

# Dental Caries and Tooth Loss in Adults in the United States, 2011–2012

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## Key findings

### Data from the National Health and Nutrition Examination Survey, 2011–2012

- Among adults aged 20–64, 91% had dental caries and 27% had untreated tooth decay.
- Untreated tooth decay was higher for Hispanic (36%) and non-Hispanic black (42%) adults compared with non-Hispanic white (22%) and non-Hispanic Asian (17%) adults aged 20–64.
- Adults aged 20–39 were twice as likely to have all their teeth (67%) compared with those aged 40–64 (34%).
- About one in five adults aged 65 and over had untreated tooth decay.
- Among adults aged 65 and over, complete tooth loss was lower for older Hispanic (15%) and non-Hispanic white (17%) adults compared with older non-Hispanic black adults (29%).

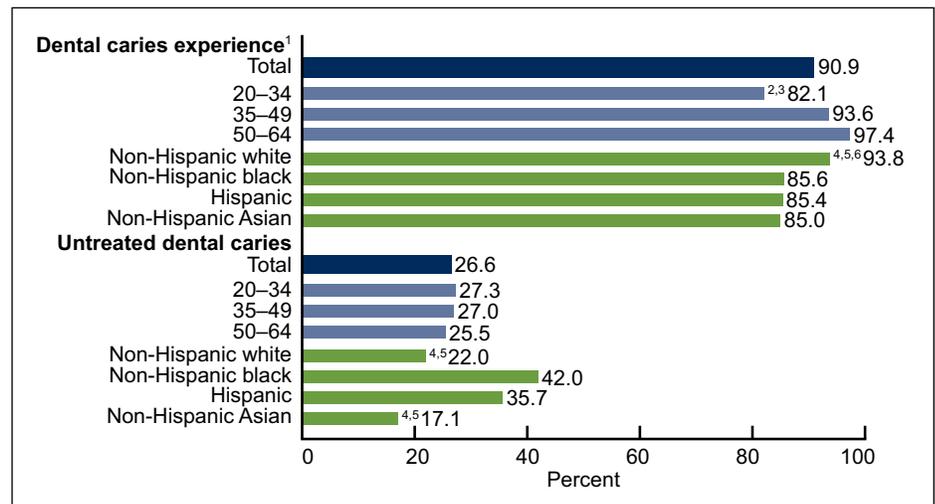
Dental caries and tooth loss are important oral health indicators for adults and are key measures for monitoring progress toward health promotion goals set by Healthy People 2020 (1,2). Although tooth decay and complete tooth loss have been declining in the United States since the 1960s, disparities have remained between some groups (3,4). As adults age, oral health-related quality of life is negatively affected by tooth loss and decay (5). This report describes U.S. adult dental caries and tooth loss by age and race and Hispanic origin for 2011–2012.

*Keywords: tooth decay • edentulism • disparities • NHANES*

## What percentage of adults had dental caries in permanent teeth?

Approximately 91% of U.S. adults aged 20–64 had dental caries in permanent teeth in 2011–2012 (Figure 1). Dental caries among adults aged 35–64 was

Figure 1. Prevalence of dental caries in permanent teeth among adults aged 20–64, by age and race and Hispanic origin: United States, 2011–2012



<sup>1</sup>Includes untreated and treated (restored) dental caries.

<sup>2</sup>Significantly different from ages 35–49,  $p < 0.05$ .

<sup>3</sup>Significantly different from ages 50–64,  $p < 0.05$ .

<sup>4</sup>Significantly different from non-Hispanic black adults,  $p < 0.05$ .

<sup>5</sup>Significantly different from Hispanic adults,  $p < 0.05$ .

<sup>6</sup>Significantly different from non-Hispanic Asian adults,  $p < 0.05$ .

NOTE: Access data table for Figure 1 at: [http://www.cdc.gov/nchs/data/databriefs/db197\\_table.pdf#1](http://www.cdc.gov/nchs/data/databriefs/db197_table.pdf#1).

SOURCE: CDC/NCHS, National Health and Nutrition Examination Survey, 2011–2012.



