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Oral health status of children in Los Angeles County and in the United States, 1999–2004

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Abstract

Objective: To ascertain and compare the oral health status and related sociodemographic risk indicators in children in Los Angeles (LA) County with children in the United States.

Methods: Data from the National Health and Nutrition Examination Survey (NHANES) 1999–2004 were used to calculate prevalence estimates for children aged 2–13 years living in LA County and in the United States. Sociodemographic indicators were evaluated using multiple logistic regression modeling.

Results: Overall, children in LA County were more likely to experience dental caries than children in the United States in 1999–2004. In the primary dentition, nearly 40% of preschool children residing in LA County had dental caries compared to 28% of same-age children in the United States. Among children aged 6–13, 44% living in LA County had dental caries in the permanent dentition compared to 27% in the United States. Mexican American children in LA County had higher caries experience in permanent teeth (but not in primary teeth) than US Mexican American children. Among children aged 6–9 years, there was no difference in the prevalence of dental sealants in permanent teeth between those living in LA County and in the United States. However, among children aged 10–13 years, dental sealants were more than twice as prevalent in US children (40.8%) than in LA County children (17.5%). Among LA County

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Ethics statement

All study participants gave informed consent in accordance with the Research Ethics Review Board of the National Center for Health Statistics, Centers for Disease Control and Prevention. The authors do not have any financial or other competing interests to declare.

Disclaimer statement

The findings and conclusions in this report are those of the authors and do not necessarily represent the views of the Centers of Disease Control and Prevention.

children, the adjusted odds of having caries experience or untreated dental caries in permanent teeth were not higher among children from lower income families than in lower income children in the United States.

Conclusions: Children residing in LA County had less favorable oral health than children in the United States in 1999–2004. The usual sociodemographic caries risk indicators identified among children in the United States were not consistently observed among children in LA County. Unlike in the wider United States, poverty was not a risk indicator for dental caries in older children in LA County.

Keywords

dental caries; dental public health; dental sealants; epidemiology; Los Angeles County; NHANES; oral health

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The National Health and Nutrition Examination Survey (NHANES) collects representative health-related data from the United States noninstitutionalized population. These data are used for a variety of purposes, from tracking progress in meeting national health objectives to exploring relationships between risk factors and health outcomes. In the United States, most public health programs are administered at the state and local levels of government. Consequently, having health data at these levels similar to national data can provide valuable insight for program planning and evaluation purposes. Some data from NHANES are now available to conduct an analysis of small areas, such as Los Angeles (LA) County. This provides a unique opportunity to have oral health estimates representative of LA County and methodologically comparable to benchmark national oral health data.

Los Angeles County is one of the largest, most population-diverse counties in the United States. In 2010, the total population was nearly 10 million, with approximately 20% of those under the age of 15 years and 48% of the overall population reporting to be Hispanic or Latino[1]. According to kids-data.org, a program of the Lucile Packard Foundation for Children's Health[2], LA County children aged 0–17 accounted for nearly 25% of the State's youth population in 2013, whereas California children comprise about 12% of the nation's youth population. Of LA County children, almost 53% were children living in families below 200% of the federal poverty level, while it was 48% of children, statewide. The percentage of children reportedly receiving food stamp benefits in LA County is 28%, which is nearly identical to the percentage of all children receiving food stamp benefits living in California.

Information on the oral status of children in LA County is limited. Using the Association of State and Territorial Dental Directors (ASTDD) basic screening protocols, Mulligan et al.[3] examined underprivileged children aged 2–5, 6–8, and 14–6 years in LA County who were attending Women, Infants, and Children (WIC) centers, Head Start programs, or public schools where the majority of students were either members of minorities or participating in a subsidized meals program. They found that 44% of the examined children had untreated cavitated dental caries and 30% had noncavitated (white spot) lesions. In 2004, it was reported that 50 000 children were referred to their school nurse in LA public schools complaining of dental pain and about half of them acquired dental care[4]. Among those aged

0–17 enrolled in Medicaid in 2013, 59% of California children and 73% of LA County children, respectively, were Hispanic.

