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Screen Time Behavior in Colorado Children, Colorado Child Health Survey, 2007-2008

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Introduction

Childhood obesity is a major public health problem in the U.S. and in Colorado, where in 2007-2008, 27 percent of Colorado children ages 2 to 14 years were overweight or obese. Epidemiologic studies have found positive associations between television viewing and childhood obesity.^{1,2,4,5} In response to the problem of childhood obesity and its association with television viewing, the American Academy of Pediatrics (AAP) has issued a recommendation for parents to limit their children's total "screen time" to less than 2 hours per day. Screen time is the measure of total media time which includes exposure to television/video viewing, computer use, video gaming, and other electronic media devices. To underscore the importance of the AAP's recommendation, Healthy People 2020⁶ has set specific targets to achieve a goal of limiting screen time in children. Additionally, the Centers for Disease Control and Prevention's Community Guide to Preventive Services also find strong evidence to recommend actions to reduce screen time for children.⁷ It is the purpose of this report to characterize screen time by child and parental characteristics, and to explore the relationship between screen time and the risk factors for obesity.

Methods

The data included in this report are derived from the Colorado Behavioral Risk Factor Surveillance System (BRFSS) and the Colorado Child Health Survey. The Colorado BRFSS is a telephone survey conducted by random-digit dialing of adults ages 18 years and older living with a landline telephone. The survey is an important tool for surveillance of health behaviors and chronic health conditions among the adult population. It is conducted annually by the Survey Research Unit of the Colorado Department of Public Health and Environment in Collaboration with the Centers for Disease Control and Prevention. During the BRFSS interview, the interviewer inquires if a child between the ages of 1 and 14 years lives in the household, and about their willingness to complete the Child Health Survey. If agreed, the parent is called a few days later to complete a survey on a variety of topics including his or her child's physical activity, nutrition, access to health and dental care, behavioral health, sun safety, injury and many others. Data are collected over the calendar year. At the end of

the year, data are analyzed and weighted to reflect the general population of children ages 1 to 14 in Colorado. Approximately 1,500 surveys are completed each year.

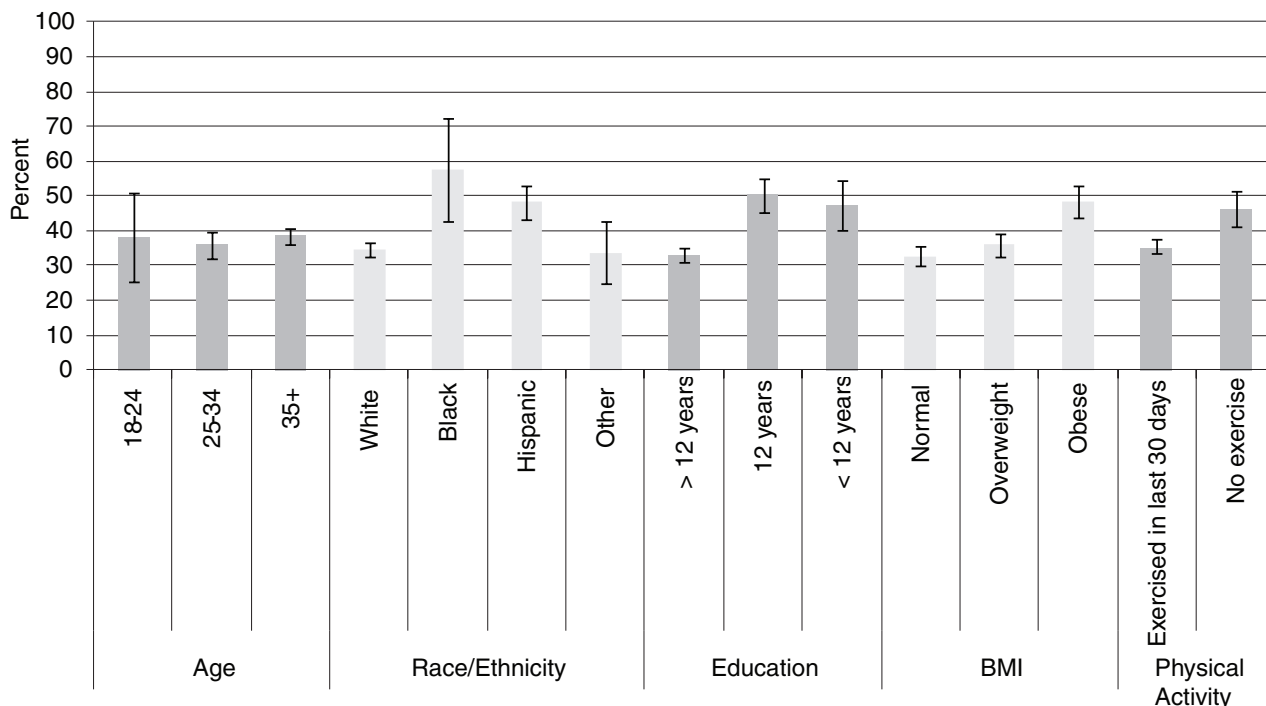
This report summarizes data from calendar years 2007-2008 for children ages 2 to 14, for a total of 3,139 observations. Screen time was identified based on the response to the questions, “On a typical day, how many hours does (*child’s name*) spend watching TV, DVDs, or videos?” and “On a typical day, how many hours does (*child’s name*) spend playing video games, computer games, or using the Internet?” The responses given to these two questions were combined to measure total screen time. Possible associations of ≥ 2 hours of screen time were tested for a group of selected characteristics of the child, and the adult household respondent, who here, will be referred to as the parent. The child’s characteristics were derived from Colorado Child Health Survey, and the parental characteristics from the linked BRFSS data. All statistical analyses, including prevalence, odds ratios (OR), and 95 percent confidence intervals (CI) were completed with SAS version 9.2. All differences reported are statistically significant at the alpha 0.05 level.