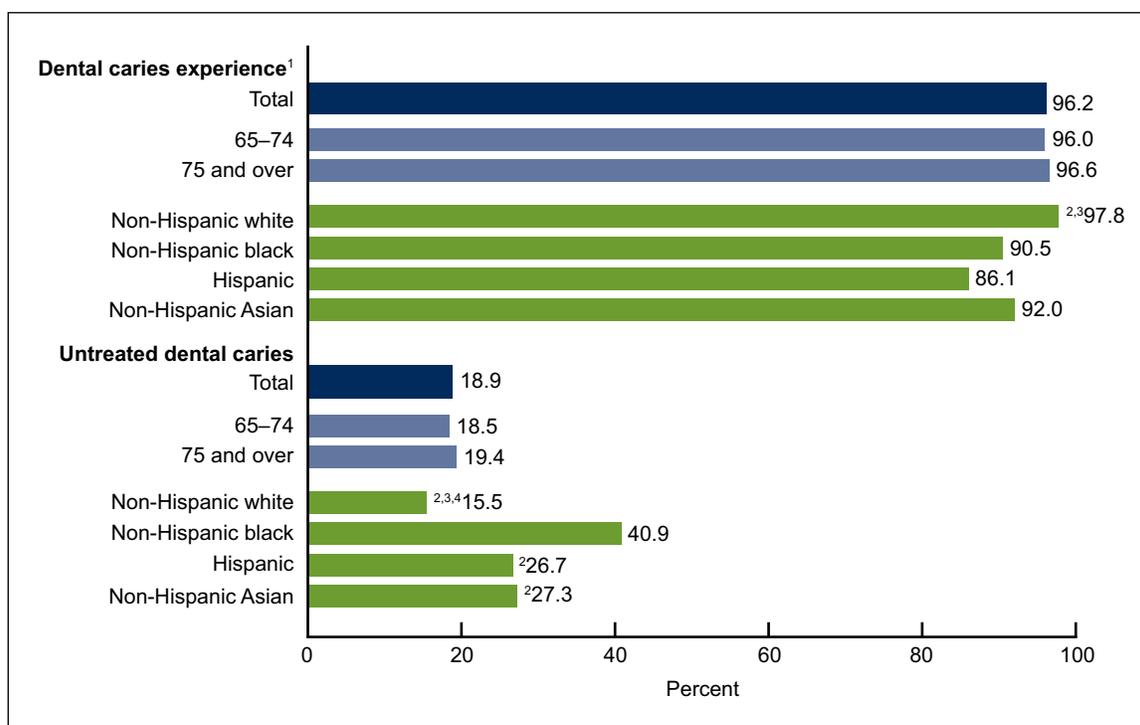
higher (94%–97%) compared with adults aged 20–34 (82%). The prevalence of caries among adults aged 20–64 was lower for Hispanic (85%), non-Hispanic black (86%), and non-Hispanic Asian (85%) adults compared with non-Hispanic white adults (94%).

During 2011–2012, about 27% of adults aged 20–64 had untreated tooth decay in permanent teeth. Little difference was seen in the prevalence of untreated dental caries between the age groups examined. The prevalence of untreated dental caries was nearly twice as high for non-Hispanic black adults (42%) compared with non-Hispanic white (22%) and Asian (17%) adults. Untreated tooth decay was lower among non-Hispanic white and Asian adults compared with Hispanic adults (36%).

### What percentage of older adults had dental caries in permanent teeth?

In 2011–2012, nearly all U.S. adults aged 65 and over (96%) with any permanent teeth had dental caries (Figure 2). The prevalence of dental caries was similar among those aged 65–74 and those aged 75 and over. Caries prevalence was lower for non-Hispanic black (91%) and Hispanic (86%) adults compared with non-Hispanic white adults (98%).

Figure 2. Prevalence of dental caries in permanent teeth among adults aged 65 and over, by age and race and Hispanic origin: United States, 2011–2012



<sup>1</sup>Includes untreated and treated (restored) dental caries.

<sup>2</sup>Significantly different from non-Hispanic black adults,  $p < 0.05$ .

<sup>3</sup>Significantly different from Hispanic adults,  $p < 0.05$ .

<sup>4</sup>Significantly different from non-Hispanic Asian adults,  $p < 0.05$ .

NOTE: Access data table for Figure 2 at: [http://www.cdc.gov/nchs/data/databriefs/db197\\_table.pdf#2](http://www.cdc.gov/nchs/data/databriefs/db197_table.pdf#2).

