



# Oral Health in Texas Children and Adolescents

## School Physical Activity and Nutrition Survey, 2015-2016

### Introduction

A healthy mouth is good for your body. Lack of proper oral care may lead to tooth decay and gum disease. Poor oral health may contribute to long-term disease and conditions such as strokes, diabetes, and infections.<sup>1</sup> Dry mouth is a possible side effect of many medications.<sup>2,3,4</sup> Dry mouth aggravates soft tissues in the mouth, causing swelling and infection.<sup>5</sup> Without saliva, tooth decay and other oral health problems become more common.<sup>5,6</sup> Other conditions linked to oral health, include head and neck cancers. Alcohol and tobacco use are key risk factors for cancers related to the mouth and throat.<sup>7</sup> Diet can also play an important role in oral health. Foods such as chips, donuts, candy, and soda contribute to acids that attack the surface of a tooth, causing decay.<sup>8,9,10</sup> Lack of sleep decreases immunity and results in systemic inflammation.<sup>11,12</sup> Research suggests an association between lack of sleep and the severity of periodontal disease.<sup>13</sup> Periodontal disease can lead to tooth loss. Lack of sleep can contribute to periodontal disease through poor oral hygiene practices.<sup>14</sup> Taking good care of your mouth, teeth, and gums at any age is a worthy goal and a great investment in health.

Researchers at the Michael and Susan Dell Center for Health Living at the University of Texas School of Public Health conduct the School Physical Activity and Nutrition Survey (SPAN) survey every three to five years with funding provided by the Texas Department of State Health Services. Oral health questions were included for the first time in the 2015-2016 survey, which



allows for analysis of oral health outcomes with health behaviors and conditions.

## Methods

This report focuses on oral health in Texas school children using data from the 2015-2016 School Physical Activity and Nutrition (SPAN) survey. It provides data on chronic conditions, including medication use, in Texas school-aged children. It also provides data on diet, smoking, and sleep habits in some of the same population. Additionally, statistics on the oral health of Texas children are shown. Data were collected through a self-reported questionnaire, administered to public school-aged children in Texas. A take home survey was also sent to second grade parents. SAS 9.4 was used for analysis.

## Results

### Demographics

Respondents completed 17,553 surveys across 280 schools in Texas. The mean age of children in the second, fourth, and eighth/eleventh grades was 7.4, 9.5, and 15.0 years. Table 1 shows the frequencies and 95% confidence intervals for several characteristics of SPAN participants. Regardless of age, survey participants were generally boys and Hispanic. Approximately one-quarter of respondents were obese. Sixty percent of respondents had at least one parent who had completed greater than a high-school (HS) education. These demographic characteristics were similar across all grade levels.



Table1: Weighted frequencies and 95% confidence intervals of demographics characteristics of school-aged students in Texas by grade, SPAN 2015-2016

Characteristics	2 <sup>nd</sup> grade	4 <sup>th</sup> grade	8 <sup>th</sup> /11 <sup>th</sup> grade
	(N=2,317)	(N=6,180)	(N=9,056)
	% (95% CI)	% (95% CI)	% (95% CI)
<b>Gender</b>			
Boys	51.6 (48.4-54.4)	51.3 (48.1-54.4)	51.1 (46.9-55.2)
Girls	48.6 (45.6-51.6)	48.7 (45.6-51.9)	48.7(44.8-53.1)
<b>Race/ethnicity</b>			
Black	11.9 (5.0-18.9)	12.2 (6.2-18.1)	12.5 (8.0-17.1)
Hispanic	55.6 (43.6-67.6)	55.4 (45.7-65.0)	50.9 (43.1-58.8)
White/Other	32.4 (20.0-44.9)	32.5 (23.0-41.9)	36.6 (28.1-45.0)
<b>Educational Attainment<sup>a</sup></b>			
Less than HS	15.7 (11.3-20.1)	Not applicable <sup>b</sup>	15.3 (11.5-19.0)
High school(HS)	24.7 (18.5-30.9)	Not applicable <sup>b</sup>	25.2 (22.0-28.4)
More than HS	59.6 (50.6-68.9)	Not applicable <sup>b</sup>	59.6 (53.6-65.6)
<b>Body mass index<sup>c</sup></b>			
Healthy weight <sup>d</sup>	63.4 (58.5-68.4)	55.9 (51.0-60.7)	59.8 (56.8-62.8)
Overweight	14.2 (11.5-17.0)	17.5 (15.9-19.1)	17.9 (15.8-20.0)
Obese	22.3 (18.2-26.5)	26.7 (22.3-31.0)	22.3 (19.3-25.2)

