

Quick Facts

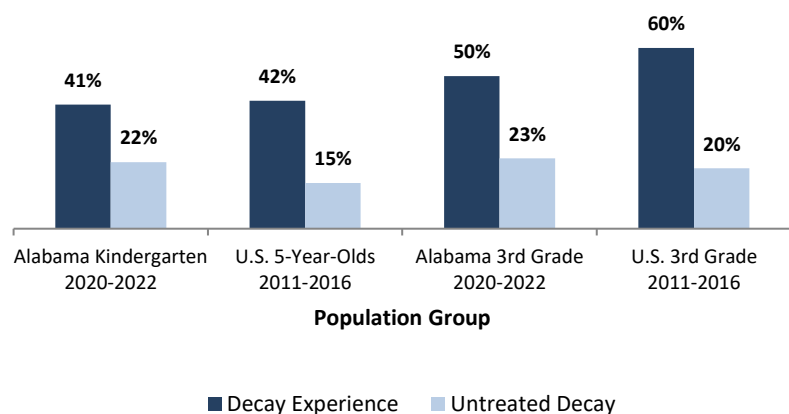
- Decay experience
 - 41% of Alabama’s kindergarten children have at least one tooth with decay experience, the same as the national average of 42%.
 - 50% of Alabama’s third grade children have at least one tooth with decay experience, lower than the national average of 60%.
- Untreated tooth decay
 - 22% of Alabama’s kindergarten children have untreated tooth decay, higher than the national average of 15%.
 - 23% of Alabama’s third grade children have untreated tooth decay, higher than the national average of 20%.
- Protective dental sealants
 - Only 10% of Alabama’s third grade children have protective dental sealants, substantially lower than the national average of 42%.
- Oral health disparities
 - In Alabama, there are significant oral health disparities. Tooth decay remains more common in children from lower-income households and among Black/African American, and Hispanic children.

The Oral Health of Alabama’s Kindergarten and Third Grade Children

Tooth decay is a serious public health problem that can affect a child’s overall health and well-being. It can lead to pain and disfigurement, low self-esteem, nutritional problems, and lost school days. Children with oral health problems are three times more likely to miss school due to dental pain and absences caused by pain are associated with poorer school performance.¹ Even though tooth decay can be prevented, many children in Alabama still get cavities. To assess the current oral health status of Alabama’s elementary school children, the Alabama Department of Health coordinated a statewide oral health survey of kindergarten and third grade children attending Alabama’s public schools. A total of 2,957 kindergarten and 2,607 third grade children received a dental screening at 52 schools during the 2020-2021 and 2021-2022 school years. This data brief presents information on the prevalence of tooth decay in the primary and permanent teeth of Alabama’s kindergarten and third grade children compared to the general U.S. population screened between 2011-2016 as part of the National Health and Nutrition Examination Survey (NHANES). It also describes the prevalence of dental sealants, a plastic-like coating applied to the chewing surfaces of teeth to prevent tooth decay.

Prevalence of decay experience and untreated decay.

Figure 1. Percentage of Alabama’s kindergarten and third grade children with decay experience and untreated tooth decay compared to children in the general U.S. population



Sources: Alabama Oral Health Survey, 2020-2022
National Health and Nutrition Examination Survey (NHANES), 2011-2016