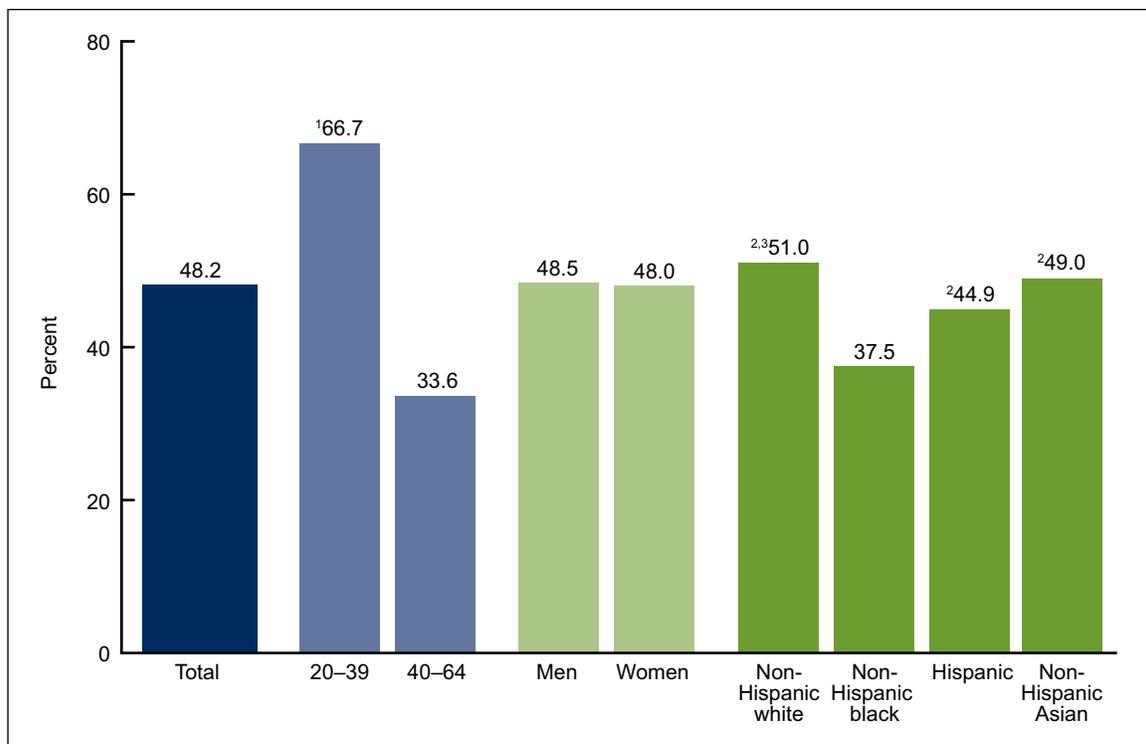
SOURCE: CDC/NCHS, National Health and Nutrition Examination Survey, 2011–2012.

Approximately 19% of adults aged 65 and over had untreated caries in 2011–2012. No difference was seen in untreated dental caries prevalence between those aged 65–74 and those aged 75 and over. Untreated tooth decay was significantly higher for non-Hispanic black adults (41%) compared with Hispanic (27%), non-Hispanic white (16%), and non-Hispanic Asian (27%) adults. Older non-Hispanic Asian and Hispanic adults were more likely to have untreated dental caries compared with older non-Hispanic white adults.

### What percentage of adults had no loss of permanent teeth?

Forty-eight percent of adults aged 20–64 had a full set of permanent teeth (excluding third molars) (Figure 3). Twice as many adults aged 20–39 (67%) had retained all of their permanent teeth compared with adults aged 40–64 (34%). Tooth retention was lower among non-Hispanic black adults (38%) compared with non-Hispanic white (51%), non-Hispanic Asian (49%), and Hispanic (45%) adults. Hispanic adults also were less likely to have retained all of their teeth compared with non-Hispanic white adults. No difference was noted between men and women in the percentage of adults experiencing no tooth loss due to dental disease.

Figure 3. Prevalence of permanent tooth retention among adults aged 20–64, by age, sex, and race and Hispanic origin: United States, 2011–2012



<sup>1</sup>Significantly different from ages 40–64,  $p < 0.05$ .

