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Utilization of Dental Care Services by Asians and Native Hawaiian or Other Pacific Islanders: United States, 1997–2000

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Abstract

Objective—This report describes national estimates of dental care service utilization and unmet dental care needs due to cost for six Asian ethnic subgroups and the native Hawaiian or other Pacific Islander (NHOPI) population.

Methods—Combined data from the 1997–2000 National Health Interview Surveys (NHISs), conducted by the Centers for Disease Control's National Center for Health Statistics, were analyzed to produce estimates for Asians and NHOPIs aged 2 years and over. Information on dental care service utilization and unmet dental care needs due to cost was self-reported by persons aged 18 years and over. For children aged 2–17 years, the information was collected from an adult who was knowledgeable about the child's health.

Results—Approximately 64% of Asian and 56% NHOPI persons had visited a dentist at least once in the past year. Utilization of dental care services, however, varies significantly by ethnic subgroup. Asian Indians were most likely to have never had a dental visit and the NHOPIs were most likely to experience unmet dental care needs in the past year. Among adults, Japanese Americans (68.2%) were most likely and NHOPIs (49.3%) were least likely to have had a dental visit in the past year. Underutilization of dental care services was most prevalent among Asian adults with poor or near poor poverty status, without health insurance coverage, and who had resided in the United States for less than 5 years. Among children, NHOPIs (82.0%) were most likely and Asian Indians (60.1%) were least likely to have had a dental visit in the past year. Underutilization was most prevalent among Asian children who were not living with their parents or living with a single parent, who had no insurance coverage, who had poor or near poor poverty status, and whose parents had less than 12 years of education.

Conclusions—Utilization of dental care services and unmet dental care needs due to cost vary among the Asian ethnic subgroups and the NHOPI population.

Keywords: dental care utilization • Asian • native Hawaiian or Other Pacific Islander • National Health Interview Survey

Introduction

Oral health is an essential and integral component of overall health and quality of life across the life span. Like many other diseases, poor oral health status has been found to be associated with low socioeconomic status. Previous research also indicated that many people in the United States do not receive essential preventive dental services and treatment, which may result in socioeconomic disparities in oral health status (1). Thus, the Surgeon General called for a national oral health plan in 2000 to eliminate disparities in oral health of all Americans (2). A recent study indicated that among many influential factors, race and/or ethnicity is one of the key factors that contribute to disparities in health and health care utilization (3).

The combined population of Asians and native Hawaiian or Other Pacific Islanders (NHOPIs) is projected to reach 37.6 million (9.3% of the total U.S. population) by 2050, up from 10.9 million (3.9%) in 2001 (4). Despite such a sharp increase, dental care needs among Asians and NHOPIs have

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received relatively little attention (5). Although visiting a dentist at least once a year provides the opportunity for preventive care, early diagnosis, and treatment of oral problems, a previous report based on data from the National Health Interview Survey (NHIS) revealed that one-third of the combined Asian and NHOPI populations had not received dental care within the past year (6).

Asian and NHOPI populations are different from each other with respect to cultural background and socioeconomic status. Also, the Asian population itself is heterogeneous, consisting of people with origins in nearly 50 countries or ethnic groups and encompassing persons with ancestry from East and Southeast Asia and the Indian subcontinent. The diversity in cultural background and socioeconomic status may result in a disparity in use of health services such as dental care among the different Asian ethnic subgroups and the NHOPI population. To develop effective health promotion strategies for this population, health educators and providers need to have a better understanding about the differences in dental care across the ethnic groups.

Nevertheless, few data were available regarding dental care utilization and unmet dental care needs due to cost for the Asian ethnic subgroups and the NHOPIs. Therefore, the objective of this study was to provide national estimates of dental care utilization for six Asian ethnic subgroups (Asian Indian, Chinese, Filipino, Japanese, Korean, and Vietnamese) and the NHOPI population, using combined data from the 1997–2000 NHISs.

Methods

Data source

The NHIS has been conducted annually in the civilian noninstitutionalized household population of the United States. Under an interagency agreement with the National Center for Health Statistics, the NHIS data are collected by the U.S. Bureau of the Census. The interviewers receive extensive training, and their work is monitored through a quality assurance program. Using computer-assisted personal interviews, the NHIS collects information on basic social demographics, health status, and access to and utilization of health care service for every member of the family (7,8). Additionally, one adult (aged 18 years or over) and one child (aged 0–17 years old) are randomly selected from each family, and information on each is collected with the Sample Adult Core and the Sample Child Core questionnaires. Although the two questionnaires differ in some items, both collect more detailed information about the sample adult and the sample child in the areas of health status, utilization of health care services, and health behaviors. For the Sample Adult Core component, the individual adult responds for him/herself. For the Sample Child Core component, information is collected from an adult who is familiar with the child's health.

Data from the Sample Adult and Sample Child Core components of the 1997–2000 NHISs were combined to increase sample size and thus the precision of estimates for six Asian ethnic subgroups and a group combining native Hawaiians and other Pacific Islanders (NHOPI). Information on dental visit and dental care affordability in the past year was analyzed for 4,765 Asians and 290 NHOPIs who were aged 2 years and over.

Classification of Asians and native Hawaiian or Other Pacific Islanders

After they are asked about their Hispanic or Latino ethnicity, respondents in the NHIS are asked what race (or races) they consider themselves to be from a list that consists of 14 racial categories. The categories for NHOPI are native Hawaiian, Guamanian, Samoan, and other Pacific Islander. The categories for Asian include Asian Indian, Chinese, Filipino, Japanese, Korean, Vietnamese, and other Asian (such as Cambodian, Laotian, Thai, Hmong, and Malaysian). If a respondent mentions ''other Pacific Islander'' or ''other Asian,'' he or she is asked to specify the name of the race. Based on the new standard for Federal data on race and ethnicity released in 1997 by the Office of Management and Budget (OMB) (9), this report separates Asians from NHOPIs. The Asian category is defined as a person having origins in any of the original peoples of the Far East, Southeast Asia, or the Indian subcontinent. The NHOPI category is defined as a person having origins in any of the original peoples of Hawaii, Guam, Samoa, or other Pacific Islands including Tongans and Mariana Islanders. Prior to 1999, the term ''Hawaiian'' was provided as a response category. In 1999, this was changed to ''native Hawaiian.'' This change did not result in a significant difference in the distribution of NHOPI in the NHIS (data not shown).