There is a general understanding that people living in poverty experience poor health at a higher rate than those not living in poverty, and these health disparities extend to oral health as well. However, public health researchers have observed that Hispanics living in the United States are less likely to experience some chronic diseases than non-Hispanic whites despite having higher rates of poverty; this is now commonly referred to as the Hispanic 'epidemiologic paradox'[5]. Recently, the Centers for Disease Control and Prevention issued a report highlighting differences in mortality, chronic disease prevalence, and healthcare utilization between Hispanics and non-Hispanic whites in the United States[6]. The authors found that Hispanics had better health outcomes than whites for many of the indicators analyzed even though unfavorable socioeconomic determinants were greater. More importantly, the authors found differences among Hispanics by origin, nativity, and sex. Similar to most prior studies, oral health was not investigated.

This study aimed to improve understanding of the oral health of children in LA County by comparing children in LA County and children in the United States. Because of the unique population composition of LA County, this study aimed to ascertain whether key risk indicators for poor oral health among LA County children are consistent with those reported for all children in the United States.

Methods

Data source

Nonpublic data from the 1999–2004 NHANES were used for this study. NHANES is a cross-sectional survey that uses a stratified, multistage sampling design to obtain a representative probability sample of the civilian, noninstitutionalized population of the United States. Data were collected via in-home interviews with health examinations and laboratory tests conducted in mobile examination centers (MEC). The home interviews included an extensive questionnaire that assessed a variety of sociodemographic characteristics and numerous health issues, including oral health. Survey participants aged 2 years and older were examined by a trained dentist in the MEC. The dental examination was conducted under artificial light with a non-magnifying mirror and a dental explorer; dental surfaces were dried with compressed air as needed. Assessments for dental caries and restorations were made at the tooth surface level and conformed to Radike's criteria with minor modifications[7]. Additional information on survey sample design or on the NHANES dental examination protocols is available elsewhere[8–10]. The Centers for Disease Control and Prevention, National Center for Health Statistics' Research Ethics Review Board approved the data collection protocols (NHANES protocol #98–12), and all participants provided documented consent. Written parental consent was obtained for those <18, and assent was obtained from those 7–17 years.

Study population

We used information on 7320 children aged 2–13 years who participated in NHANES 1999–2004 for this report. Participants were required to have completed an oral health examination to be included in the analytical sample. We identified 7992 children aged 2–13 years who had information pertaining to them collected during the home interview portion of the survey. From this group, we selected those children who had a MEC examination (7667) and then those who had completed the oral health examination (7320). Published response rates indicate that, among children aged 1–15 years, 88% were interviewed and 84% were examined in 1999–2004[11]. NHANES oversamples some population groups to provide adequate sample size to improve estimate precision. The oversampled subgroups for 1999–2004 were non-Hispanic blacks, Mexican Americans, adolescents aged 12–19, older adults aged 70 and over, and low-income white persons (beginning in 2000)[8]. Statistical weights are provided in the public use data files to allow for the calculation of nationally representative estimates.

For this report, the children selected from LA County were reweighted to match the known population totals for LA County. The creation of these sample weights began with adjusting the national sample base weights for nonresponse to the interview and the examination and then poststratifying to the midpoint of the 1999–2004 population totals for the county. Additional information describing the creation of the LA County sample weight methodology and nonpublic data use is described elsewhere[12,13].