Results

Parent Characteristics

On a typical day, 37.5 percent of parents reported that their children (ages 2 to 14 years) watched television, played video games, or were on the computer 2 or more hours per day (≥ 2 hours of screen time). The prevalence of ≥ 2 hours of screen time was lowest among the children of parents who were White, non-Hispanic, had greater than 12th grade education, were physically active, and of normal weight (Figure 1). Compared to White Non-Hispanic parents, Black and Hispanic parents were more likely to report their child had ≥ 2 hours of screen time in a day (34.5% vs. 57.6% and 48.2%, respectively). Children of parents with less than a 12th grade education (50.4%) or 12th grade or equivalent (47.3%) were more likely to have ≥ 2 hours of screen time compared to children of parents with more than 12th grade education (33.1%). Children of obese parents were more likely to have ≥ 2 hours of screen time compared to normal-weight parents (32.7% vs. 48.6%). Age of parent was not significantly associated with children’s screen time.

Figure 1. Prevalence of 2 or more hours of screen time in Colorado children aged 2-14 years by demographic and health-related characteristics of the parent,* 2007-2008



*data from the linked BRFSS

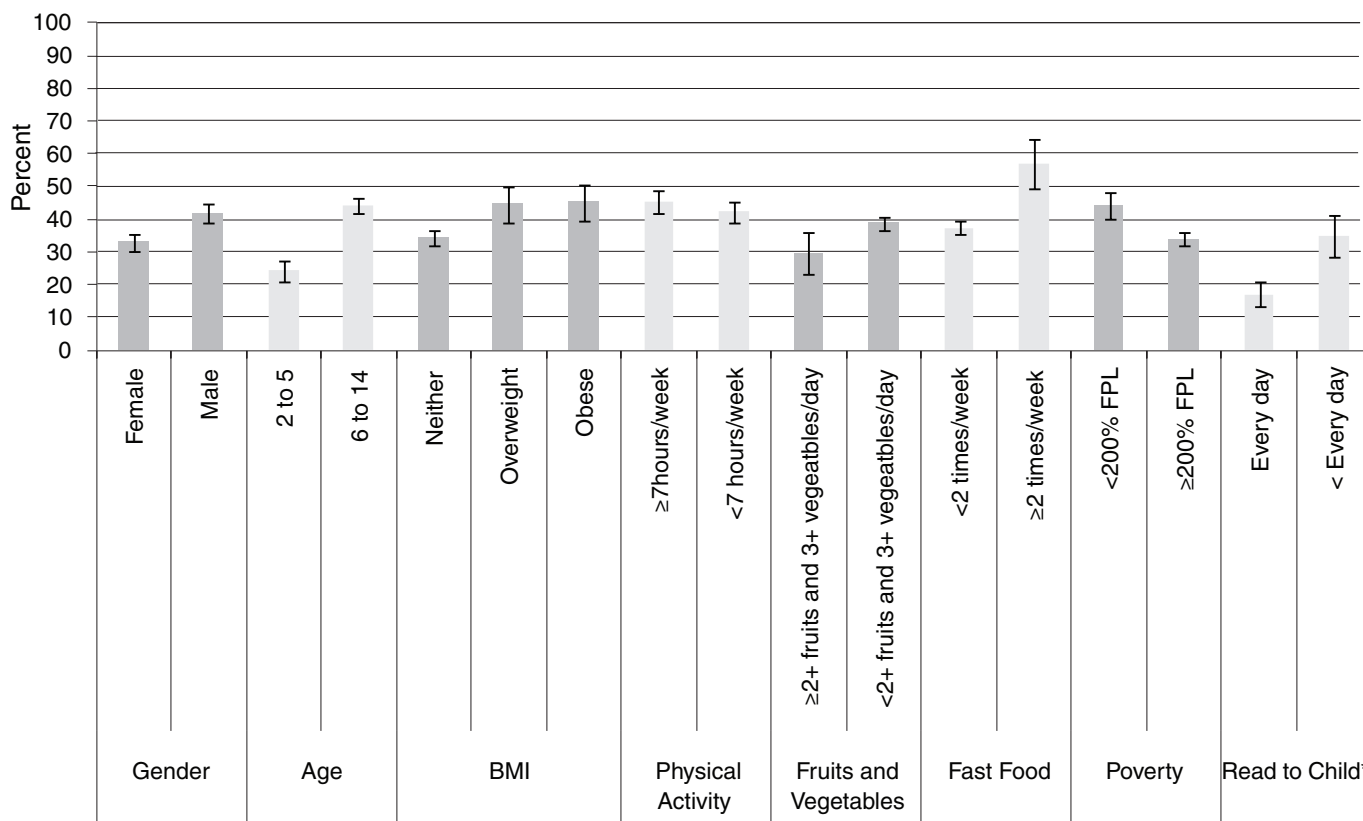
Data Source: Child Health Survey, Health Statistics Section, Colorado Department of Public Health and Environment

Child Characteristics