NHIS respondents who report more than one race are asked to indicate a primary race. This self-reported primary race was used for identification in this analysis. This analysis did not include a small proportion (about 2% each year) of persons who indicated Asian in combination with other races, but did not indicate the specific main race. Because the white population (including those of Hispanic or Latino origin and those not of Hispanic or Latino origin) comprises the vast majority of the general population, the dental visit estimate for the white population is presented as a reference group in this report.

Measurement of dental care utilization

Prior to 1997, the NHIS asked its respondents to recall the number of dental visits during the past 12 months preceding the interview as well as the time since the last visit (10). Since 1997, the redesigned NHIS questionnaire has obtained information on dental visits based on the following one question in each of the Sample Adult and Sample Child Core components: ''About how long has it been since you last saw or talked to a dentist? Include all types of dentists such as orthodontists, oral surgeons, and all other dental specialists as well as dental hygienists.'' The modified question does not have a reference period. The possible responses

to this question have changed since 1997. In the 1997–1998 NHIS, they were: ''Never,'' ''6 months or less,'' ''More than 6 months, but not more than 1 year ago,'' ''More than 1 year, but not more than 3 years ago,'' and ''More than 3 years.'' Beginning in 1999, the last two intervals have been split into the following three intervals: ''More than 1 year, but not more than 2 years ago,'' ''More than 2 years, but not more than 5 years ago,'' and ''More than 5 years ago.'' To combine the 4 years of data, the original five intervals are presented in this report. Parents were not asked this question about children under age 2 years because such young children are generally not expected to have preventive dental visits and thus are not in the Healthy People 2010 target population for dental care utilization (11).

At least one visit to a dentist per year is considered the standard measure of appropriate utilization of dental care because primary and early secondary preventive oral health measures usually are provided at a dentist's office (12). Absence of such dental visits indicates inadequate dental care. Based on this standard, the time intervals since the last dental visit were combined to create a variable indicating if a person had visited a dentist in the past year. The time interval since the last visit was analyzed for six Asian ethnic subgroups, the NHOPI population, and white persons. In this report, the indication of ''unmet dental care needs due to cost'' is based on the following question: ''During the past 12 months, was there any time when you (or name) needed dental care (including check-ups) but didn't get it because you (or name) couldn't afford it?''

Social demographic characteristics

Sociodemographic variables considered in this analysis include age, sex, poverty status (poor, near poor, and not poor), educational attainment, living arrangement (living with a single parent, living with both parents, and not living with a parent), place of residence, and geographic region (Northeast, Midwest, South, and West). Poverty status in the NHIS is created based on family income and family size using the U.S. Census Bureau's poverty thresholds (13). ''Poor'' status is defined as below the poverty threshold. ''Near poor'' status is defined as having a family income of 100% to less than 200% of the poverty threshold, ''not poor'' status is defined as having a family income of 200% or more of the poverty threshold, and ''unknown'' was analyzed as a separate poverty status category because of the relatively large percent of families for whom family income is unknown in the NHIS and other similar surveys.

Education level was based on the years of school completed or highest degree obtained. In this report, the highest education level is only presented for persons aged 25 years and over. The highest educational attainment among all adults in the family was used to measure the educational background of the parent(s), in most cases, or guardian(s). When a child was living with only the mother or the father, the educational attainment was not ascertained for the parent who was not present in the family.

Place of residence in the NHIS is classified as inside a metropolitan statistical area (MSA) or outside an MSA. Generally, an MSA consists of a county or group of counties containing at least one city (or twin cities) having a population of 50,000 or more, plus adjacent counties that are metropolitan in character and are economically and socially integrated with the central city. In New England, towns and cities rather than counties are the units used in defining MSAs. There is no limit to the number of adjacent counties included in the MSA if they are integrated with the central city, nor is an MSA limited to a single State; boundaries may cross State lines. The report uses three categories: large MSAs, which have a population size of 1,000,000 or more; small MSAs having a population size of less than 1,000,000; and non-MSA, consisting of persons not living in an MSA.

Immigration status of Asians and NHOPIs was also considered an influential factor for dental care utilization. For Asian and NHOPI adults, nativity is defined in this analysis as U.S.-born or foreign-born. The U.S.-born category includes persons born in the 50 U.S. States, the District of Columbia, Puerto Rico, Guam, and other outlying territories of the United States. For children, nativity of their parents was used and grouped into three categories: both parents U.S.-born, one parent (or guardian) U.S.-born, and both parents (or guardians) foreign-born. For a child who was living with only a mother or father, nativity of that parent was used and was assigned either the category of both parents U.S.-born or the category of both parents foreign-born. For persons who were not born in the United States, the NHIS collects information on the number of years they have resided in the United States. Because the information on the length of residence in the United States is not available for all parents (or guardians) of children in the Sample Child component, this report presents the length of residence in the United States only for Asian and NHOPI adults.

Health, health care access, and utilization

Respondent-assessed health status is obtained from a question in the survey that asks respondents, ''Would you say your health in general was excellent, very good, good, fair, or poor?'' The five possible responses were recoded in this analysis into two groups: ''fair or poor'' and ''good, very good, or excellent.'' In the NHIS data file, respondents are classified as having health insurance if they reported having a comprehensive health insurance plan. These include private health insurance and public coverage (such as Medicaid or military health care), but not plans that paid for only one type of service such as accidents or dental care. If a person had only Indian Health Service coverage, he is considered uninsured. The frequency of general doctor visits in the past year was categorized in this analysis as: none, 1–3 times, 4–9 times, and 10 times or more.