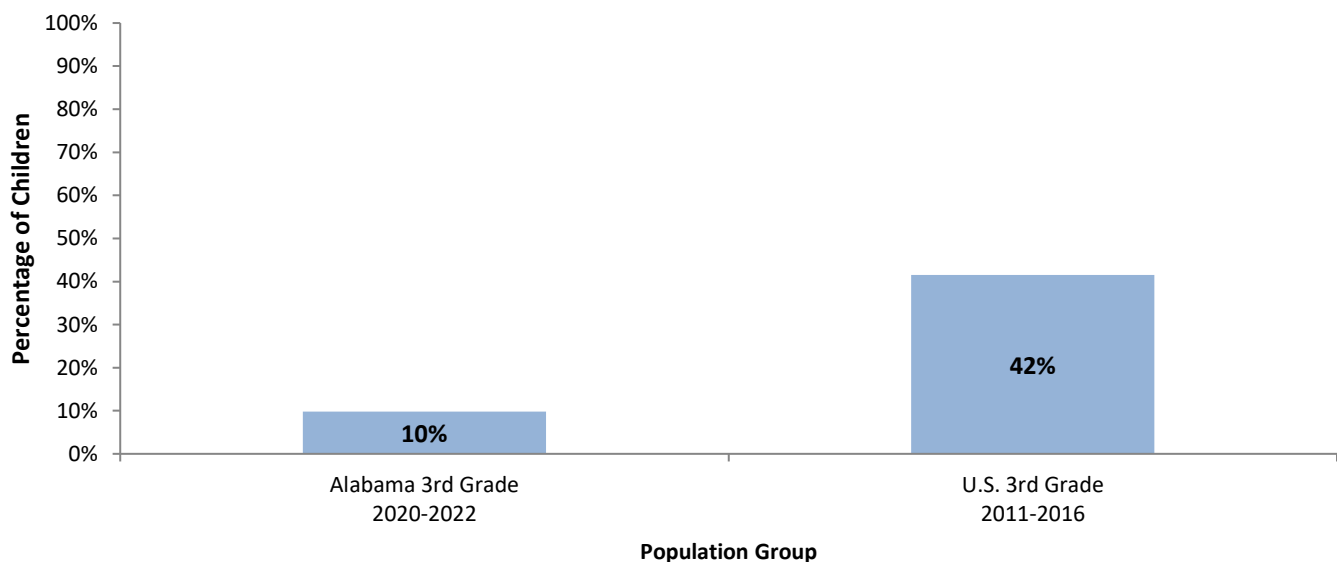
Decay experience means that a child has had tooth decay in the primary (baby) and/or permanent (adult) teeth in his or her lifetime. Decay experience can be past (fillings, crowns, or teeth that have been extracted because of decay) or present (untreated tooth decay or cavities). In 2020-2022, four-of-ten kindergarten children (41%) and five-of-ten third grade children (50%) in Alabama had decay experience; the same as the national averages of 42% for 5-year-olds and lower than the national average of 60% for third grade children (NHANES, 2011-2016). Refer to Figure 1 and Tables 1-2.

Left untreated, tooth decay can have serious consequences, including needless pain and suffering, difficulty chewing (which compromises children’s nutrition and can slow their development), difficulty speaking and lost days in school. About 22% of Alabama’s kindergarten and 23% of Alabama’s third grade children had untreated tooth decay; higher than the national averages of 15% and 20% for 5-year-old and third grade children in the general U.S. population respectively (NHANES, 2011-2016). Refer to Figure 1 and Tables 1-2.

Prevalence of dental sealants.

Dental sealants are thin plastic coatings that are applied to the grooves on the chewing surfaces of the back adult teeth to protect them from tooth decay. Most tooth decay in children occurs on these surfaces. Sealants protect the chewing surfaces from tooth decay by keeping germs and food particles out of these grooves. Only 10% of Alabama’s third grade children had at least one protective dental sealant; substantially lower than the prevalence of 42% among the general U.S. population in third grade (NHANES, 2011-2016). Most kindergarten children do not have adult molars, so this information is only presented for third grade children – permanent molars generally appear in the mouth at 6 years of age. Refer to Figure 2 and Table 3. It should be noted that the Alabama survey was conducted during the COVID-19 pandemic and the low prevalence of dental sealants may be partially due to limited access to preventive dental services during the pandemic.

Figure 2. Percentage of Alabama’s third grade children with dental sealants on the permanent molar teeth compared to the general U.S. population in third grade