<sup>2</sup>Significantly different from non-Hispanic black adults,  $p < 0.05$ .

<sup>3</sup>Significantly different from Hispanic adults,  $p < 0.05$ .

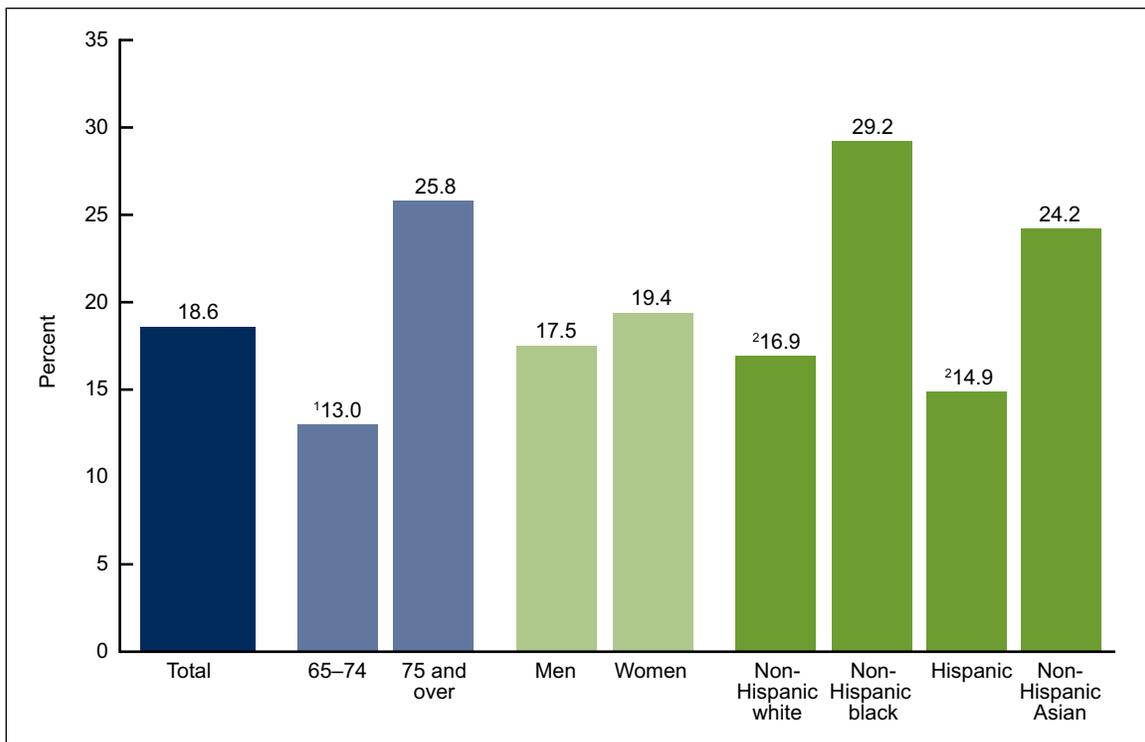
NOTE: Access data table for Figure 3 at: [http://www.cdc.gov/nchs/data/databriefs/db197\\_table.pdf#3](http://www.cdc.gov/nchs/data/databriefs/db197_table.pdf#3).

SOURCE: CDC/NCHS, National Health and Nutrition Examination Survey, 2011–2012.

## How prevalent was complete tooth loss (edentulism) among older adults?

Nearly 19% of adults aged 65 and over were edentulous in 2011–2012 (Figure 4). Edentulism was twice as prevalent among adults aged 75 and over (26%) compared with adults aged 65–74 (13%). More non-Hispanic black adults aged 65 and over were edentulous (29%) compared with non-Hispanic white (17%) and Hispanic (15%) adults. Although the prevalence of complete tooth loss was higher among older non-Hispanic Asian adults (24%) compared with older Hispanic and non-Hispanic white adults, this difference was not statistically significant. The prevalence of edentulism was similar between men (18%) and women (19%).

Figure 4. Prevalence of complete tooth loss (edentulism) among adults aged 65 and over, by age, sex, and race and Hispanic origin: United States, 2011–2012



<sup>1</sup>Significantly different from ages 75 and over,  $p < 0.05$ .

<sup>2</sup>Significantly different from non-Hispanic black adults,  $p < 0.05$ .