Statistical analysis

Estimates were calculated using NHIS weights, which are calibrated to census totals for sex, age, and race/ethnicity of the U.S. civilian

noninstitutionalized population (8). The Taylor series linearization method was chosen for variance estimation. All analyses were conducted using the SUDAAN software package to account for the complex sample design of the NHIS (14). Estimates with relative standard errors of 30% or higher are considered unreliable and are not presented. Estimates with relative standard errors of greater than 20% but less than 30% are considered less unreliable and are indicated with an asterisk (*). Differences between percents or rates were evaluated using two-sided significance tests at the 0.05 level. Terms such as ''greater than'' and ''less than'' indicate a statistically significant difference. Terms such as ''similar'' and ''no difference'' indicate that the statistics being compared were not significantly different. Lack of comments regarding the difference between any two statistics does not necessarily mean that the difference was tested and found to be not significant. When comparing the overall percent of dental visits in the past year among the Asian subgroups, NHOPIs, and white persons, direct standardization was used to calculate age-adjusted percents using the year 2000 projected U.S. population as the standard population. Rates presented are crude rates unless otherwise stated. Except for the poverty level, which has a large proportion of persons with unknown income level, the analyses in this report excluded persons with unknown information on variables of interest.

Results

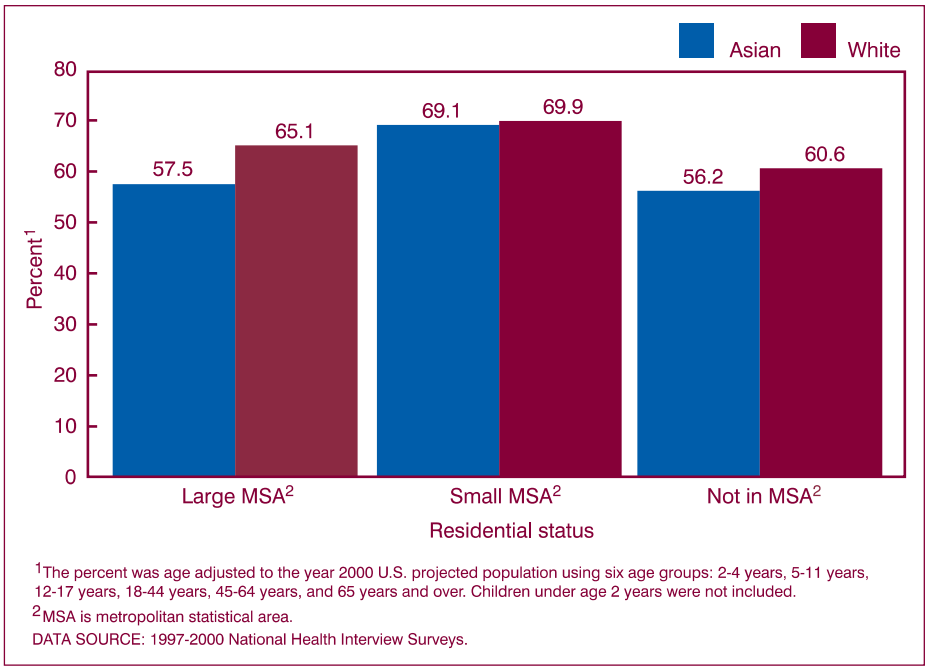
Combined Sample Adult and Sample Child Core components in the 1997–2000 NHIS yielded sample sizes of 5,001 for Asians and 303 for NHOPIs. Among all Asians and NHOPIs, 5,055 were aged 2 years and over (1,506 children and 3,549 adults). The percent distributions of the Asian ethnic subgroups and NHOPI population are similar in the NHIS to those from the 2000 U.S. Census (15) (data not shown).

Table 1 shows the diverse sociodemographic distributions among the different Asian ethnic subgroups, the NHOPI population, and the white population. Among those eight groups, a smaller percent of males was found among Filipino, Japanese, and Koreans. Except for Japanese Americans and NHOPIs, the age distributions were similar among the ethnic subgroups. Compared with the white population, most Asian subgroups tended to have a higher percent of children under age 18 years and a lower percent of adults aged 65 years and over. For persons aged 25 years and over, Asian Indian, Chinese, Filipino, Japanese, and Korean Americans were more likely than NHOPIs and Vietnamese Americans to have higher educational attainment. With respect to poverty status, Vietnamese Americans and NHOPIs were more likely than white persons and other Asian ethnic subgroups to live below the poverty level. Overall, approximately 80% of Asians and 22% of NHOPIs were foreign born. Except for Filipino and Japanese Americans, Asians and NHOPIs were more likely than white persons to lack health insurance coverage.

Overall, 6.4% of Asians had never visited a dentist compared with 2.7% of NHOPIs and 3.7% of white persons after age adjustment. The age-adjusted percent of persons of all ages who had last visited a dentist less than 12 months ago was 63.7% among Asians and 56.4% among NHOPIs. The latter was significantly lower than the percent (66.6%) among white persons. Table 2 presents the age-adjusted percent distribution of the time since the last dental visit for ethnic subgroups of Asian and NHOPIs and for children and adults. The percent of children who had visited a dentist less than 12 months ago was highest among NHOPIs (82.1%) and lowest among Asian Indians (60.7%). Asian Indian children (20.8%) were also most likely to have never visited a dentist, followed by Vietnamese American children (18.9%). The percent of adults who had visited a dentist less than 12 months ago was highest among Japanese Americans (68.9%) and lowest among NHOPIs (49.2%). The use of dental care services among NHOPI adults was notably lower than other ethnic subgroups.