Boys were more likely to have ≥ 2 hours of screen time (41.8%) on a typical day compared to girls (32.9%)(Figure 2, Table 1). It is not surprising that children ages 6 to 14 years were occupied by more screen time per day than the younger age group (44.1% vs. 24.2%). However, when we examined just television viewing time there was no significant difference between the age groups leading us to believe that older children incorporate more computer or video game time in to their day than younger children. Children’s nutritional behaviors are associated with spending ≥ 2 hours of screen time per day. Children who visited a fast food restaurant at least 2 times per week were more likely to have ≥ 2 hours of screen time (57%) compared to those who limited fast food to less than 2 times per week (37.4%). Additionally, those who ate less than

a recommended 2 fruits and 3 vegetables per day were more likely to have ≥ 2 hours of screen time (38.8%), compared to those who ate at least 5 fruits or vegetables per day (29.6%). Compared to normal-weight children, children who were overweight or obese were more likely to spend ≥ 2 hours of screen time per day (34.2% vs. 44.5% and 45.1% respectively). Children living below the Federal Poverty Level (FPL) were significantly more likely to spend ≥ 2 hours of screen time per day (44.1%) compared to those living above 200 percent FPL (34.0%) For children ages 2 to 5, parents who consistently read books or stories to their children were less likely to have ≥ 2 hours of screen time (17.2%) compared to children who were not read to every day (34.8%). The child’s physical activity level was not significantly associated with ≥ 2 hours of screen time.

