

Physical and Mental Health Characteristics of U.S.- and Foreign-Born Adults: United States, 1998–2003

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Abstract

Objective—This report presents national prevalence estimates of selected measures of physical health status and limitations, health care access and utilization, and mental health status among the civilian noninstitutionalized population of U.S.- and foreign-born adults aged 18 years and over in four race-ethnicity groups in the United States.

Methods—The estimates in this report were derived from the Family Core and Sample Adult components of the 1998–2003 National Health Interview Surveys, conducted annually by the Centers for Disease Control and Prevention's National Center for Health Statistics (NCHS). Estimates were generated and comparisons conducted using the SUDAAN statistical package to account for the complex survey sample design. Data were age adjusted to the 2000 U.S. standard population.

Results—In general, the foreign-born population was younger, less likely to have a high school diploma, more likely to be poor, heavily concentrated in the central cities of metropolitan areas, and more likely to live in large families, compared with their U.S.-born counterparts. Hispanic immigrants were the least likely to have health insurance or to have a usual source of health care compared with other immigrant groups.

Non-Hispanic black and Hispanic adults, regardless of nativity, were more likely to be obese than non-Hispanic white and non-Hispanic Asian adults. However, non-Hispanic black and Hispanic immigrant adults were significantly less likely to be obese than their U.S.-born counterparts. Hispanic immigrants were more likely to be obese the longer they lived in the United States. Foreign-born non-Hispanic black and Hispanic immigrant adults experienced fewer symptoms of serious psychological distress compared with their U.S.-born counterparts.

Conclusions—There are significant differences in physical health status and mental health status among U.S.-born and foreign-born adults. Foreign-born adults enjoy considerable advantages over their U.S.-born counterparts for many health measures despite limited access to health care and unfavorable sociodemographic characteristics. Differences in the impact of length of stay in the United States on immigrant health suggest that the role of acculturation in understanding immigrant health is complex and may differ for various race/ethnicity groups.

Keywords: immigrant • race • ethnicity • obesity • self-assessed health • serious psychological distress • smoking • ADL • IADL • acculturation • National Health Interview Survey • National Center for Health Statistics

Introduction

Immigrants are the fastest growing segment of the U.S. population (1). The foreign-born population of the United States grew from 9.6 million in 1970 to 32.5 million in 2002 (2,3). As a percentage of the total population, the foreign-born population increased from 4.7% in 1970 to 11.5% in 2002.

Because of the amendments to the Immigration and Nationality Act of 1965, the flow of immigrants to the United States has shifted away from Europe to Latin America and Asia. Today's immigrants are more diverse and arrive from every corner of the world (4). Currently, over one-half of the immigrants to the United States are from Latin America (36% from Central America, 10% from the Caribbean, and 6% from South America), 25% are from Asia, 14% are from Europe, and 8% are from other regions (3).

As the immigrant population grows, studies of their health outcomes are becoming of increasingly crucial interest to health care researchers and policy makers. Previously published studies have examined various health outcomes for immigrants, including health status, health insurance, and health care utilization (5–9,12). Almost all of these studies compared immigrants' health with their native-born counterparts and demonstrated disparities in health and



access to care (5–8,9,12). Other studies of health measures such as self-assessed health, bed disability days, functional limitations, and chronic conditions have also shown that generally, immigrants fare better than their native-born counterparts (5–6,9–10). However, some studies have also indicated that despite higher rates of education and employment, immigrants were more likely to be without health insurance than their U.S.-born counterparts (7–8,11–12).

Although many studies of immigrant health issues have focused primarily on physical health status or on dimensions of health care such as health insurance coverage, few studies have included mental health. Very little research has focused on both mental and physical health in the same study population, nor has much research examined the relationship between mental health and physical health in U.S.-born and immigrant adults. Using data from the 1998–2003 National Health Interview Surveys, this report presents estimates of selected physical health and mental health problems (including selected health behaviors) and health care access among major race/ethnicity-nativity groups in the United States. In addition, this report examines immigrants' physical and mental health status and their length of stay in the United States. Understanding these differences will assist policy makers in developing culturally diverse community intervention programs and allocating resources to fulfill health care needs.