Variables

Dental caries status was assessed for the primary and permanent dentitions using Klein's dental caries index, which sums the number of decayed (d/D), missing (m/M), and filled (f/F) teeth (t/T)[14,15]. Dental caries was analyzed as the prevalence of untreated caries (dt/DT > 0) and any caries experience (dft/DFT > 0). Dental sealant prevalence was assessed as having one or more sealants present on a permanent molar. Sociodemographic variables included age, gender, race/ethnicity, and family poverty level. Age was collected in single years and categorized in groups following the children's dentition status: primary dentition from 2 to 9 years of age (2- to 5- and 6- to 9-year-olds) and permanent dentition from 6 to 13 years of age (6- to 9- and 10- to 13-year-olds). Race/ethnicity was recoded as non-Hispanic white, non-Hispanic black, and Mexican American. Poverty level was based on the ratio of family income to the poverty level following the Department of Health and Human Services' (HHS) federal poverty guidelines (FPG). These guidelines are issued each year, in the Federal Register, for determining financial eligibility for certain federal programs such as Head Start, Supplemental Nutrition Assistance Program (SNAP; formerly Food Stamp Program), Special Supplemental Nutrition Program for WIC, and the National School Lunch Program. Participants were grouped into two categories: <200% FPG and ≥200% FPG. A dental visit in the past year (yes or no) was defined as having had at least one dental visit within the previous 12 months.

Data analysis

All statistical analyses were performed using SAS software version 9.1.3 (SAS Institute Inc, Cary, North Carolina) and SUDAAN software version 10.0 (RTI, Research Triangle Park,

North Carolina). Sample weights to account for differing probabilities of selection, nonresponse, and noncoverage were used for analysis. Weighted percentages, standard errors (SE), odds ratios (OR), and 95% confidence intervals (CI) were estimated with SUDAAN using Taylor series linearization. Differences between percentages were evaluated using two-sided *t*-tests at the $\alpha = 0.05$ level following recommended NHANES analytical and tutorial guidelines[16]. Prevalence estimates with a relative standard error (RSE) of 40% or less are shown. Estimates based on a sample $n < 10$ or RSE > 40% were determined to be statistically unreliable and are not shown in the Tables. Prevalence estimates were age-adjusted to the projected 2000 US Census using single age for 2- to 9-year-olds and for 6- to 13-year-olds. No adjustments were made for multiple comparisons. Age, gender, poverty, and dental visit history are key determinants of oral health status in the United States and were used as independent categorical variables for the multivariable logistic regression analyses, with all comparisons (ORs) made to the reference group within the selected variable. Another key determinant of oral health status, race/ethnicity, was not included in the logistic regression analyses because of the small number of non-Hispanic whites in the LA county sample. Non-Hispanic whites are typically used as the reference group in the United States. When small sample sizes are used in regression analyses, wide CI are often calculated and these can limit the power to detect differences. Terminology such as ‘more likely’ or ‘less likely’ indicates a statistically significant difference, whereas term such as ‘similar’ or ‘no difference’ indicates that the estimates being compared were not statistically significant. Finally, all statistics calculated for the United States included data from LA County. This analytical approach was necessary to permit the use of the provided weights to allow for the calculation of nationally representative estimates.

Results

Selected sociodemographic characteristics of children 2–13 years of age residing in LA County and the wider United States are presented in Table 1. The weighted age distribution of children living in LA County reflects the distribution of children living in the United States. By race/ethnicity, almost half of the children in LA County are Mexican American (46%), while over half of the children in the wider United States are non-Hispanic white (59%). In LA County, more than half of youth ages 2–13 years (58%) live in households below 200% FPG and half of US youths live in households below 200% FPG.

Table 2 shows caries experience (untreated and filled teeth) and untreated caries in primary teeth of children 2–9 years of age. Overall, children in LA County were more likely to experience dental caries than children in the United States. This difference was present among children 2–5 years of age, children living in families below 200% of the FPG, and children who had a dental visit within the past year. However, there was no difference in untreated caries between children residing in LA County and the wider United States overall, except that non-Hispanic white children aged 2–9 years living in LA County were more likely to have untreated caries than children in the United States.