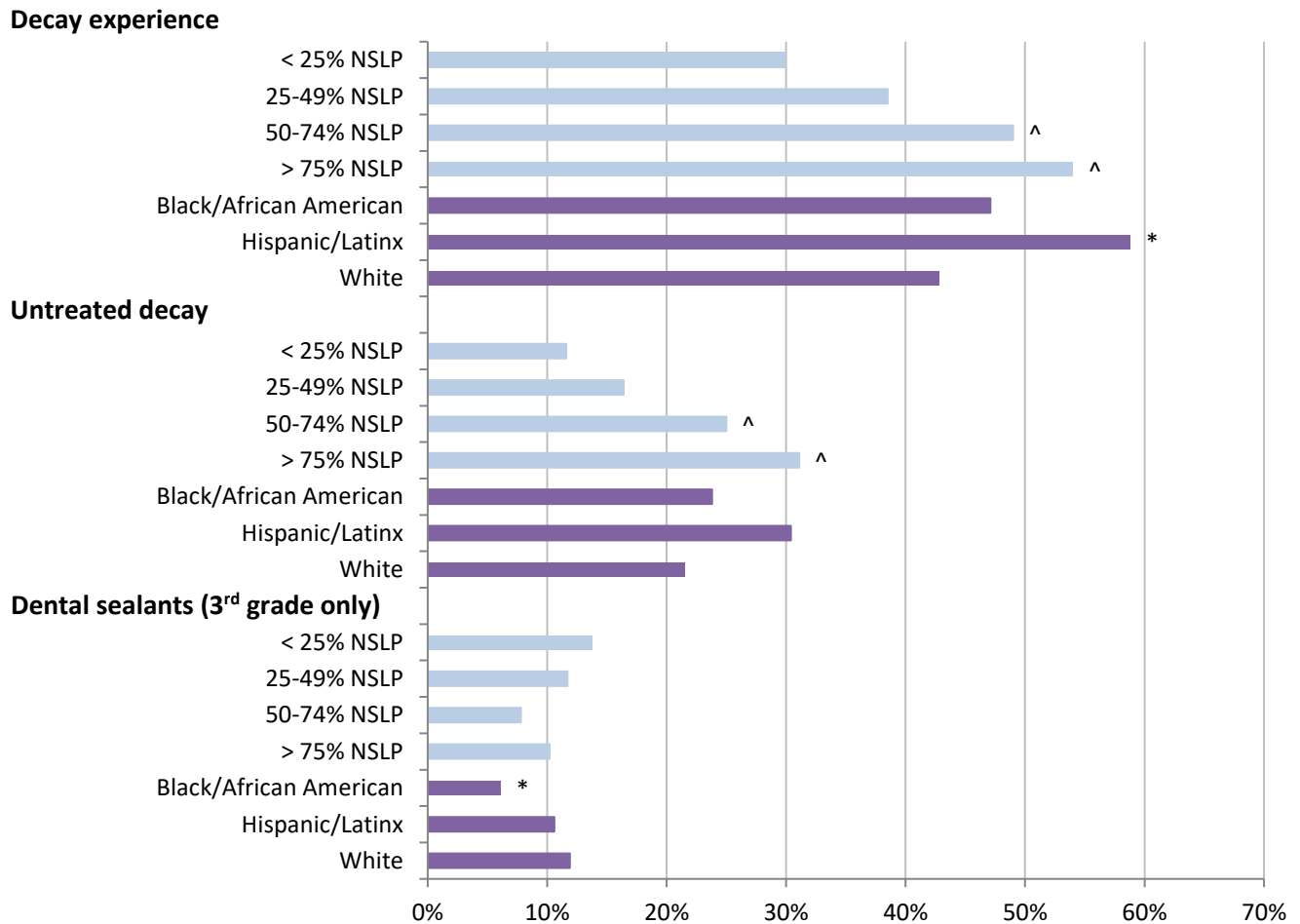


Sources: Alabama Oral Health Survey, 2020-2022
National Health and Nutrition Examination Survey (NHANES), 2011-2016

Oral health disparities.

Influential sociodemographic indicators for oral health disparities in the United States include poverty status and race and ethnicity. In Alabama, children attending schools with a high proportion of students eligible for the National School Lunch Program (NSLP) have a significantly higher prevalence of both decay experience and untreated tooth decay compared to children attending schools with a lower proportion of students eligible for NSLP. To be eligible for NSLP, children must live in a household with an annual income below 185% of the federal poverty level. Compared to non-Hispanic White children and non-Hispanic Black children, Hispanic/Latinx children have a significantly higher prevalence decay experience. Although Hispanic/Latinx children have the highest prevalence of untreated decay, the difference is not statistically significant. Among third grade children, Black/African American children are significantly less likely to have protective dental sealants compared to non-Hispanic White children. Refer to Figure 3 and Tables 3-4.