Methods

Data source

Data used in this report are from the Sample Adult component of the 1998–2003 National Health Interview Surveys (NHIS). NHIS is an annual survey of the civilian noninstitutionalized population of the United States, conducted by NCHS. Basic demographic and health information are collected on all household members in the Family Core questionnaire. Additional information is collected from one randomly selected

adult aged 18 years and over in the sample adult questionnaire and about one randomly selected child aged 0–17 years in the sample child questionnaire. Data on the sample adult questionnaire is self-reported, except when respondents are physically incapable of responding for themselves. The sample child data are collected from an adult who is knowledgeable about the child's health.

Measurement

Sociodemographic characteristics

In this report, U.S.-born is defined as having been born in one of the 50 States, the District of Columbia, Puerto Rico, or any of the other U.S. territories (e.g., American Samoa, Guam, U.S. Virgin Islands, and Northern Marianas). Persons born in a foreign country to parents who were U.S. citizens were also defined as U.S.-born (3). The terms “immigrant” and “foreign-born” are used interchangeably in the text as are the terms “U.S.-born” and “native-born.” Foreign-born persons are defined as people living in the United States who were not U.S. citizens at birth (3). All naturalized citizens, legal permanent residents, undocumented immigrants, and persons on long-term temporary visas (such as students or guest workers) also fall in this category.

Data are presented for four race/ethnicity subpopulations: Hispanic, non-Hispanic white, non-Hispanic black, and non-Hispanic Asian adults. Race and ethnicity data were tabulated according to the revised standards for race/ethnicity data issued by the Office of Management and Budget (OMB) (13), which were fully implemented in the 1999 NHIS. Data from an intermediate editing stage allowed creation of the revised OMB race categories for the 1998 data (where the revised guidelines were not yet implemented), giving a consistent set of race categories for the data years included in these analyses.

Data on age, sex, educational level, family income, poverty level, family size, employment status, marital status, place of residence, and region of residence are presented for all U.S.- and

foreign-born race/ethnicity subgroups. Data are also shown on the length of residence in the United States for foreign-born race/ethnicity subgroups. The length of residence was categorized as less than 5 years and 5 years or more.

Physical health status and limitations

Four measures of physical health status and limitations are included in these analyses: self-assessed health status, activities of daily living (ADLs), instrumental activities of daily living (IADLs), and annual number of bed days. Estimates are also presented for four self-reported chronic diseases (diabetes, hypertension, cardiovascular disease, and obesity) as well as one health behavior (smoking). Self-assessed health status was coded into three categories: excellent or very good, good, and fair or poor. ADL estimates are presented for only those adults who needed help from other persons with personal care needs such as eating, bathing, dressing, or getting around inside the house. Similarly, IADL estimates are presented for only those adults who needed help from other persons with routine needs such as everyday household chores, doing necessary business, shopping, or getting around for other purposes. Data on the annual number of days spent in bed due to illness was coded into three categories: none, 1–6 days, and 7 days or more. An average annual number of bed days is also shown. Data on diabetes, hypertension, and cardiovascular disease were all based on self-reported information about whether the respondent had ever been told he or she had the condition (yes or no). Body mass index (BMI) was calculated from self-reported height and weight, and a BMI of 30 or more was considered “obese.” Smoking status estimates are presented only for current smokers who have smoked 100 cigarettes in their lifetime and currently smoke.

Mental health status

Six questions (feeling sad, nervous, restless, hopeless, that everything was an effort, or worthless) were used to

measure the prevalence of serious psychological distress (SPD) as assessed on an index of psychological distress developed by Kessler, et al. (14). The questions asked how often the respondent experienced these symptoms during the past 30 days. The response codes for each of the six items ranged from zero (“none of the time”) to 4 (“all of the time”) and were summed to yield total score ranging from zero to 24. A score of 13 or more for this scale was used here to define SPD.