Figure 2. Prevalence of 2 or more hours of screen time in Colorado children aged 2-14 years by demographic and health-related characteristics, 2007-2008



*ages 2-5 years

Data Source: Child Health Survey, Health Statistics Section, Colorado Department of Public Health and Environment

Table 1. Demographic and Lifestyle Characteristics of Colorado Children, ages 2-14, and their parents, and ≥ 2 hours screen time, Colorado Child Health Survey, 2007-2008

Characteristic	Total	≥ 2 hours screen time				
	%	%	95% CI*	OR	95% CI	p-value
Total	100.0	37.5	(35.5-39.4)			
Age of Parent						
18 to 24	2.1	38.3	(25.6-50.9)	0.9	(0.6-1.7)	0.56
25 to 34	28.3	36.1	(32.2-39.9)	0.9	(0.7-1.1)	
35+	69.6	38.5	(36.3-40.7)	1.0	Referent	
Race/Ethnicity of parent†						
White Non-Hispanic	76.4	34.5	(32.4-36.7)	1.0	Referent	<.0001
Black Non-Hispanic	1.7	57.6	(42.9-72.4)	2.6	(1.4-4.8)	
Hispanic	17.8	48.2	(43.3-53.1)	1.8	(1.4-2.2)	
Other Non-Hispanic	4.1	33.8	(25.0-42.6)	0.9	(0.6-1.5)	
Education of Parent†						
>12 years	73.4	33.1	(31.0-35.2)	1.0	Referent	<.0001
12 years	17.9	50.4	(45.5-55.2)	2.1	(1.7-2.5)	
<12 years	8.7	47.3	(40.3-54.4)	1.8	(1.4-2.5)	
BMI of Parent†						
Normal	46.0	32.7	(29.9-35.4)	1.0	Referent	<.0001
Overweight	34.5	35.9	(32.6-39.2)	1.2	(0.9-1.4)	
Obese	19.5	48.6	(44.0-53.2)	1.9	(1.6-2.4)	
Physical Activity of Parent†						
Any exercise in last 30 days	85.7	35.0	(33.7-37.8)	1.0	Referent	<.0001
No exercise	15.3	46.4	(41.3-51.5)	1.6	(1.2-1.9)	
Gender						
Female	48.8	32.9	(30.3-35.6)	1.0	Referent	<.0001
Male	51.2	41.8	(39.1-44.5)	1.5	(1.2-1.7)	
Age						
2 to 5	33.2	24.2	(21.2-27.2)	1.0	Referent	<.0001
6 to 14	66.8	44.1	(41.7-46.4)	2.5	(2.0-3.0)	
BMI						
Neither	73.2	34.2	(31.9-36.4)	1.0	Referent	<.0001
Overweight	13.9	44.5	(39.1-49.9)	1.5	(1.2-1.9)	
Obese	12.9	45.1	(39.4-50.8)	1.6	(1.2-2.0)	
Physical Activity						
≥7 hours per week	56.0	45.4	(42.0-48.9)	1.0	Referent	0.18
<7 hours per week	44.0	42.3	(39.2-45.3)	1.1	(0.9-1.4)	
Fruits and Vegetables						
2+ fruits and 3+ vegetables per day	8.7	29.6	(23.3-35.9)	1.0	Referent	0.01
Less than 2+ fruits and 3+ vegetables per day	91.3	38.8	(36.8-40.8)	1.5	(1.1-2.1)	
Fast Food						
<2 times per week	93.1	37.4	(35.4-39.5)	1.0	Referent	<.0001
≥2 times per week	6.9	57.0	(49.6-64.4)	2.2	(1.6-3.0)	
Poverty						
<200%	29.5	44.1	(40.2-48.0)	1.5	(1.3-1.8)	0.04
≥200%	64.6	34.0	(31.8-36.2)	1.0	Referent	
Book or Story Read to Child**						
Every day	65.0	17.2	(13.7-20.7)	1.0	Referent	<.0001
Less than every day	35.0	34.8	(28.6-41.1)	2.6	(1.8-3.7)	

*Confidence Interval

**ages 2-5 years

†data from the linked BRFS

Discussion

Overall, these results suggest that demographic and lifestyle differences exist between those children who spend 2 or more hours per day of screen time, and those who spend less than 2 hours per day.

Even though we know that the amount of time engaged in sedentary behavior is inevitably prohibitive of physical activity, our analysis showed that screen time was not significantly associated with physical activity. Our findings are consistent with those of other studies on the relationship between television viewing and physical activity.

The relationship between lifestyle behaviors and obesity is unlikely to be explained by a single measure of inactivity such as screen time. However, one potential benefit may be that reducing screen time yields less exposure to unhealthy food and beverage marketing aimed at children.³ Nonetheless, these findings add to the body of knowledge that physical inactivity, as measured by screen time, can lead to obesity and eventually to poor health. Finally, the risks for poor health are not equally distributed among Colorado's children.

Sources:

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