Figure 3. Prevalence of decay experience, untreated tooth decay and dental sealants among Alabama’s kindergarten and third grade children by percentage of students in a school eligible for the national school lunch program (NSLP) and race/ethnicity, 2020-2022



^ Significantly higher compared to schools with <25% of students eligible for NSLP

* Significantly different from non-Hispanic White children

Data source and methods.

This data brief is based on data from the Alabama oral health survey which was conducted during the 2020-2021 and 2021-2022 school years. The survey screened children in kindergarten and third grade from a representative sample of Alabama's non-virtual public schools. The sampling frame consisted of all non-virtual public schools with 20 or more children in third grade. Some communities have kindergarten and third grade in different schools. If both the kindergarten and third grade schools are included in the sampling frame, children from those communities would have a higher probability of being selected.

To assure representation by geographic region and socioeconomic status, the sampling frame was ordered by public health region then by the percentage of students in each school eligible for the National School Lunch Program (NSLP). If a school with only third grade was selected, the appropriate kindergarten feeder school was added to the sample. A systematic probability proportional to size sampling scheme was used to select a sample of 62 schools representing 50 sampling intervals. If a school refused to participate, a replacement school from the same sampling interval was randomly selected. Children were screened at 52 schools representing 44 of the 50 sampling intervals. Three of the selected schools in the Jefferson region, two in the northern region, and one in the southeastern region did not participate. Of the 8,871 kindergarten and third grade children enrolled in the 52 participating schools, 5,564 were screened for an overall response rate of 63%.

The following information was collected for each child: grade, age, screener determined race/ethnicity, presence of untreated decay, presence of treated decay, presence of dental sealants on the permanent first molar teeth, urgency of need for dental care, plus height and weight. We used the *Basic Screening Survey* clinical indicator definitions and data collection protocols.²

All statistical analyses were performed using the complex survey procedures within SAS (Version 9.4; SAS Institute Inc., Cary, NC). Sample weights were used to produce population estimates based on selection probabilities. It should be noted that the National Health and Nutrition Examination Survey (NHANES) data for 5-year-old and third grade children is from 2011-2016 which, as of July 2022, is the most current data available.

Definitions.

Untreated decay: Describes dental cavities or tooth decay that have not received appropriate treatment.

Decay experience: Refers to having untreated decay or a dental filling, crown, or other type of restorative dental material. Also includes teeth that were extracted because of tooth decay.

Dental sealants: Describes plastic-like coatings applied to the chewing surfaces of back teeth. The applied sealant resin bonds into the grooves of teeth to form a protective physical barrier.

References.

1. Jackson SL, Vann WF Jr, Kotch JB, Pahel BT, Lee JY. Impact of poor oral health on children's school attendance and performance. *Am J Public Health* 2011;101:1900-6.
2. Association of State and Territorial Dental Directors. Basic screening surveys: an approach to monitoring community oral health. Available at: <http://www.astdd.org/basic-screening-survey-tool>.

Data tables.

Table 1. Prevalence of decay experience and untreated tooth decay in the primary and permanent teeth among Alabama's *kindergarten* children by selected characteristics, 2020-2022

Characteristic	Number with Data	Decay Experience			Untreated Decay		
		Percent Yes	Lower CL	Upper CL	Percent Yes	Lower CL	Upper CL
ALL KINDERGARTEN CHILDREN	2,957	40.8	37.0	44.6	21.9	18.7	25.0
Gender							
Male	1,523	42.0	37.2	46.9	24.8	20.8	28.7
Female	1,433	39.6	35.4	43.7	18.8	15.2	22.3
Race/Ethnicity							
Black/African American (not Hispanic)	753	43.1	38.9	47.4	24.6	20.3	29.0
Hispanic (any race)	376	54.9	47.3	62.5	25.7	18.8	32.5
White (not Hispanic)	1,569	37.6	31.9	43.2	20.2	15.7	24.6
NSLP Participation							
< 25% of students	344	23.8	15.9	31.7	10.2	4.9	15.5
25-49% of students	1,089	33.1	26.7	39.5	14.5	9.2	19.8
50-74% of students	1,216	45.4	41.6	49.1	25.3	21.6	29.0
≥ 75% of students	308	48.1	40.5	55.8	29.6	24.6	34.6

