wiley et al²⁸ have linked unfavorable perceptions of the physical environment with increased obesity. Despite this association, it remains unclear whether the perceptions of individuals in rural communities match the objective measures of the corresponding built environment. Therefore, the purpose of this study was twofold: (1) to assess environmental support of physical activity in rural areas, and (2) to determine whether a correlation exists between the measured environment for physical activity and the physical activity perceptions of sixth- to eighth-grade youth in these rural communities.

METHODS

Study Design

This study was conducted as a part of a larger 5-year, tristate community-based participatory research project entitled *Ignite: Sparking Youth to Create Healthy Communities*. Whereas the *Ignite* project targets both urban

and rural communities in South Dakota, Kansas, and Ohio, the study described in this article focuses only on the rural study communities within South Dakota and Kansas. Institutional Review Board approval, subject assent, and parental consent were obtained in accordance with the policy statements of the Human Subjects Committees at South Dakota State University and Kansas State University.

Communities and Participants

The researchers chose communities based on the following protocol. Cooperative Extension services in South Dakota and Kansas developed and distributed a request for proposals to communities within each state. Those interested in participating in the project submitted an application for funding to their corresponding Extension office; for consideration, communities needed to meet definitions of low income and/or minority that were established by the research team.

A community fulfilled the qualification for low income if 1 of the following conditions was met: county/community poverty level was higher than the state average, county/community household income average was below the 185% federal poverty level, county/community percentage of those who qualify for free or reduced-priced school lunches was higher than the state average, or the majority ($\geq 51\%$) of county/community residents qualified for free or reduced-priced school lunches. Definitions of minority were met if the county/community had higher than the state average of non-Caucasian residents or the majority ($\geq 51\%$) of the county/community consisted of non-Caucasian residents. Sixth- through eighth-grade youth from schools within each community were recruited through classroom teachers and school administrators. Parental consent and child assent were received before youths' participation in the study.

Environmental Assessments

Study personnel conducted environmental assessments. To ensure accuracy and consistency between states,

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