Summary data on dental caries and sealant prevalence in permanent teeth among children 6–13 years are shown in Table 3. Caries experience was higher among children 6–13 living in LA County than in children in the wider United States. This difference in caries experience

was present across gender, race/ethnicity, poverty, and dental visit status. However, there was no difference in caries experience between children 6 and 9 years of age residing in LA County and those in the wider United States. Children aged 6–13 years in LA County were more likely to have untreated dental caries than children in the United States. This difference was present among children 10–13 years of age, boys, and children who had a dental visit in the past year. Conversely, dental sealants were more prevalent among US children than among LA County children. Dental sealants were more prevalent among United States than LA children who were 10–13 years of age, girls, living in families below 200% of the FPG, or who had a dental visit within the past year.

Table 4 shows logistic regression models for caries experience and untreated caries in primary teeth for children residing in LA County and in the wider United States. In a multivariable model, children living in LA County were five times more likely to have experienced dental caries in primary teeth if they lived in families whose household income was below 200% of FPG. In the wider United States, children living below 200% of the FPG were nearly three times more likely to have experienced dental caries in primary teeth. Unlike older children in the United States, children aged 6–9 years in LA County were not more likely than younger children to experience caries in primary teeth. For untreated dental caries in US children, being older or living in families below 200% of the FPG were risk indicators. However, for children aged 2–9 years residing in LA County, there were no differences within subgroups for untreated caries in primary teeth.

Table 5 summarizes the logistic regression models for caries experience, untreated caries, and sealants in permanent teeth for children 6–13 years of age, adjusting for age, gender, poverty status, and having had a dental visit in the past year. For caries experience in permanent teeth, both in LA County and in the United States, older children (age 10–13) were more likely to have experienced dental caries than younger children (age 6–9). However, among children residing in LA County, gender and poverty status were not risk indicators for caries experience in permanent teeth, unlike in the United States. In LA County, older children (age 10–13) were six times more likely to experience untreated caries in permanent teeth than younger children (age 6–9), whereas in the wider United States, older children were three times more likely to experience untreated caries in permanent teeth. Among children residing in LA County, poverty status was not a risk indicator for untreated caries in permanent teeth, unlike in the wider United States. Additionally, US children aged 6–13 years were more likely to have untreated caries in permanent teeth if they had not had a dental visit in the past year, whereas there was no difference in untreated caries for children living in LA County by dental visit status. Among children in the United States, those aged 10–13 years were more likely to have a dental sealant on a permanent tooth after adjusting for gender, poverty, and dental visit status, whereas older children (age 10–13) living in LA county were not more likely to have dental sealants. Among children residing in LA County, there was no difference in the likelihood of having a dental sealant on a permanent tooth by gender, poverty, or dental visit status as well. Among all US children, those living in households below 200% FPG or not having a dental visit in the past year were less likely to have any dental sealants on permanent teeth.

Discussion

This report is the first to describe key oral health characteristics for children 2–13 years of age living in LA County. Dental caries and dental sealant prevalence are important oral health indicators that are monitored as Healthy People objectives. Because NHANES data are used to measure progress toward the national objectives of reducing dental caries and increasing sealant utilization and because LA County is the largest county in California, the estimates produced for LA County using NHANES can provide important information for local health policy discussion and planning. Using Healthy People 2010 as an example, the national objective for caries experience in the primary dentition among preschool children (age 2–4 years) was 11% starting from a baseline of 18%. However, at the decade-end final review, the national estimate moved away from the target (11%) to 24%[17]. For this report, we used the more typical age range for preschool children (age 2–5 years) to calculate dental caries prevalence which also approximates the terminology used for Early Childhood Caries (ECC) and to show how local and national data can be used to evaluate important health objectives. For example, in 1999–2004, the national estimate for dental caries in early childhood was nearly 28% with the estimate for LA County significantly higher at nearly 40%.