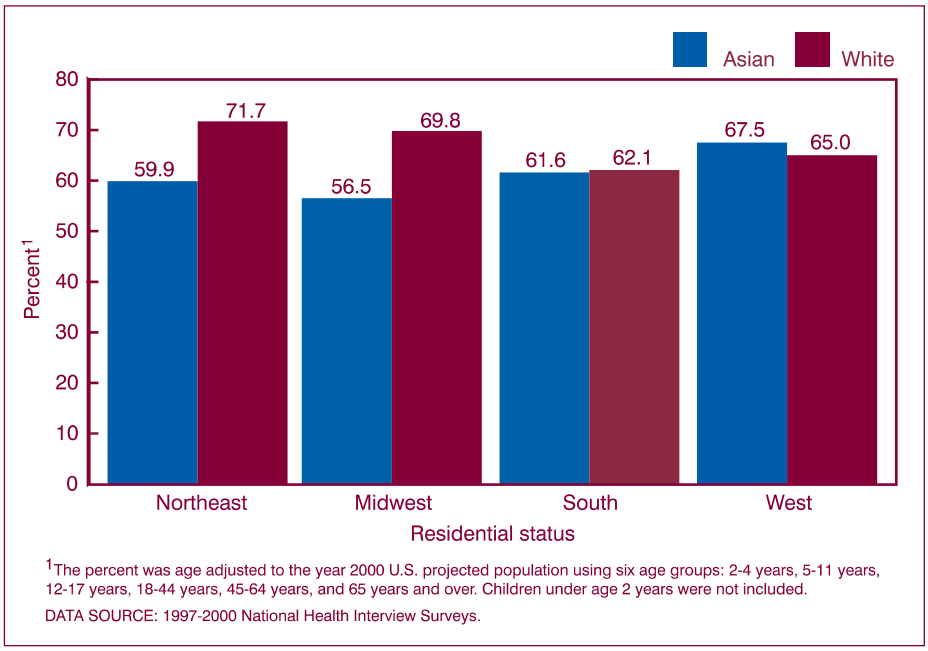
Because dental care utilization for adults may depend upon factors different from children, dental care utilization estimates are presented by selected sociodemographic characteristics separately for adults (table 3) and children (table 4). Table 3 presents percents of persons who had at least one dental visit in the past year for NHOPI adults and a combined group of all Asian adults by selected sociodemographic and other characteristics. Women were more likely than men to have used dental care in the past year. Utilization increased with higher educational attainment. For all three age groups (18–44 years, 45–64 years, and 65 years and over), Asians were more likely than NHOPIs to have visited a dentist in the past year. Of the three age groups, the difference in the use of dental care services between Asian and white adults was mainly seen among persons aged 18–44 years. Similar to white adults, a lower use of dental care services was associated with being poor or near poor among the Asians. U.S.-born Asians were more likely than their foreign-born counterparts to have seen a dentist in the past year. For foreign-born Asian adults, such use also increased with the number of years they resided in the United States.

Table 4 presents percents of persons who had at least one dental visit in the past year among NHOPI children and a combined group of Asian children. Compared with white children (74.8%), Asian children (69.8%) were less likely and NHOPI children (82.9%) were more likely to have had a dental visit in the past year. Unlike the adults, the use of dental care services did not differ significantly by sex. For Asian children, poor or near poor status was also related to having fewer dental visits. This association, however, was not seen among NHOPI children. Consistent with the adults, use of dental care services increased with higher levels of parents' educational attainment. Similar to white children, Asian children living with only foreign-born parents were least likely to have had a dental visit in the past year, whereas Asian children with both parents born in the United States were most likely to have at least one dental



[1]The percent was age adjusted to the year 2000 U.S. projected population using six age groups: 2-4 years, 5-11 years, 12-17 years, 18-44 years, 45-64 years, and 65 years and over. Children under age 2 years were not included.
[2]MSA is metropolitan statistical area.
DATA SOURCE: 1997-2000 National Health Interview Surveys.

Figure 1. Age-adjusted percents of Asians and white persons who had visited a dentist in the past year, by residential status: United States, 1997–2000



[1]The percent was age adjusted to the year 2000 U.S. projected population using six age groups: 2-4 years, 5-11 years, 12-17 years, 18-44 years, 45-64 years, and 65 years and over. Children under age 2 years were not included.
DATA SOURCE: 1997-2000 National Health Interview Surveys.

Figure 2. Age-adjusted percents of Asian and white persons who had visited a dentist in the past year, by region: United States, 1997–2000

visit in the past year. Furthermore, Asian children who lived with a single parent (55.1%) or neither of their parents (46.8%) were less likely to have had a dental visit in the past year than those who lived with both parents (72.4%).

Figures 1 and 2 show that Asians who were living in a small MSA and in the West were more likely than Asians who were not living in these areas to have had a dental visit. Among the six Asians ethnic subgroups and the NHOPI population, NHOPIs were by far most likely to experience an unmet need for dental care due to cost (13.9%) (figure 3). Vietnamese, Korean, and Japanese Americans were more likely to experience an unmet need for dental care compared with Filipino, Asian Indian, and Chinese Americans. Further analysis revealed an association between unmet dental care needs and poverty status. The percent of Asians with unmet dental needs due to cost was 3.2% for those with "not poor" status, 10.0% for those with "near poor" status, and 14.1% for those with "poor" status. The same pattern was seen among NHOPIs.

Discussion

This is the first report that presents national estimates of dental care utilization for Asian ethnic subgroups and NHOPIs by selected sociodemographic factors. The NHIS results revealed a disparity in dental care among these seven groups. For adults, NHOPIs were least likely to have visited a dentist in the past year. For children, Asian Indians were least likely to have utilized dental care services in the past year. The factors related to the use of dental care services for Asian and NHOPI children were not the same as for Asian and NHOPI adults. For adults, underutilization of dental care services was most prevalent among those with poor or near poor poverty status, without health insurance coverage, and who had resided in the United States for less than 5 years. For children, underutilization of dental care service was most prevalent among those who were not living with their parents or living with a single parent, whose parents had less than 12 years of education, who did not have health insurance coverage, and who had under poor or near poor poverty status. The information from this study can be used to identify target populations for oral health promotion and education among the Asian and NHOPI populations and to generate hypotheses for further research aiming to eliminate racial and/or ethnic disparities in dental health.

