Dietary, Physical Activity, and Sedentary Behaviors Associated With Percent Body Fat in Rural Hispanic Youth

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ABSTRACT

Introduction: The objective of the present study was to assess dietary, physical activity, and sedentary behaviors associated with percent body fat in rural Hispanic youth.

Method: A total of 189 Hispanic children and adolescents ages 8 to 19 years completed the School Physical Activity and Nutrition questionnaire. Body composition (percent body fat) was determined by anthropometric skinfold methods. Logistic regression analysis was performed with percent body fat as the primary outcome dichotomized into excess body fat/normal body fat.

Results: Gender was significantly associated with percent body fat in that girls were more likely to be in the excess percent body fat group. A significant interaction effect was noted between gender and sugar-sweetened beverages in that the effect of consuming sugar-sweetened drinks on excess adiposity was 6.28 times greater for boys than for girls.

Discussion: Our data suggest that being a girl and consumption of sugar-sweetened beverages for boys may be risk factors for excess adiposity in rural Hispanic youth. Development of tailored, culturally sensitive interventions for this population may benefit from targeting these areas. J Pediatr Health Care. (2014) *28*, 63-70.

KEY WORDS

Diet, physical activity, Hispanic, adiposity, rural, youth

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Conflicts of interest: None to report.

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Obesity is a significant public health concern associated with both physical and psychosocial risks (Ogden & Carroll, 2010). Ethnic minority populations in the United States, including Hispanics, are disproportionately affected by obesity (Cossrow & Falkner, 2004; Haas et al., 2003). Mexican American children and adolescents are 1.4 times more likely to be overweight than non-Hispanic White children and adolescents (Federal Interagency Forum on Child and Family Statistics, 2012). Obesity prevalence rates are particularly high in *rural* Hispanic youth, because this population tends to be among the poorest and most underserved by health care systems (Eichner et al., 2008).

LITERATURE REVIEW

Relatively few studies to date have examined dietary, physical activity, and sedentary behaviors associated with obesity in rural Hispanic youth. In an ethnically diverse sample of 878 adolescents, Patrick and colleagues (2004) found that overweight girls and boys

participated in fewer minutes per day of vigorous physical activity and consumed fewer total kilojoules and grams of fiber per day compared with normal-weight peers. Girls were at greatest risk of being overweight if they were Hispanic or from another minority group; their risk of being overweight diminished as minutes per day of vigorous physical activity increased (Patrick et al., 2004).

Joens-Matre and colleagues (2008) compared physical activity, physical fitness, and overweight prevalence among 3,416 fourth through sixth graders from urban, rural, and small cities in Iowa. Gender discrepancies were found, with girls participating in less physical activity than boys regardless of age or location of residence (i.e., urban, rural, or small city; Joens-Matre et al., 2008). Prevalence of overweight was higher among rural children than among children from urban areas and small cities; however, urban children were the least active overall, particularly during lunchtime at school (Joens-Matre et al., 2008). Children from small cities engaged in the highest levels of physical activity (Joens-Matre et al., 2008).

Rodriguez et al. (2011) explored physical activity and sedentary behaviors in 1,894 rural non-Hispanic White and Hispanic adolescents residing in California. Obese Hispanic girls and boys engaged in less physical activity inside or outside of school compared with their obese non-Hispanic White counterparts (Rodriguez, Weffer, Romo, Aleman, & Ortiz, 2011). The authors concluded that physical activity levels *outside of school* may be particularly pertinent to the development of obesity in rural Hispanic girls because obese rural Hispanic girls participated in significantly less physical activity outside of school than did normal-weight Hispanic girls (Rodriguez et al., 2011).

Although these studies shed light on behaviors associated with obesity in youth, only one of the three studies (Rodriguez et al., 2011) specifically included a *rural* Hispanic sample. In addition, diet was not assessed in two of the studies (Joens-Matre et al., 2008; Rodriguez et al., 2011). Finally, none of the three studies were inclusive of a broad age range and were restricted to adolescent participants or fourth through sixth graders. Data suggest that the trajectory toward obesity begins in early childhood (Huh, Rifas-Shiman, Taveras, Oken, & Gillman, 2011). Elucidating dietary, physical activity, and sedentary behaviors associated with obesity in rural Hispanic youth across a broad age range may be vital to obesity prevention and the development of tailored, culturally sensitive interventions for this population that can be delivered in clinical settings by health care providers, including nurse practitioners.

OBJECTIVE AND HYPOTHESES

The objective of the present study was to assess dietary, physical activity, and sedentary behaviors associated with percent body fat in rural Hispanic youth. We hypothesized that greater consumption of fried foods, desserts, and sugar-sweetened drinks and greater participation in sedentary behaviors (e.g., watching television and playing computer and video games) would be associated with excess adiposity. Further, we predicted that greater involvement in physical activity and higher consumption of fruits/vegetables and whole grains would be associated with normal adiposity.

METHOD

Participants

Participants were 189 Hispanic children and adolescents ages 8 to 19 years from two separate school districts in South Texas. These two districts were specifically chosen because of their high percentage of Hispanic students (i.e., approximately 80% of each district was Hispanic) and rural setting. These school districts were classified as rural based on their location in agricultural communities with a distance greater than 35 miles from a major metropolitan area. Body composition measurement was part of the Fitnessgram assessment conducted by the state of Texas. Consequently, students ages 8 to 19 years were sampled regardless of ethnicity, and the initial sample constituted a convenience sample of 351 children and adolescents. For the purposes of studying self-reported diet, physical activity, and sedentary behaviors exclusively in rural Hispanic youth, 79 participants were excluded from the analysis because they were not Hispanic. These participants did not different significantly from the Hispanic sample on the demographic characteristics of age and gender, but they had a significantly lower percent body fat than did the Hispanic sample. An additional 83 Hispanic participants were excluded from the final analysis because of missing gender, age, and/or body composition (percent body fat) data. It should be noted that the missing data for these 83 participants came predominantly from one school in which body composition data were not obtained. Thus because these data were not missing at random, imputing missing values was not appropriate, and these participants were excluded from the analysis (Fielding, Fayers, McDonald, McPherson, & Campbell, 2008).

Measures

Diet, physical activity, and sedentary behaviors

The School Physical Activity and Nutrition (SPAN) questionnaire is a self-report measure that assesses diet, physical activity, and sedentary behaviors (Hoelscher, Day, Kelder, & Ward, 2003). The elementary school version (56 items) was administered to third through fifth graders, and the secondary school version (74 items) was administered to sixth through 12th graders. Because many items overlap across the two age versions, data were combined across the two age forms for the present study. The dietary intake questions asked,