Health care access and utilization

Indicators of health care access and utilization included health insurance coverage (private, Medicaid or other public insurance, other coverage, and uninsured), having a source of health care when sick (yes or no), unmet medical needs due to cost (unable to afford mental health or dental care, or prescribed medication, all measured as yes or no), and time since last spoke to a health professional. Total number of doctor visits in the past 12 months was coded as “none,” “1–3 visits,” “4–9 visits,” and “10 visits or more.”

Statistical analysis

Six years of data were combined to increase the reliability of estimates for some of the smaller population subgroups. All estimates with a relative standard error of more than 30% are identified with an asterisk. SUDAAN software was used to generate all estimates and their standard errors (15). All estimates were weighted using the sample adult record weight to reflect the U.S. civilian noninstitutionalized population aged 18 years and over. It should be noted that the 1998–2002 NHIS weights were calculated using 1990 census data. Beginning with the 2003 data, NHIS transitioned to weights derived from the 2000 census-based population estimates. The impact of this transition was assessed for the 2002 NHIS by comparing estimates for selected health characteristics using the 1990 census-based weights with those using the 2000 census-based weights and has been published elsewhere (16). All estimates presented in this report were age adjusted to the 2000 U.S.

standard population aged 18 years and over (17,18).

Standard errors are shown for all percentages in the tables. No adjustments were made for multiple comparisons. The statistical significance of differences between point estimates was evaluated using a two-sided *t*-test at the 0.05 level. Terms such as “greater than,” “less than,” “more likely,” “less likely,” “compared with,” or “opposed to” indicate a statistically significant difference between estimates. Terms such as “similar” or “no difference” indicate that the estimates are not significantly different. A lack of commentary about any two estimates should not be interpreted to mean that a *t*-test was performed and the difference was found to be not significant.

Results

Sociodemographic characteristics

Table 1 presents frequencies and age-adjusted percent distributions of selected demographic characteristics of U.S.-born and foreign-born adults for four race/ethnicity groups (non-Hispanic white, non-Hispanic black, non-Hispanic Asian, and Hispanic). Non-Hispanic

white persons are hereafter referred to as “white persons,” non-Hispanic black persons are referred to as “black persons,” and non-Hispanic Asian persons are referred to as “Asian persons.”

Figures 1–3 provide the distribution of the four race/ethnicity groups for the total population, for U.S.-born and foreign-born persons. More than 80 percent of U.S.-born adults (Figure 2) were white persons, followed by black persons (12%), Hispanic persons (6%), and Asian persons (0.6%). Among foreign-born adults (Figure 3), the race/ethnicity distribution was somewhat different—Hispanic adults were the largest ethnic group (47%), followed by white (24%), Asian (21%), and black adults (8%).

Age—Overall, the foreign-born adult population was younger than the native-born adult population. Among the specific race/ethnicity groups, this pattern remained the same, with the exception of white adults. Foreign-born white adults had a higher proportion of elderly persons aged 65 years and over than U.S.-born white adults or any of the other foreign-born groups. For all other race/ethnicity groups, the proportion of elderly persons was higher