NSLP: National school lunch program; Lower CL: Lower 95% confidence limit; Upper CL: Upper 95% confidence limit

Table 2. Prevalence of decay experience and untreated tooth decay in the primary and permanent teeth among Alabama's *third grade* children by selected characteristics, 2020-2022

Characteristic	Number with Data	Decay Experience			Untreated Decay		
		Percent Yes	Lower CL	Upper CL	Percent Yes	Lower CL	Upper CL
ALL THIRD GRADE CHILDREN	2,607	50.2	46.1	54.2	23.1	20.1	26.1
Gender							
Male	1,397	52.0	47.8	56.2	24.2	20.2	28.2
Female	1,210	48.2	42.9	53.5	21.9	17.9	26.0
Race/Ethnicity							
Black/African American (not Hispanic)	682	50.8	44.8	56.8	23.1	18.4	27.8
Hispanic (any race)	297	63.1	53.6	72.7	35.6	23.7	47.6
White (not Hispanic)	1,430	48.8	43.2	54.3	22.9	18.4	27.4
NSLP Participation							
< 25% of students	290	36.0	30.8	41.2	13.0	9.1	16.9
25-49% of students	991	44.0	36.8	51.2	18.3	13.0	23.5
50-74% of students	1,046	53.2	48.6	57.8	24.6	21.3	27.8
≥ 75% of students	280	59.5	46.9	72.2	32.6	20.5	44.7

NSLP: National school lunch program; Lower CL: Lower 95% confidence limit; Upper CL: Upper 95% confidence limit

Table 3. Prevalence of dental sealants on permanent molar teeth among Alabama's *third grade* children by selected characteristics, 2020-2022

Characteristic	Number with Data	Dental Sealants		
		Percent Yes	Lower CL	Upper CL
ALL THIRD GRADE CHILDREN	2,607	9.8	7.5	12.1
Gender				
Male	1,397	10.4	7.6	13.3
Female	1,210	9.1	6.4	11.8
Race/Ethnicity				
Black/African American (not Hispanic)	682	6.1	3.4	8.8
Hispanic (any race)	297	10.6	3.8	17.4
White (not Hispanic)	1,430	11.9	9.3	14.5
NSLP Participation				
< 25% of students	290	13.8	4.6	22.9
25-49% of students	991	11.7	6.8	16.6
50-74% of students	1,046	7.8	5.5	10.2
≥ 75% of students	280	10.2	3.5	16.8

NSLP: National school lunch program; Lower CL: Lower 95% confidence limit; Upper CL: Upper 95% confidence limit

Table 4. Prevalence of decay experience and untreated tooth decay in the primary and permanent teeth among Alabama's *kindergarten and third grade* children combined by selected characteristics, 2020-2022

Characteristic	Number with Data	Decay Experience			Untreated Decay		
		Percent Yes	Lower CL	Upper CL	Percent Yes	Lower CL	Upper CL
ALL CHILDREN	5,564	45.3	41.9	48.8	22.5	19.8	25.1
Gender							
Male	2,920	46.9	43.0	50.7	24.5	21.3	27.7
Female	2,643	43.7	39.7	47.7	20.3	17.4	23.2
Race/Ethnicity							
Black/African American (not Hispanic)	1,435	47.1	43.3	50.8	23.8	20.5	27.2
Hispanic (any race)	673	58.8	53.1	64.5	30.4	21.8	38.9
White (not Hispanic)	2,999	42.8	37.8	47.9	21.5	17.7	25.2
NSLP Participation							
< 25% of students	634	29.9	23.3	36.4	11.6	8.1	15.1
25-49% of students	2,080	38.5	32.1	45.0	16.4	11.6	21.2
50-74% of students	2,262	49.0	45.6	52.4	25.0	22.0	27.9
≥ 75% of students	588	54.0	47.8	60.1	31.1	24.4	37.8

NSLP: National school lunch program; Lower CL: Lower 95% confidence limit; Upper CL: Upper 95% confidence limit