



# Mobility Status as a Predictor of Obesity, Physical Activity, and Screen Time Use among Children Aged 5-11 Years in the United States

Patrick B. Wilson, PhD, Justin A. Haegele, PhD, and Xihe Zhu, PhD

**Objective** To examine physical activity participation, screen time habits, and the prevalence of overweight/obesity among children in the general population with mobility limitations and those enrolled in special education services.

**Study design** An observational, cross-sectional analysis of the 2011-2014 National Health and Nutrition Examination Survey, a representative sample of the US population. Mobility limitations, special education services utilization, proxy-reported physical activity and screen time, and overweight/obesity status were assessed in children aged 5-11 years.

**Results** Boys with mobility limitations were less likely to meet physical activity guidelines ( $\geq 60$  minutes daily) compared with those with no limitations (58.1% vs 74.4%, adjusted  $F = 4.61$ ,  $P = .04$ ). In a logistic regression model, boys with mobility limitations had significantly lower odds (0.42, 95% CI 0.20-0.86) of meeting physical activity guidelines. The prevalence of children meeting screen time recommendations ( $\leq 2$  hours daily) among those receiving special education services (42.4%) was lower than children not receiving services (53.2%; adjusted  $F = 8.87$ ,  $P < .01$ ). In a logistic regression model, children receiving special education services showed a trend toward significantly lower odds (0.74, 95% CI 0.54-1.03,  $P = .07$ ) of meeting screen time recommendations. No statistically significant differences for overweight/obesity were found.

**Conclusions** Clear differences were present in physical activity between boys with and without mobility limitations. Furthermore, children receiving special education services demonstrated a lower likelihood of meeting screen time recommendations. Children with disabilities may benefit from targeted interventions aimed at increasing physical activity while decreasing screen time. (*J Pediatr* 2016;176:23-9).

Developing a physically active lifestyle at an early age can enhance health and decrease one's chances of developing chronic diseases, such as coronary heart disease, diabetes, and obesity, throughout the lifespan.<sup>1,2</sup> Independent of physical activity, excessive time spent on sedentary behaviors, such as watching TV and using computers, can have a deleterious impact on health and have been associated with elevated cardiometabolic risk.<sup>3</sup> Accordingly, the US Department of Health and Human Services recommends children and adolescents participate in 60 or more minutes of physical activity daily.<sup>4</sup> Likewise, the American Academy of Pediatrics recommends children limit entertainment screen time to 2 hours per day or less.<sup>5</sup>

Recent research using a representative sample of American youth 6-11 years of age suggests that, overall, 70% met physical activity recommendations and 54% met screen time recommendations.<sup>3</sup> However, adherence to physical activity and screen time recommendations depends on a number of sociodemographic factors<sup>2,6</sup>; namely, younger children, males, non-Hispanic whites, and those living in low-income households are more likely to meet physical activity thresholds, and younger children and Hispanics are more likely to meet screen time recommendations.<sup>3</sup> Furthermore, children that are obese are less likely to meet either physical activity or screen time recommendations.<sup>3</sup>

Although previous research has explored the influence of sociodemographic factors, less research using nationally representative data is available to describe how intellectual and physical disabilities affect adherence to these recommendations. Youth with disabilities face numerous personal, social, environmental, and programmatic barriers to physical activity participation.<sup>7-9</sup> These barriers may influence youth with disabilities to select more sedentary activities and/or slower tempo skill-based activities.<sup>9</sup> As such, research suggests that youth with disabilities are more likely to be sedentary than peers without disabilities,<sup>10</sup> which may put them at risk for developing health-related issues including obesity.<sup>11,12</sup>

Currently, research examining physical activity participation, screen time habits, and overweight/obesity in youth with disabilities is limited. Most previous research focused on a particular disability (ie, autism spectrum disorder,<sup>13</sup> intellectual disabilities<sup>12</sup>), was limited to convenience samples<sup>14</sup> or neglected sedentary behaviors.<sup>15</sup> The National Health and Nutrition Examination Survey (NHANES) collects nationally representative data on the

BMI	Body mass index
FPI	Family poverty index
NHANES	National Health and Nutrition Examination Survey

From the Human Movement Sciences Department, Old Dominion University, Norfolk, VA

The authors declare no conflicts of interest.

0022-3476/\$ - see front matter. © 2016 Elsevier Inc. All rights reserved.  
<http://dx.doi.org/10.1016/j.jpeds.2016.06.016>

health status and behaviors of Americans. In recent years, NHANES has collected information on mobility limitations, special education use, obesity status, screen time, and physical activity in children. Therefore, the purpose of this investigation was to examine these health-related outcomes among children with mobility limitations as well as those enrolled in special education services.