N=Unweighted sample size

%=Weighted frequencies

95% CI=95 percent confidence intervals

<sup>a</sup> Educational attainment refers to the highest level of education achieved by at least one parent

<sup>b</sup> Data not collected

<sup>c</sup> Body mass index (BMI)

<sup>d</sup> Healthy weight includes both underweight and normal weight

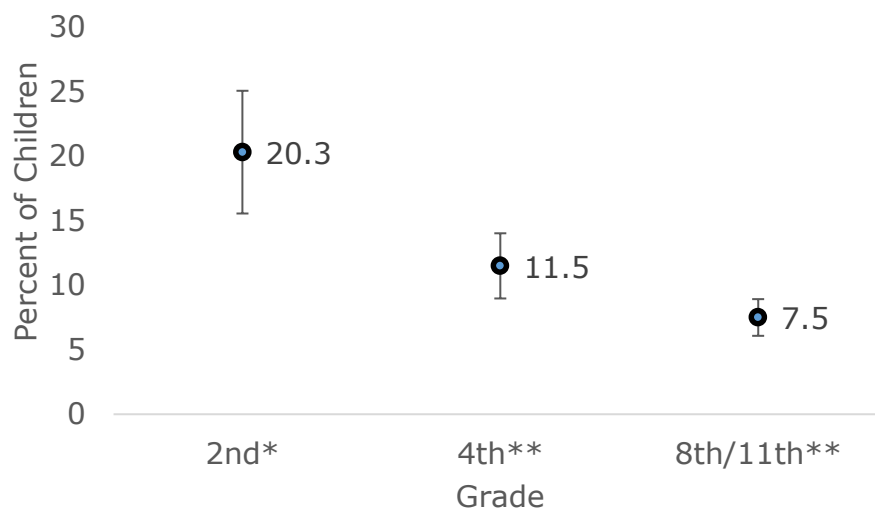
## Select behaviors

As noted earlier, dry mouth is a possible side effect of many medications.<sup>2,3</sup> Without saliva, tooth decay and other oral health problems become more common.<sup>6</sup> In this study, we looked at combined medication use in students with asthma, diabetes, and/or attention deficit/hyperactivity disorder to represent the possibility of dry mouth. We found that 7.2 percent of eighth and eleventh graders, 9.3 percent of fourth graders, and 10.0 percent of



second graders used medication for asthma. Also, approximately 1.0 percent of eighth and eleventh graders use medication to control their diabetes. Finally, 5.0 percent of second graders use medication for attention deficit/hyperactivity disorder. As shown below, 20.3% of 2<sup>nd</sup> graders, 11.5% of 4<sup>th</sup> graders and 7.5% of 8<sup>th</sup>/11<sup>th</sup> graders used medications that may result in dry mouth side effects (Figure 1).

Figure 1: Prevalence of Texas school children with possible dry mouth due to side effects of medication use by grade, SPAN 2015-2016



All data are weighted

Error bars represent 95 percent confidence intervals

\*2nd grade includes combined medication use for asthma, diabetes, and ADD/ADHD

\*\*4<sup>th</sup>, 8<sup>th</sup>, and 11<sup>th</sup> grade include combined medication use for asthma and diabetes

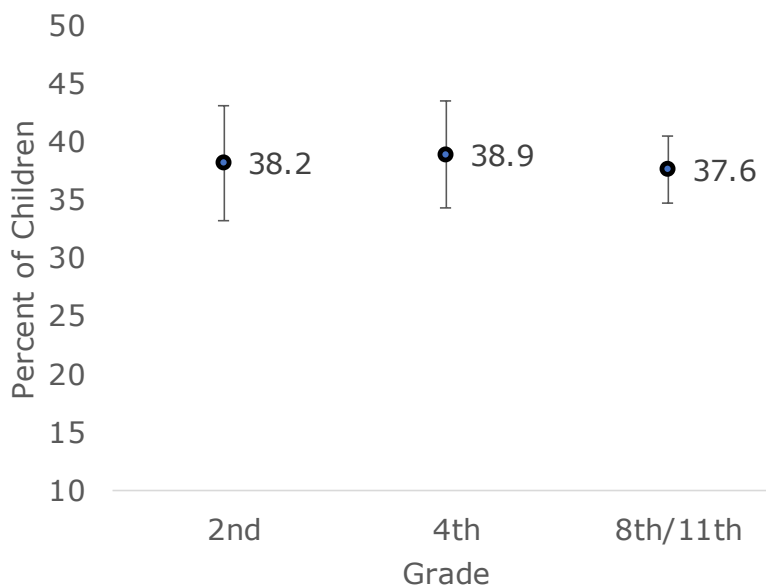
Other conditions that have been linked to oral health, include head and neck cancers. Tobacco use is a key risk factor for cancers of the mouth and throat.<sup>7</sup> Results from our data show that nearly 15 percent (14.8) of eighth and eleventh graders reported ever using an e-cigarette. Of these, 47.9 percent smoked on at least one day in the past 30 days; while an extra 7.8 percent smoked on all 30 days.