A previous study reported that dental visit estimates derived from the NHIS were likely to be overestimated compared with the estimates from the Medical Expenditure Panel Survey (MEPS), which asked its respondents about visits made during sequential 3- to 4-month periods (16). However, the previous report examined the dental visit

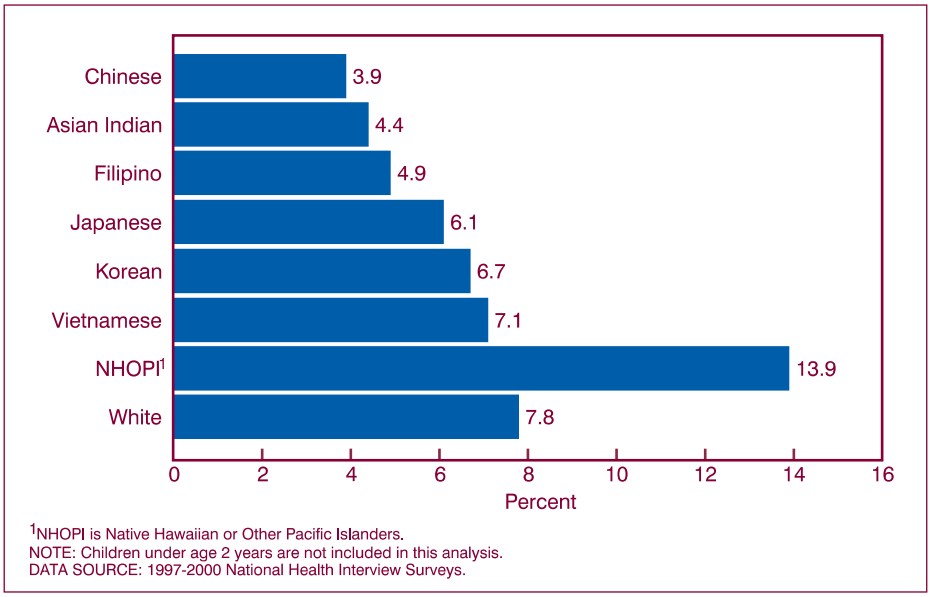


Figure 3. Percent of Asians, native Hawaiian or Other Pacific Islanders, and white persons with unmet dental care needs due to cost: United States, 1997–2000

questions from the NHISs conducted prior to 1997, which asked respondents to recall the number of dental visits during the past 12 months preceding the interview. This reference period of 12 months was considered to be too long for respondents to provide accurate numbers of dental visits because of the possible effect of intrusion and telescoping. When the NHIS questionnaire was redesigned in 1997, the question about the number of dental visits was omitted. Instead, respondents are now asked to recall the interval since their last visit to a dentist. According to a previous report based on the NHIS data prior to 1997, a past-year dental visit estimate obtained by the interval question should be lower than that generated by the number of visits question (11). Nevertheless, the authors pointed out that the lack of a reference period in the dental question may still cause problems of intrusion and telescoping, and subsequently result in overestimation (16). On the other hand, the potential over-reporting was not found to be associated with sociodemographic factors and thus should not affect comparisons of dental care utilization across the ethnic subgroups.

Although, in general, the Asian population presents a high educational attainment profile, this study indicates that Asians, as a whole, are less likely than white persons to have seen a dentist within the last year. A previous study showed that there were ethnic differences in the perception of oral health status even after adjusting for clinical and sociodemographic variables (17). A recent study indicated that perceived oral health was related to dental care visits (4), suggesting that Asians may perceive their need of dental care differently from white persons because of different expectations for oral health according to their culture. This presumption is also supported by the fact that Asian children who had foreign-born parents were less likely than those who had one or two U.S.-born parents to visit a dentist. Similarly, different Asian ethnic subgroups may also have different perceptions of the necessity for dental care based on their cultural backgrounds and beliefs that stem from the variation in accessibility of dental care services in their original countries. These differences might subsequently result in the disparities noted in this report in dental care utilization among the subgroups.

This study revealed a difference in dental care utilization between U.S.-born and foreign-born Asian adults. In addition, this study found that for the Asian adults who were not born in the United States, use of dental care services increased with length of residence in the United States. This study also revealed that Asian children with only foreign-born parents were less likely to have had a dental visit than children with only U.S.-born parents. These findings indicate that the proportion of one's lifetime spent in the United States may influence one's use of dental care services, reflecting a process of acculturation for desired health behaviors. Recent Asian immigrants may have limited oral health knowledge, may not understand the value of oral health, or may not be able to find or understand information about how to obtain services.

It is interesting to note that among all the ethnic subgroups examined, NHOPI adults were found to be least likely to use dental care services, whereas their children were most likely to use dental care services. This analysis also showed a higher dental care service use rate among NHOPI children with public health plan coverage compared with other Asian and white children. This pattern was not noticed among NHOPI adults. The reason for the higher use of dental care services among NHOPI children is not clear, but may be associated with dental care coverage in the public health plan for NHOPI children. On the other hand, because the NHIS dental question did not separate preventive from treatment dental visits, the higher use of dental care services may be also caused by poor oral health of NHOPI children. Further investigation is needed to clarify this issue. Nevertheless, NHOPIs were most likely to experience unmet dental care needs among all the ethnic subgroups of the Asian and NHOPI populations.

There are several limitations in this report. First, the NHIS dental visit question includes all types of dental visits, such as routine dental examination, restorative procedures, emergency care, and preventive services, without distinguishing among them. Because of this, a higher dental visit estimate does not necessarily indicate a better oral health status; on the contrary, it may indicate a need for more dental care to improve oral health status. This is supported by the fact that Asian children, as a whole, were found to have the poorest oral health, although dental

care utilization for Asian children was not the lowest among all the racial/ethnic groups (18, 19).

Second, the redesigned NHIS does not routinely collect data on dental health insurance. Thus the access to dental care for this population cannot be measured. Although this report presented the estimates of health insurance coverage for this population according to a previous NHIS report based on data from the 1989 NHIS, dental coverage as part of comprehensive insurance plan was reported by only 32.7% of respondents (10). Another limitation is that although combined data from the 1997–2000 NHIS were used, the sample size for the NHOPI population is still small. This limited our ability to produce reliable estimates by demographic subgroups for this population.

Finally, the NHIS is designed to collect data through in-person interviews conducted in English or Spanish. If no respondent in the household speaks English or Spanish, the interviewers are permitted to attempt to complete the interview by either translating the survey themselves or using a translator, if one is available, to conduct the interview. This may affect response rates and results for the Asian and NHOPI populations, in particular, because a significant proportion of Asians and NHOPIs do not speak English or Spanish well enough to participate effectively in an NHIS interview (20). Although most interviews within the Asian population between 1997 and 2000 were conducted in English and few interviews were known to be lost because of language problems, the possibility of inaccuracy of some responses under certain circumstances should be considered.