## Methods

Stratified, multistage, probability-based sampling is used to generate a representative sample of noninstitutionalized Americans. Sampling is done in 4 stages: counties, segments, households, and individuals. Individuals within households are randomly selected based on designated age-sex-race/ethnicity subdomains. Oversampling of specific groups is done to increase the reliability and precision of estimates. The following groups were oversampled during the 2011-2012 and 2013-2014 NHANES survey cycles: Hispanics, non-Hispanic blacks, non-Hispanic Asians, non-Hispanic whites and persons reporting other race at  $\leq 130\%$  of the poverty level, and non-Hispanic whites and persons reporting other race aged  $\geq 80$  years. During household interviews, computer-assisted personal interview systems were used to standardize question delivery and participants' responses. In addition to home interviews, participants were invited to a mobile examination center for the measurement of anthropometrics and for functional and laboratory testing.

A total of 27763 Americans were invited to participate during the 2011-2012 and 2013-2014 NHANES. Approximately 71.8% agreed to participate in household interviews, and 69% participated in examinations. This analysis focused on children aged 5-11 years because outcomes of interest (overweight/obesity, physical activity, screen time) were not all available for other age groups for both survey cycles. In addition, limiting the analysis to children aged 5-11 years reduced the influence of age on predictor and outcome variables.

Ultimately, 3096 and 2961 children aged 5-11 years took part in household and examination interviews, respectively. Additional children were excluded from analyses if they had missing data for sex, race/ethnicity, family poverty index (FPI), and their household reference person's education level. Actual analytical sample sizes varied depending on the combinations of variables examined, as some participants responded to 1 question (eg, physical activity, disability status) but did not participate in another component (eg, body weight measurement at the examinations). Sample sizes and demographic information for each analytical comparison are, therefore, presented in [Tables I](#) and [II](#).

NHANES protocols were approved by the National Center for Health Statistics ethics review board. Written parental consent was obtained for children aged 5-6 years, and both written parental consent and child assent were obtained for children aged 7-11 years. A proxy person, most often a parent, answered questions for children.

## Disability Variables

A series of questions were asked at household interviews to identify children with long-term mobility limitations or those receiving special education services. First, proxy persons were asked, "Does [child's name] have an impairment or health problem that limits [his/her] ability to walk, run, or play?" For those responding "Yes," a follow-up question established whether this impairment was long term: "Is this an impairment or health problem that has lasted, or is expected to last 12 months or longer?" For purposes of this analysis, only children that had "Yes" responses to both questions were considered as having a long-term mobility limitation. Children with a mobility limitation expected to last less than 12 months were excluded from analyses involving mobility limitations. Finally, proxy persons were asked, "Does [child's name] receive Special Education or Early Intervention Services?"

## Overweight/Obesity Status

Overweight/obesity status was determined from weight and standing height measured at mobile examination centers. Body mass index (BMI;  $\text{kg}/\text{m}^2$ ) was calculated from height and weight, and age-sex-specific growth charts from the Centers for Disease Control and Prevention were used to determine BMI percentiles. Overweight was defined as a BMI  $\geq 85$ th percentile and  $< 95$ th percentile, and obesity was defined as  $\geq 95$ th percentile.<sup>16</sup> Children that were either overweight or obese were combined into 1 group (overweight/obesity).

## Physical Activity

Proxy reports at household interviews were used to assess physical activity. Proxy persons were asked, "During the past 7 days, on how many days was [child's name] physically active for a total of at least 60 minutes per day? Add up all the time [he/she] spent in any kind of physical activity that increased [his/her] heart rate and made [him/her] breathe hard some of the time." Potential responses ranged for 0-7 days per week. Children reported as being active 7 days per week were considered as meeting physical activity guidelines.<sup>1</sup>

## Screen Time

Proxy persons were asked at household interviews about the child's TV, video, video game, and computer use (eg, "Over the past 30 days, on average how many hours per day did [child's name] sit and watch TV or videos?," "Over the past 30 days, on average how many hours per day did [child's name] use a computer or play computer games outside of work or school? Include Playstation, Nintendo DS, or other portable video games."). The question wording for computer use changed slightly from 2011-2012 to 2013-2014, as the latter cycle used the wording "...outside of school" instead of "...outside of work or school." Regardless, this change would not affect estimates because the sample consisted of children aged 5-11 years.

Download English Version:

<https://daneshyari.com/en/article/4164381>

Download Persian Version:

<https://daneshyari.com/article/4164381>

[Daneshyari.com](https://daneshyari.com)