In the wider United States, children not utilizing dental care in the past 12 months were more likely to have untreated dental caries in permanent teeth and less likely to have caries experience or dental sealants in permanent teeth. In contrast, not having a dental visit in the past 12 months was not associated with dental caries or dental sealant prevalence for LA County children. The finding that having a dental visit in the past 12 months did not protect against untreated caries suggests episodic use of dental care rather than regular dental care among LA County children from 1999 to 2004. Moreover, in the permanent dentition, dental caries experience was higher and dental sealant prevalence was lower in LA County than in the wider United States, suggesting that dental utilization in LA County may have been more focused on treatment and less on preventive services from 1999 to 2004. The lack of association between a dental visit in the past year and caries outcomes or sealant presence also suggests that other sociodemographic and enabling factors more specific to LA County may have a greater influence on oral health status for children in this part of the United States.

In the United States, findings from the past 25 years have shown that Mexican American and Hispanic children typically have higher prevalence of caries and untreated tooth decay in either the primary or permanent dentition than other race-ethnic groups[18,19]. Our findings show similar associations among children from LA County in the permanent dentition, but not in the primary dentition. In a previous report, dental caries prevalence in the primary dentition of children aged 2–8 living in households above 200% FPG in the United States was incrementally higher for each single year of age, and then, at age 9 caries prevalence decreased for each single year of age to age 11[18]. However, among children living in poverty, the dental caries prevalence was increasingly higher for each single year of age and began to plateau around age 5 before declining at age 8. Findings from the current study are consistent with prior observations showing an increase in caries prevalence with age in the primary dentition. The current findings indicate a significant difference in caries prevalence

between LA County and US preschool children (age 5 and younger) and little difference in caries prevalence in primary teeth for children aged 6–9 suggesting that for the majority of children in LA County, caries initiation in the primary dentition occurs by age5.

Unlike children aged 6–13 years living in the wider United States, being older, living in higher income families, or having a dental visit in the past 12 months were not associated with having dental sealants on permanent teeth for children residing in LA County. One possible explanation for this lack of sociodemographic differences in sealant prevalence may have been the result of the inclusion of sealants in the California Children's Dental Disease Prevention Program that operated in about half of California counties (including LA County) during the study period. Another factor that could affect the ability to detect differences was the composition of the LA County sample. Although 6 years of NHANES data were used, the LA County sample size is small and predominantly Mexican American. Moreover, NHANES was designed to produce nationally representative estimates on health and related conditions in the United States. Consequently, special weights were created for LA County in an effort to adjust for selection and response rate bias and to poststratify the sample to the known population totals for LA County. This could have affected the precision of some of the estimates produced in this report. For this report, we have used what some would consider the upper threshold for data reliability: a RSE >30% but <40% or an $n < 10$ to report prevalence. However, because an estimate may meet our RSE criteria, it does not mean that it should be interpreted without caution. For example, among children aged 2–9 years, there was no significant difference in the proportion with untreated dental caries in the primary dentition between those living in LA County and the wider United States by socioeconomic or dental visit status, except for among non-Hispanic white children (Table 2). This difference should be interpreted cautiously because of the small number of the latter sampled from LA County. Using small sample sizes in regression analyses can produce wide CI, limiting the power to detect differences. Consequently, we choose not to include race/ethnicity as a covariate in our logistic regression models.

Additionally, sampled persons from LA County are part of the US sample and are not an independent sample. Statistical testing used to compare estimates between LA County and the United States assumed independence. A more desirable analytical approach would have excluded sampled persons from LA County from the US analytical sample, but this would have required the calculation of new weights for this US analytical sample. The value of this study resides in the fact that conducting oral health examination surveys can be resource-intense. Moreover, the level of standardization and protocol adherence required to produce valid and precise oral health data can be significant. Consequently, using national data sources to calculate local estimates could be worthwhile, especially when they are relevant to national health goals, regardless of the limitations incurred. Although these findings result from analyzing data from 1999 to 2004, there are no more recent comparable data available to permit a more contemporary analysis.

Previous reports in the United States have shown that children either living in poverty or of Mexican American ethnicity were more likely to have dental caries in permanent teeth than those not living in poverty or who were non-Hispanic white[20,21]. Although important risk indicators for caries experience in the primary dentition remain consistent for children living

in LA County or in the United States, some of these risk indicators (specifically poverty status) seemed less likely to be important ones for dental caries in the permanent dentition for children living in LA County than in the United States.