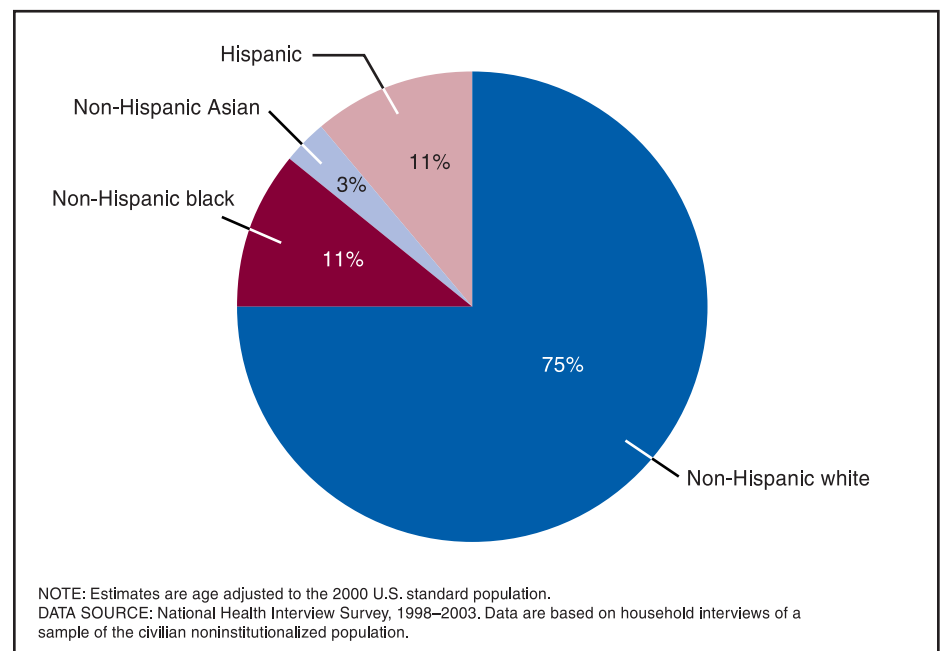


Figure 1. Percent distribution of four major race/ethnicity subgroups: United States, 1998–2003

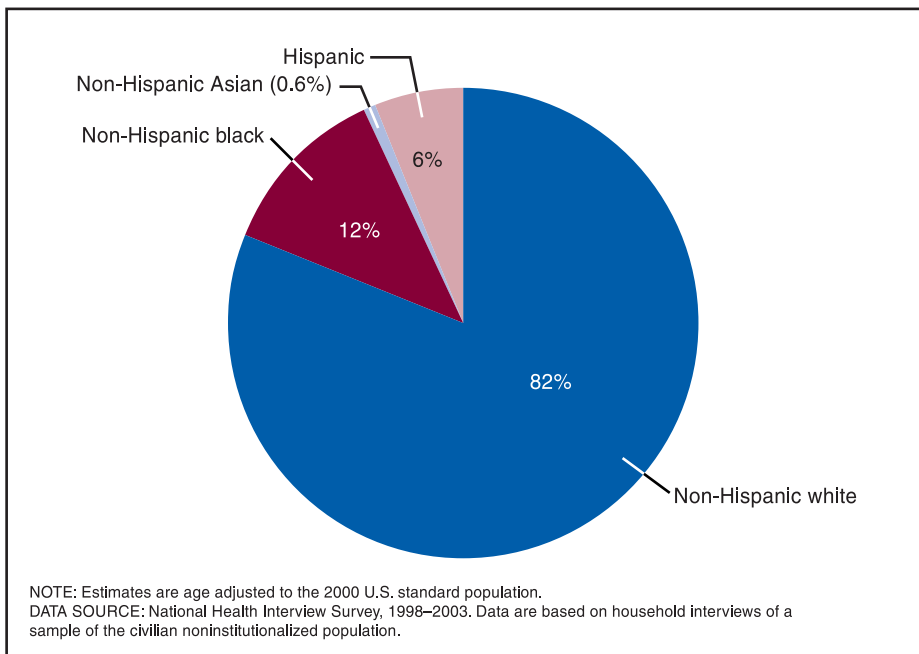


Figure 2. Percent distribution of four major U.S.-born race/ethnicity subgroups: United States, 1998–2003