These limitations notwithstanding, the NHIS is a large national health survey and has made it possible to provide a spectrum of national dental visit estimates for ethnic subgroups of the Asian and NHOPI populations. These results can be used by policy makers to design and evaluate oral health promotion and education programs.

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Table 1. Percent distribution of selected characteristics by Asian ethnic subgroups, native Hawaiians or Other Pacific Islanders, and white persons: United States, 1997–2000

Characteristic	Asian Indian (n[1]=798)	Chinese (n=1,014)	Filipino (n=943)	Japanese (n=505)	Korean (n=521)	Vietnamese (n=472)	NHOPI[2] (n=290)	White (n=138,707)
	Percent distribution[3] (standard error)							
Total[4]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Sex								
Male	52.7 (2.00)	51.0 (1.54)	46.4 (2.01)	44.1 (2.34)	42.1 (2.63)	50.1 (2.92)	57.7 (3.48)	49.0 (0.16)
Female	47.3 (2.00)	49.0 (1.54)	53.6 (2.01)	55.9 (2.34)	57.9 (2.63)	49.9 (2.92)	42.3 (3.48)	51.0 (0.16)
Age group								
2–17 years	24.5 (1.25)	22.9 (1.38)	24.3 (1.37)	16.4 (1.76)	26.4 (1.73)	26.5 (1.62)	38.7 (2.96)	23.0 (0.14)
2–4 years	4.7 (0.73)	4.9 (0.66)	4.9 (0.69)	*3.8 (0.81)	4.0 (0.64)	5.9 (0.94)	*5.8 (1.58)	4.2 (0.06)
5–11 years	10.3 (1.08)	9.6 (1.11)	11.3 (1.07)	*6.2 (1.33)	10.7 (1.5)	10.4 (1.28)	20.8 (2.47)	10.3 (0.10)
12–17 years	9.5 (0.92)	8.4 (0.90)	8.1 (0.65)	*6.5 (1.30)	11.7 (1.45)	10.1 (1.30)	**12.2 (2.47)	8.5 (0.09)
18 years and over	75.5 (1.25)	77.1 (1.38)	75.7 (1.37)	83.6 (1.76)	73.6 (1.73)	73.5 (1.62)	61.3 (2.96)	77.0 (0.14)
18–44 years	52.8 (2.09)	47.9 (2.05)	45.3 (1.71)	39.4 (2.57)	47.7 (2.51)	51.2 (3.09)	44.6 (3.89)	40.5 (0.21)
45–64 years	20.0 (1.85)	20.7 (1.53)	22.5 (1.66)	24.8 (2.20)	20.7 (2.38)	19.0 (2.52)	12.9 (1.55)	22.9 (0.16)
65 and above	*2.8 (0.70)	8.5 (1.49)	7.9 (1.13)	19.4 (2.04)	*5.1 (1.24)	*3.3 (0.95)	**(**)	13.5 (0.17)
Education[5]								
Less than 12th grade	9.9 (1.82)	13.8 (2.17)	9.1 (1.54)	7.5 (1.47)	7.2 (1.35)	29.2 (3.83)	*16.3 (3.35)	16.4 (0.24)
High school graduate, GED[6] or equivalent	11.9 (1.75)	11.6 (1.39)	15.7 (1.54)	20.8 (2.17)	24.9 (2.69)	23.9 (3.64)	32.5 (4.43)	30.9 (0.26)
Some college and above	78.2 (2.80)	74.6 (2.54)	75.2 (2.15)	71.7 (2.54)	67.9 (2.96)	46.9 (4.40)	51.2 (4.46)	52.7 (0.35)
Poverty status								
Poor	8.3 (1.48)	9.3 (1.41)	5.6 (1.00)	*6.4 (1.59)	10.5 (1.92)	19.8 (2.70)	*24.4 (5.02)	8.0 (0.16)
Near poor	11.8 (1.62)	13.0 (1.91)	10.6 (1.19)	7.3 (1.37)	15.6 (2.05)	14.7 (2.25)	*15.1 (3.16)	13.9 (0.18)
Not poor	53.1 (2.95)	56.7 (2.61)	65.1 (2.10)	65.4 (2.55)	52.1 (3.01)	46.8 (3.48)	44.4 (3.89)	57.8 (0.31)
Unknown	26.9 (2.49)	21.0 (1.70)	18.7 (1.63)	20.9 (2.43)	21.9 (2.47)	18.8 (2.76)	16.2 (2.61)	20.3 (0.26)
Place of residence								
Large MSA[7]	37.6 (2.97)	42.7 (4.51)	38.8 (3.12)	28.4 (4.33)	33.5 (3.54)	59.3 (4.37)	*20.1 (5.20)	23.5 (0.58)
Small MSA[7]	58.8 (2.91)	53.0 (4.48)	55.4 (3.22)	61.6 (6.01)	61.4 (3.63)	37.4 (4.27)	*51.8 (11.29)	53.5 (0.69)
Not in MSA[7]	*3.7 (0.83)	**(**)	*5.8 (1.71)	**(**)	*5.1 (1.30)	**(**)	**(**)	23.0 (0.47)
Total[4]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Geographic region								
Northeast	36.5 (3.20)	26.3 (2.63)	12.9 (2.86)	11.9 (2.45)	26.8 (3.06)	*10.7 (2.36)	**(**)	19.6 (0.29)
Midwest	19.3 (2.40)	12.9 (2.26)	11.9 (1.70)	*5.9 (1.56)	17.2 (2.48)	**(**)	**(**)	27.2 (0.36)
South	23.8 (2.02)	15.3 (2.06)	9.6 (1.49)	*10.5 (2.19)	23.4 (2.89)	32.6 (4.34)	**(**)	33.7 (0.41)
West	20.4 (2.55)	45.5 (3.00)	65.6 (3.16)	71.6 (4.44)	32.5 (3.56)	48.3 (4.60)	82.3 (4.88)	19.5 (0.34)
Nativity								
Foreign born	79.4 (1.56)	67.2 (2.09)	67.3 (1.74)	40.6 (4.68)	80.8 (1.90)	75.9 (2.11)	*22.3 (5.30)	8.3 (0.16)
U.S. born	20.6 (1.56)	32.8 (2.09)	32.7 (1.74)	59.4 (4.68)	19.3 (1.90)	24.1 (2.11)	77.7 (5.30)	91.7 (0.16)
Health status								
Fair or poor	*2.4 (0.59)	4.6 (0.69)	6.5 (1.09)	*7.0 (1.65)	5.7 (1.07)	8.9 (1.70)	10.0 (1.74)	8.5 (0.11)
Good, very good, excellent	97.6 (0.59)	95.4 (0.69)	93.5 (1.09)	93.0 (1.65)	94.3 (1.07)	91.1 (1.70)	90.0 (1.74)	91.5 (0.11)

See footnotes at end of table.