Sociodemographic risk indicator differences observed between LA County and the wider United States may be a result of sample composition, oral health initiatives targeting the Latino population in LA County or could reflect subtle nuances within the Hispanic epidemiologic paradox, which postulates that Hispanic immigrants have more favorable health indicators than US-born non-Hispanic whites[5]. According to a 1998 National Research Council report, children in immigrant families have fewer health problems in general, have lower prevalence of accidents and injuries, and are much less likely to have a healthcare visit in the past 12 months compared to US-born children[22]. Two decades ago, Hayes-Bautista et al.[23] speculated that Latinos 'should be considered a high-level wellness population' in California even though as a group they may have sociodemographic characteristics that are more likely to indicate poorer health outcomes. Although a number of reports and studies have been providing additional support for the concept of a Hispanic paradox with regard to some health outcomes in the United States, including a 2015 CDC report[6], far less is known about a potential oral health Hispanic paradox. Recently, findings from the Hispanic Community Health Study/Study of Latinos (HCHS/SOL) indicated that oral health status among adults differs according to Hispanic or Latino origins even after controlling for demographic characteristics[24,25]. In a community-based oral health study conducted in LA, Spolsky et al.[26] concluded that the 'epidemiologic paradox' was present between Mexican and other Latino immigrants. Their findings indicated that Mexican Americans had better oral health than other adult Latinos, leading them to suggest that cultural factors more unique to Mexican Americans may promote better oral health wellness compared to cultural influences from other Latino immigrants. Given the findings from these studies and the results of our study, it is possible that social factors, such as immigrant origin and community of residence, may have an important role in oral health that potentially mitigates some of the well-known socioeconomic factors affecting oral health that is observed in the general US population.

In conclusion, the overall oral health status of children living in LA County in 1999–2004 was less favorable than in children residing in the United States. Dental caries prevalence was higher among children in LA County than in the United States, and some determinants typically identified as risk indicators for dental caries in children in the United States, such as age and family income, were not consistently found to be associated with caries prevalence in children in LA County. Finally, unlike in the general US population, having a dental visit in the previous 12 months was not associated with dental caries or dental sealant presence in LA County.

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Table 1.

Demographic distribution of examined youth aged 2–13 years: United States and Los Angeles County, 1999–2004

	LA County #(%)	United States #(%)
Characteristic		
Total	459	7320
Age		
2–5 years	127(31.1)	2379 (31.2)
6–9 years	132 (34.2)	2119 (34.5)
10–13 years	200 (34.7)	2822 (34.3)
Gender		
Male	215 (46.2)	3635 (51.0)
Female	244 (53.8)	3685 (49.0)
Race/ethnicity		
Mexican American	341 (46.2)	2355 (12.8)
NH black	49 (8.6)	2316 (14.9)
NH white	21 (16.0)	1971 (59.1)
Other	48 (29.3)	678 (13.2)
Poverty[a]		
<200% FPG	300 (58.6)	4278 (50.6)
≥200% FPG	120 (41.4)	2476 (49.4)
Dental visit		
No	172 (37.3)	2695 (32.7)
Yes	286 (62.7)	4599 (67.3)

#/%, Number and weighted percent; FPG, Federal Poverty Guideline based on Poverty Income Ratio (PIR); LA, Los Angeles.

[a]Percentages may not add to 100% because of missing data.

Table 2.