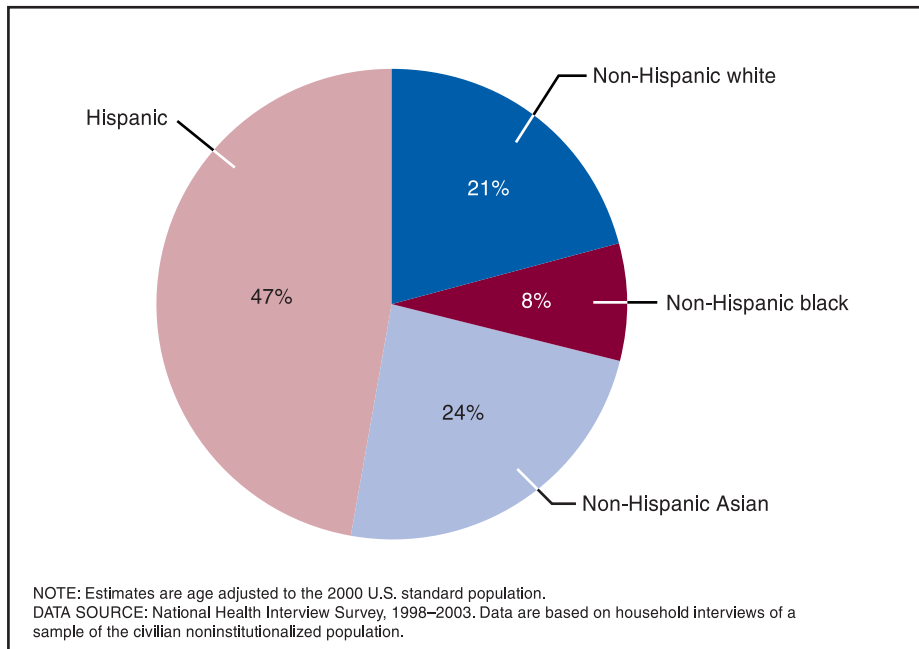


Figure 3. Percent distribution of four major foreign-born race/ethnicity subgroups: United States, 1998–2003

among U.S.-born persons than among foreign-born persons.

Sex—The ratio of men to women was highest among U.S.-born Asian adults (112 men per 100 women) and lowest among U.S.-born black adults (78 men per 100 women). Among foreign-born adults, there were significantly more women than men in

every race/nativity group except Hispanic adults.

Education—Over one-third of immigrant adults had not received a high school diploma (34%), compared with 15% of U.S.-born adults. However, there was a notable difference among race/ethnicity groups of U.S.-born and foreign-born adults in their levels of

educational attainment. Immigrant white and black adults were more likely to have at least a college degree (35% and 21%, respectively) compared with their U.S.-born counterparts (26% and 13%, respectively). More than one-half of Hispanic immigrants (57%) had less than a high school diploma, compared with U.S.-born Hispanic adults (32%).

Family income—Regardless of nativity, Asian adults were more likely to live in households whose income was \$75,000 or more compared with other U.S.- and foreign-born persons. One-fourth of immigrant black adults lived in households earning \$75,000 or more (25%), which is about 7 percentage points higher than their native-born counterparts (18%). However, U.S.-born Hispanic adults were more likely to live in households earning \$75,000 or more (23%) than their foreign-born counterparts (14%).

Poverty status—In general, immigrants were more likely to be living in poor households than their native-born counterparts (13% compared with 8%). Among the U.S.-born population, Asian adults were the least likely to be living in poor households (5%), followed by white (6%), Hispanic (13%), and black adults (16%). White immigrants were the least likely to be living in poor households (8%), followed by Asian (10%), black (11%), and Hispanic immigrants (18%).

Family size—Immigrants were more likely to live in larger families than their U.S.-born counterparts. Nearly one-quarter (23%) of immigrant Asian adults and one-third (33%) of immigrant Hispanic adults lived in households of five or more persons. Over one-half of U.S.-born adults lived in a household with at least two members in the family (54%) compared with their immigrant counterparts (38%). The proportion of single-person households was higher among U.S.-born Asian adults (21%) than among immigrant Asian adults (13%).

Marital status—Overall, immigrant adults were more likely to be married than their U.S.-born counterparts (65% and 57%, respectively). U.S.-born white, black, Asian, and Hispanic adults were more likely to be never married than their foreign-born counterparts.

Place and region of residence—Immigrants were more likely to live in central cities or noncentral city areas of MSAs than U.S.-born adults. Most U.S.-born adults lived in the South (37%), followed by the Midwest (27%), the Northeast (19%), and the West (17%), and most immigrant adults lived in the West (35%), followed by the South (29%), the Northeast (25%), and the Midwest (12%). Asian adults were mostly concentrated on the West Coast, and the Hispanic population was mostly concentrated in the South or West. U.S.-born black adults were more likely to live in the South (59%), and foreign-born black adults were more likely to live in the Northeast (53%).