Table 1. Percent distribution of selected characteristics by Asian ethnic subgroups, Native Hawaiians or Other Pacific Islanders, and white persons: United States, 1997–2000—Con.

Characteristic	Asian Indian (n[1]=798)	Chinese (n=1,014)	Filipino (n=943)	Japanese (n=505)	Korean (n=521)	Vietnamese (n=472)	NHOPI[2] (n=290)	White (n=138,707)
Health insurance coverage	Percent distribution[3] (standard error)							
Not covered	18.8 (2.01)	16.2 (2.05)	11.8 (1.35)	6.1 (1.06)	26.5 (2.51)	18.0 (2.55)	19.2 (3.18)	13.1 (0.17)
With coverage								
Type of coverage								
With public coverage	5.1 (0.93)	11.1 (1.54)	9.8 (1.32)	20.0 (2.25)	10.7 (1.77)	20.2 (2.78)	*26.9 (6.87)	19.7 (0.20)

[1]n is unweighted sample size that excludes those with unknown status for dental care utilization.
[2]NHOPI is native Hawaiian or Other Pacific Islander.
[3]Excludes persons with unknown status (except for poverty status) for the variables of interest. The percents may not add to 100% due to rounding error.
[4]Children under age 2 years are not included.
[5]Highest education attainment is shown only for persons aged 25 years and over.
[6]GED is General Educational Development high school equivalency diploma.
[7]MSA is metropolitan statistical area.
* Estimates preceded by an asterisk have a relative standard error of 20–30% and are considered less unreliable.
** Estimates with a relative standard error of 30% or higher are considered unreliable and thus are not shown.

DATA SOURCE: 1997–2000 National Health Interview Surveys.

Table 2. Age-adjusted percent distribution of the time since the last dental visit by Asians, native Hawaiians or Other Pacific Islanders, and white persons: United States, 1997–2000

Age group and race	Total	12 months or less	More than 12 months	Never
Children aged 2–17 years		Age-adjusted percent[1] (standard error)		
Asian	100.0	70.7 (1.32)	13.8 (1.05)	15.5 (1.07)
Asian Indian	100.0	60.7 (3.46)	18.4 (2.84)	20.8 (2.63)
Chinese	100.0	74.5 (3.04)	14.0 (2.87)	11.5 (1.66)
Filipino	100.0	78.7 (2.88)	*8.6 (2.14)	12.8 (2.01)
Japanese	100.0	80.3 (4.79)	** (**)	** (**)
Korean	100.0	69.2 (3.90)	17.6 (2.83)	*13.2 (3.15)
Vietnamese	100.0	70.7 (3.63)	*10.5 (2.59)	18.9 (2.83)
native Hawaiian or Other Pacific Islander	100.0	82.1 (3.00)	*10.3 (2.10)	** (**)
White	100.0	74.9 (0.30)	11.9 (0.23)	13.2 (0.19)
Adults aged 18 years and over				
Asian	100.0	63.2 (1.06)	33.2 (0.93)	3.6 (0.47)
Asian Indian	100.0	55.6 (2.97)	36.3 (2.85)	8.1 (1.85)
Chinese	100.0	66.3 (2.25)	30.3 (1.94)	3.4 (1.18)
Filipino	100.0	64.0 (2.16)	34.8 (2.05)	** (**)
Japanese	100.0	68.9 (3.44)	30.1 (3.35)	** (**)
Korean	100.0	60.3 (2.87)	37.2 (2.90)	*2.5 (0.75)
Vietnamese	100.0	64.1 (3.83)	30.9 (3.64)	** (**)
native Hawaiian or Other Pacific Islander	100.0	49.2 (5.78)	49.5 (5.70)	** (**)
White	100.0	65.1 (0.26)	34.1 (0.26)	0.8 (0.04)

[1]The percent was age adjusted to the year 2000 U.S. standard population. For children, three age groups were used: 2–4 years, 5–11 years, and 12–17 years. For adults, three age groups were used: 18–44 years, 45–64 years, and 65 years and over. The analysis excluded those with unknown dental visit status.
* Estimates preceded by an asterisk have a relative standard error of 20–30% and are considered less unreliable.
**Estimates with a relative standard error of 30% or higher are considered unreliable and thus are not shown.

DATA SOURCE: 1997–2000 National Health Interview Surveys.

Table 3. Percent of Asian, native Hawaiian or Other Pacific Islander, and white adults who had visited a dentist in the past year, by selected characteristics: United States, 1997–2000