Dental caries prevalence in primary teeth among youth aged 2–9 years: United States and Los Angeles County, 1999–2004

	Caries experience[a]		Untreated caries[b]	
	LA County % (SE)	USA % (SE)	LA County % (SE)	USA % (SE)
Characteristic				
Total	50.0 (4.2)*	40.4 (1.5)	29.7 (3.8)	23.8 (1.3)
Age				
2–5 years	39.7 (5.5)*	27.9 (1.3)	27.6 (4.6)	20.5 (1.3)
6–9 years	59.9 (5.8)	52.4 (2.3)	31.7(5.4)	26.9 (1.7)
Gender				
Male	54.2 (5.4)	42.8 (1.9)	29.6 (4.7)	25.0 (1.7)
Female	44.7 (6.0)	37.9 (1.9)	27.4 (4.7)	22.5 (1.5)
Race/ethnicity				
Mexican American	56.6 (5.1)	54.0 (1.6)	31.5 (4.0)	34.3 (1.8)
NH black	52.9 (5.5)	42.5 (1.8)	23.1 (6.2)	29.0 (1.6)
NH white	50.6 (7.5)	36.4 (2.1)	36.5 (7.5)*	20.3 (1.8)
Poverty				
<200% FPG	64.8 (4.6)*	50.6 (2.0)	37.4 (4.7)	31.7(1.8)
≥200% FPG	35.1 (6.0)	28.9 (1.7)	23.4 (5.7)	15.0 (1.2)
Dental visit				
No	42.0 (6.1)	36.8 (2.5)	36.8 (5.9)	30.9 (2.4)
Yes	60.8 (5.1)*	43.5 (1.8)	31.8 (4.7)	22.2 (1.4)

%/SE, Weighted percent and standard error (age-adjusted); FPG, Federal Poverty Guideline based on Poverty Income Ratio; LA, Los Angeles.

[a] dft > 0.

[b] dt > 0.

* $P < 0.05$ (t-statistic).

Table 3.

Dental caries and sealant prevalence in permanent teeth among youth aged 6–13 years: United States and Los Angeles County, 1999–2004

	Caries experience[a]		Untreated caries[b]		Dental sealants	
	LA County % (SE)	USA % (SE)	LA County % (SE)	USA % (SE)	LA County % (SE)	USA % (SE)
Characteristics						
Total	43.7 (4.2)*	27.1 (0.9)	17.9 (3.3)*	9.5 (0.8)	22.2 (4.1)*	32.9 (1.6)
Age						
6–9 years	23.7(5.1)	13.6 (1.1)	6.1 (2.0)	5.2 (0.8)	27.0 (7.0)	25.0 (1.6)
10–13 years	63.5 (6.0)*	40.5 (1.4)	29.6 (6.1)*	13.8 (1.1)	17.5 (4.1)*	40.8 (2.1)
Gender						
Males	34.2 (4.5)*	24.7(1.0)	17.9 (4.1)*	9.0 (1.0)	22.2 (4.3)	31.6 (1.9)
Females	53.6 (5.9)*	29.7(1.2	16.8 (4.2)	10.1 (1.0)	21.6 (4.3)*	34.5 (1.7)
Race/ethnicity						
Mexican American	51.4 (4.1)*	37.1 (1.7)	16.2 (3.0)	15.8 (1.0)	24.3 (4.2)	26.0 (2.4)
NH black	39.8 (5.3)*	24.7(1.5)	17.9 (6.9)	10.8 (1.0)	26.3 (6.1)	22.8 (2.0)
NH white	36.9 (5.2)*	24.9 (1.4)	#[c]	7.1 (1.3)	27.2 (7.3)	39.1 (2.2)
Poverty						
<200% FPG	47.1 (3.3)*	32.4 (1.4)	22.1 (3.7)	14.6 (1.3)	15.7 (3.2)*	24.8 (1.7)
≥200% FPG	34.5 (6.6)*	22.0 (1.3)	10.4 (4.8)	4.6 (0.6)	29.0 (6.5)	41.9 (2.1)
Dental visit						
No	35.4 (5.0)*	22.6 (1.7)	13.9 (3.9)	14.2 (1.4)	10.1 (3.7)	12.7(1.9)
Yes	47.2 (4.7)*	28.4 (1.0)	20.2 (4.4)*	7.9 (0.8)	27.4 (4.9)*	39.2 (1.6)

%/SE, Weighted percent and standard error (age–adjusted); FPG, Federal Poverty Guideline based on Poverty Income Ratio; LA, Los Angeles.