NOTE: Access data table for Figure 4 at: [http://www.cdc.gov/nchs/data/databriefs/db197\\_table.pdf#4](http://www.cdc.gov/nchs/data/databriefs/db197_table.pdf#4).

SOURCE: CDC/NCHS, National Health and Nutrition Examination Survey, 2011–2012.

## Summary

Disparities by age and race and Hispanic origin for dental caries and tooth loss existed among U.S. adults in 2011–2012. For adults aged 20–64, dental caries was lower for Hispanic, non-Hispanic black, and non-Hispanic Asian adults compared with non-Hispanic white adults, whereas untreated tooth decay was more prevalent among Hispanic and non-Hispanic black adults compared with non-Hispanic white and Asian adults. Nine of 10 adults aged 20–64 had dental caries, and caries experience was more prevalent among adults aged 35–64 than among younger adults. In contrast, a little more than one-quarter of adults aged 20–64 (27%) had untreated tooth decay, and the prevalence of untreated caries did not vary as adults aged.

About one-half of adults aged 20–64 living in the United States had not lost a tooth in 2011–2012. Tooth retention was twice as prevalent among adults aged 20–39 compared with those aged 40–64. Non-Hispanic black adults were more likely to have lost one or more teeth compared with Hispanic, non-Hispanic white, and non-Hispanic Asian adults.

Oral health disparities by age and race and Hispanic origin also existed for older adults in 2011–2012. Although nearly all adults over age 65 had experienced dental caries, caries prevalence was higher among older non-Hispanic white adults compared with older non-Hispanic black and Hispanic adults. However, in this age group, non-Hispanic black adults were more likely to have untreated tooth decay compared with Hispanic, non-Hispanic white, and non-Hispanic Asian adults.

Overall, 19% of adults aged 65 and over were edentulous in 2011–2012. Edentulism was twice as prevalent among adults aged 75 and over compared with those aged 65–74. Although little difference was seen in the prevalence of edentulism between men and women, differences by race and Hispanic origin for complete tooth loss did exist in 2011–2012. Older non-Hispanic black adults were more likely to be edentulous compared with older non-Hispanic white or Hispanic adults, and nearly one in four older non-Hispanic Asian adults were edentulous in 2011–2012.

## Definitions

Untreated dental caries: Dental cavities (tooth decay) that have not received appropriate treatment.

Dental caries: Having a tooth appropriately treated for tooth decay or having untreated decay present.

Tooth retention: Having all natural permanent teeth present, excluding third molars.

Edentulism: Having all natural permanent teeth missing, including third molars.

## Data source and methods

Data from the National Health and Nutrition Examination Survey (NHANES) were used to produce this report. NHANES is a cross-sectional survey designed to monitor the health and nutritional status of the civilian noninstitutionalized U.S. population. Survey participants are selected through a complex, multistage process that includes oversampling in order to obtain reliable estimates of health and nutritional measures for population subgroups. In 2011–2012,

oversampling included Hispanic, non-Hispanic black, and non-Hispanic Asian persons. The survey consists of interviews conducted in participants' homes and standardized physical examinations in mobile examination centers (MECs). Additional information on NHANES is available from: <http://www.cdc.gov/nchs/nhanes.htm>.

From 2011 through 2012, the NHANES oral health assessment was conducted in MECs by trained dentists. The assessment included a tooth count to identify the presence or absence of permanent or primary teeth, including retained dental root tips and dental implants. Each tooth surface was assessed for dental caries and restorations. Dental examinations were conducted using a dental light for illumination, a dental mirror, and an explorer. Overall, preliminary data reliability analyses conducted for 2011–2012 indicate that examiner performance was similar to prior survey periods (1999–2004) using the same dental caries examination methods.

Population estimates and standard errors were calculated in SAS-callable SUDAAN software release 11.0 (RTI International, Research Triangle Park, N.C.). Examination sample weights to account for differing probabilities of selection, nonresponse, and noncoverage were used for analysis. The standard errors of the percentages were estimated using Taylor series linearization, to take into account the complex sampling design. Differences between groups were evaluated using a *t* statistic at the  $p < 0.05$  significance level. All results presented have a relative standard error less than 30%. All differences discussed are statistically significant unless otherwise indicated. Calculated estimates were not age-adjusted, and no adjustments were made for multiple comparisons.

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