Characteristic	At least one dental visit in the past year		
	Asian	NHOPI[1]	White
	Percent[2] (standard error)		
Total	61.9 (1.05)	49.3 (5.86)	64.2 (0.26)
Sex			
Male	59.3 (1.53)	46.4 (8.70)	61.1 (0.33)
Female	64.4 (1.40)	53.0 (6.59)	67.2 (0.30)
Age group			
18–44 years	60.6 (1.18)	50.5 (6.16)	64.9 (0.29)
45–64 years	66.1 (1.99)	*45.6 (10.56)	67.6 (0.38)
65 and above	58.1 (3.42)	48.6 (8.08)	56.6 (0.49)
Education[3]			
Less than 12th grade	52.3 (3.04)	** (**)	39.6 (0.48)
High school graduate, GED[4] or equivalent	56.5 (2.53)	46.3 (8.05)	60.0 (0.39)
Some college and above	67.6 (1.17)	58.9 (6.64)	75.2 (0.24)
Poverty status			
Poor	47.0 (3.36)	** (**)	44.9 (0.92)
Near poor	47.0 (2.62)	52.8 (10.38)	45.7 (0.53)
Not poor	70.1 (1.16)	58.4 (8.29)	71.3 (0.27)
Unknown	56.8 (2.25)	*41.3 (10.83)	62.8 (0.45)
Years in the United States[5]			
Less than 5 years	47.1 (2.39)	** (**)	45.4 (1.60)
5–10 years	55.8 (2.71)	** (**)	50.5 (1.52)
10–15 years	60.4 (2.96)	*57.7 (16.78)	50.3 (1.56)
Nativity			
U.S. born	74.3 (2.10)	49.6 (7.13)	65.2 (0.27)
Foreign born	59.5 (1.26)	48.4 (8.89)	55.0 (0.64)
Health status			
Fair or poor	54.0 (3.62)	*43.2 (11.9)	45.9 (0.55)
Very good, good, or excellent	62.6 (1.09)	50.5 (6.09)	66.5 (0.25)
Frequency of doctor visit			
None	44.2 (2.10)	*40.5 (10.94)	48.0 (0.46)
1–3 times	68.6 (1.55)	49.1 (8.57)	69.8 (0.31)
4–9 times	72.0 (1.98)	57.9 (11.46)	68.3 (0.39)
10 times or more	68.2 (2.50)	55.1 (10.51)	65.6 (0.51)
Health insurance coverage			
Not covered	38.8 (2.72)	*29.9 (8.45)	39.0 (0.50)
Covered	66.9 (1.05)	55.2 (6.44)	68.2 (0.25)
With public coverage	56.2 (2.64)	*28.8 (7.28)	55.1 (0.42)

[1]NHOPI is native Hawaiian or Other Pacific Islander.
[2]Excludes those with unknown dental visit status.
[3]Highest education attainment is shown only for persons aged 25 years and over.
[4]GED is General Educational Development high school equivalency diploma.
[5]Includes only those who were not born in the United States.
* Estimates preceded by an asterisk have a relative standard error of 20–30% and are considered less reliable.
** Estimates with a relative standard error of 30% or higher are considered unreliable and thus are not shown.

DATA SOURCE: 1997–2000 National Health Interview Surveys.

Table 4. Percent of Asian, Hawaiian or Other Pacific Islander, and white children aged 2–17 years who had visited a dentist in the past year, by selected characteristics: United States, 1997–2000

Characteristic	At least one dental visit in the past year		
	Asian	NHOPI[1]	White
	Percent[2] (standard error)		
Total	69.8 (1.43)	82.9 (3.05)	74.8 (0.33)
Sex			
Male	67.6 (2.08)	82.0 (5.09)	74.3 (0.44)
Female	71.9 (2.20)	84.3 (4.09)	75.4 (0.44)
Age			
2–4 years	40.3 (3.15)	67.9 (11.54)	42.9 (0.78)
5–11 years	78.6 (2.13)	86.8 (4.71)	82.2 (0.40)
12–17 years	76.0 (2.16)	83.4 (3.71)	81.6 (0.43)
Poverty status			
Poor	59.5 (4.65)	86.8 (5.59)	60.0 (1.01)
Near poor	59.8 (4.15)	74.4 (9.97)	62.6 (0.78)
Not poor	76.4 (1.93)	89.6 (2.40)	80.9 (0.34)
Unknown	65.6 (3.25)	*61.2 (14.17)	75.7 (0.70)
Parents' education[3]			
Less than 12th grade	53.8 (3.85)	77.3 (8.24)	54.8 (0.89)
High school graduate, GED[4] or equivalent	63.9 (4.07)	73.4 (7.87)	70.6 (0.63)
Some college and above	73.9 (1.61)	90.2 (2.75)	79.8 (0.36)
Nativity			
U.S. born	71.0 (1.60)	83.1 (3.12)	75.4 (0.33)
Foreign born	66.1 (2.51)	79.2 (15.32)	59.3 (1.50)
Parents' nativity			
U.S.-born parent(s)	85.7 (4.37)	81.0 (3.64)	78.4 (0.39)
1 U.S.-born parent (if 2 parents)	79.4 (3.72)	81.2 (6.04)	71.8 (0.59)
Foreign-born parent(s)	66.9 (1.50)	87.3 (5.08)	60.7 (0.80)
Living arrangement			
Single parent	55.1 (4.45)	84.2 (4.55)	70.1 (0.61)
Both parents	72.4 (1.47)	82.8 (4.03)	76.1 (0.36)
Neither parent	*46.8 (12.49)	72.4 (12.02)	69.3 (1.94)
Health status			
Fair or poor	**(**)	** (**)	61.0 (2.58)
Very good, good, or excellent	70.1 (1.43)	82.8 (3.05)	75.0 (0.33)
Health insurance coverage			
Not covered	48.1 (3.92)	*63.0 (14.46)	52.0 (0.83)
Covered	73.0 (1.58)	86.5 (3.08)	78.2 (0.33)
Public coverage	59.8 (4.65)	89.7 (3.39)	66.9 (0.87)
Frequency of doctor visit			
None	53.4 (3.95)	70.7 (12.56)	60.9 (0.93)
1–3 times	73.9 (1.75)	85.4 (3.80)	77.8 (0.40)
4–9 times	74.3 (3.19)	75.8 (10.24)	75.4 (0.58)
10 times or more	73.4 (6.49)	** (**)	74.4 (1.01)

[1]NHOPI is native Hawaiian or Other Pacific Islander.
[2]Excludes persons with unknown dental visit status.
[3]Highest education attainment is shown only for persons aged 25 years and over.
[4]GED is General Educational Development high school equivalency diploma.
* Estimates preceded by an asterisk have a relative standard error of 20–30% and are considered less unreliable.
** Estimates with a relative standard error of 30% or higher are considered unreliable and thus are not shown.

DATA SOURCE: 1997–2000 National Health Interview Surveys.

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