[a] DMFT > 0.

[b] DT > 0.

[c] $n < 10$ or RSE > 40%, data determined to be statistically unreliable.

* $P < 0.05$ (t-statistic).

Table 4.

The association[a] of dental caries with select sociodemographic characteristics in primary teeth among youth aged 2–9 years: United States and Los Angeles County, 1999–2004

	Caries experience[b]		Untreated caries[c]	
	LA County ORs (CIs)	**USA ORs (CIs)**	**LA County ORs (CIs)**	**USA ORs (CIs)**
Age				
2–5 years[d]	1.00	1.00	1.00	1.00
6–9 years	2.08 (0.93–4.64)	**2.60** (2.14–3.17)	1.14 (0.51–2.53)	**1.57** (1.29–1.90)
Gender				
Male[d]	1.00	1.00	1.00	1.00
Female	0.74 (0.24–2.26)	0.85 (0.69–1.04)	1.03 (0.43–2.50)	0.92 (0.73–1.17)
Poverty				
<200% FPG	**5.38** (2.20–13.16)	**2.89** (2.27–3.67)	2.37 (0.86–6.56)	**2.55** (2.10–3.10)
≥200% FPG[d]	1.00	1.00	1.00	1.00
Dental visit				
No	**0.30** (0.10–0.89)	**0.52** (0.41–0.66)	0.82 (0.30–2.21)	1.24 (0.95–1.61)
Yes[d]	1.00	1.00	1.00	1.00

OR, Odds Ratios; CI, 95% Confidence Intervals; FPG, Federal Poverty Guideline based on PIR; LA, Los Angeles. Bold Odds Ratio indicates statistical significance.

[a] Logistic Regression Models include four independent variables shown (age, gender, poverty, and dental visit).

[b] dft > 0.

[c] dt > 0.

[d] Reference category.

Table 5.

The association[a] of dental caries and sealants with select sociodemographic characteristics in permanent teeth among youth aged 6–13 years: United States and Los Angeles (LA) County, 1999–2004

	Caries experience[b]		Untreated caries[c]		Dental sealants	
	LA County ORs (CIs)	USA ORs (CIs)	LA County ORs (CIs)	USA ORs (CIs)	LA County ORs (CIs)	USA ORs (CIs)
Age						
6–9 years[d]	1.00	1.00	1.00	1.00	1.00	1.00
10–13 years	**5.24** (2.33–11.78)	**4.63** (3.57–5.99)	**6.41** (2.56–16.07)	**3.00** (2.21–4.06)	0.82 (0.33–2.04)	**2.08** (1.70–2.55)
Gender						
Male[d]	1.00	1.00	1.00	1.00	1.00	1.00
Female	2.28 (0.90–5.79)	**1.36** (1.17–1.58)	0.94 (0.35–2.48)	1.16 (0.90–1.51)	0.81 (0.38–1.76)	1.12 (0.93–1.36)
Poverty						
<200% FPG	2.08 (0.56–7.63)	**1.98** (1.61–2.44)	2.65 (0.64–10.91)	**3.24** (2.38–4.40)	0.52 (0.17–1.61)	**0.54** (0.43–0.68)
≥200% FPG[d]	1.00	1.00	1.00	1.00	1.00	1.00
Dental visit						
No	0.53 (0.17–1.67)	**0.58** (0.46–0.74)	0.48 (0.18–1.34)	**1.48** (1.10–2.00)	0.54 (0.14–2.09)	**0.25** (0.17–0.36)
Yes[d]	1.00	1.00	1.00	1.00	1.00	1.00

OR, Odds Ratios; CI, 95% Confidence Intervals; FPG, Federal Poverty Guideline based on PIR; LA, Los Angeles. Bold Odds Ratio indicates statistical significance.

[a] Logistic Regression Models include four independent variables shown (age, gender, poverty, and dental visit).

[b] DMFT > 0.

[c] DT > 0.

[d] Reference category.