Acids from some foods can attack the surface of a tooth, causing decay.<sup>8,9</sup> Almost 40 percent of students, regardless of grade, consumed sweets or salty snacks 3 times yesterday (Figure 2).



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Figure 2: Percent of Texas school Children who consumed sweet or savory snacks\* at least 3 times yesterday by grade, SPAN 2015-2016



All data are weighted

Error bars represent 95 percent confidence intervals

\*Sweet or savory snacks include candy, frozen dessert, cakes, French fries/chips

In addition to having sweet and savory foods yesterday, students reported the amount of sugary-sweet drinks they consumed yesterday. Frequently drinking sugar-sweetened beverages is associated with tooth decay and cavities.<sup>10</sup> As shown in Figure 3, the amount of sugary-sweet drinks consumed at least twice yesterday varied slightly by grade level (Figure 3).



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Figure 3: Percent of Texas school children who consumed sugary-sweet drinks\* at least twice yesterday by grade, SPAN 2015-2016



All data are weighted

Error bars represent 95 percent confidence intervals

\*Sugary-sweet drinks include regular sodas plus punch/sport drinks

Lack of sleep can result in inflammation.<sup>11,12</sup> It may also impair oral hygiene practices due to issues with cognition and motor skills.<sup>13</sup> The CDC recommends regular sleep guidelines for children and teenagers.<sup>14,15,16</sup> Almost 60 percent of eighth and eleventh graders do not meet suggested hours of sleep. Additionally, 32 percent of second graders do not meet suggested sleep guidelines.

### Oral health

Dental neglect relates to poor oral health. Children having higher dental neglect have more tooth decay.<sup>17</sup> They are also less likely to have gone to a dentist for a routine check-up in the past year.<sup>18</sup> Nearly 15 percent of eighth and eleventh graders in Texas did not have a routine dental check-up in the past year. Whereas, 13.6 percent reported never having a routine dental check-up. In second graders, 9.8 percent did not have a routine check-up in the past year; while 4.0 percent never had a routine dental check-up. Roughly 30 percent of children in fourth grade did not have a routine dental check-up in the past year.



A sore mouth or tooth may indicate dental pain or infection. Children with poorer oral health are more likely to have dental pain, miss school, and perform poorly in school.<sup>19</sup> In Texas, 12.6 percent of eighth and eleventh graders reported missing school, at least twice in the past year, because of a sore mouth or teeth. While 3.9 percent of second graders missed school for the same reason (Table 2). Additionally, at least twice in the past year, one-quarter (23.3 percent) of fourth graders had a sore mouth or teeth that made it hard to chew or eat. Whereas 13.3 percent of second graders had a sore mouth or teeth.

Table 2: Percent of Texas school children who missed school because of a sore mouth or teeth by grade, SPAN, 2015-2016

Grade	Never	1 time	>=2 times
2nd	89.2 (85.9-92.6)	6.9 (4.8-9.1)	3.9 (2.1-5.6)
4th	Not applicable	Not applicable	Not applicable
8th/11th	74.1 (71.4-76.8)	13.3 (11.6-15.0)	12.6 (10.7-14.5)

Not applicable – 4<sup>th</sup> grade students were not asked about missing school because of a sore mouth or teeth

## What's Next

Healthy habits begin early in childhood. This includes healthy choices, routines, and preventive medical and dental care. This information may be helpful in future programs and policies addressing the oral health of Texas youth, but further research is needed to determine the effects it has on oral and overall health. Smoking prevention and cessation material should be readily available to adolescents. According to the CDC, e-cigarette use continues to grow among adolescents.<sup>20</sup> Poor oral health in childhood leads to difficulty eating, sleeping and learning.<sup>21</sup> Medical and dental providers should be willing to educate children on proper oral hygiene practices and healthy choices. Parents and guardians should also be included in these conversations to reinforce healthy concepts at home.

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