Length of time in United States—Over two-thirds of immigrant adults had been living in the United States for 10 years or more. Fourteen percent of immigrant black adults and Hispanic adults had been living in the United States for less than 5 years, followed by Asian (16%) and white (18%) adults.

Health care access and utilization

Table 2 presents age-adjusted data on the health care access and utilization of U.S.-born and foreign-born adults in the four major race/ethnicity groups.

Health insurance coverage—Foreign-born adults were more likely to be uninsured than their native-born counterparts (26% compared with 11%). Among immigrants, Hispanic adults were the most likely to be without health insurance (37%), followed by black (22%), Asian (15%), and white adults (13%). Almost three-fourths of U.S.-born adults had private health insurance coverage compared with over one-half of the immigrant population. Among U.S.-born adults, Asian adults were most likely to have private health insurance coverage (85%), and black and Hispanic adults were the least likely to have private health insurance coverage (56% and 57%, respectively).

Usual source of care and doctor visits—Foreign-born adults were more likely to be without a usual source of care than their U.S.-born counterparts (24% compared with 12%). Among the

race-nativity groups, this difference is most noticeable among the Hispanic population. Compared with U.S.-born Hispanic adults, immigrant Hispanic adults were almost twice as likely to have no usual place of health care (16% compared with 31%), less likely to have spoken with a doctor or health care professional within the past year (68% compared with 79%), and three times as likely never to have talked to a doctor or health care professional in their life (6% compared with 2%). The overall frequency of visits to a doctor's office in the past 12 months was higher among U.S.-born adults than their immigrant counterparts (82% compared with 71%).

Selected health indicators

Table 3 presents age-adjusted data on self-assessed health, limitations in IADL and ADL, annual bed disability days, and serious psychological distress.

Self-assessed health—Overall, U.S.-born adults rated their health more positively (excellent or very good) than their immigrant counterparts (64% compared with 61%). However, this pattern does not hold among U.S.-born black adults. Immigrant black adults were more likely to rate their health positively (excellent or very good) than their U.S.-born counterparts (64% compared with 51%).

Limitations in ADL and IADL—U.S.-born and immigrant adults were equally likely to have limitations in their ADL and IADL activities. However, U.S.-born black adults were almost twice as likely to have limitations in both ADL and IADL activities compared with their immigrant counterparts.

Annual bed days—U.S.-born adults were more likely to have at least one bed disability day in the past 12 months than their immigrant counterparts (38% compared with 27%). On average, U.S.-born adults had 1.5 more days of bed disability than their immigrant counterparts. U.S.-born black and Hispanic adults had about twice the average number of bed-disability days compared with their immigrant counterparts (6.7 days and 2.7 days for black adults, respectively, and 5.7 days

and 3.4 days for Hispanic adults, respectively).

Serious psychological distress—U.S.-born and immigrant adults were equally likely to experience symptoms of serious psychological distress during the past 30 days (3%). However, U.S.-born black and Hispanic adults were more likely to experience symptoms of serious psychological distress than their immigrant counterparts. Among U.S.-born adults, Hispanic adults were more likely to experience serious psychological distress (4.4%) than either black adults (3.3%) or white adults (2.7%). Among immigrants, Hispanic adults were more likely to experience serious psychological distress (3.6%) than white (2.9%), black (1.9%), and Asian adults (1.7%).

Table 4 presents age-adjusted estimates for rates of selected chronic diseases and health behaviors including obesity, current smoking, diabetes, hypertension, and cardiovascular disease.

Selected risk factors and chronic diseases—U.S.-born adults were almost 50% more likely to be obese than their immigrant counterparts (23% compared with 16%). The prevalence of obesity was higher among U.S.-born black adults than any of the other race/ethnicity groups regardless of nativity. One-third of U.S.-born black adults were obese compared with 19% of immigrant black adults. U.S.-born Asian adults were two times as likely to be obese than their immigrant counterparts (11% compared with 5%). The same pattern was observed for white and Hispanic adults (21% compared with 14% for white adults and 30% compared with 21% for Hispanic adults). The prevalence of smoking, hypertension, and cardiovascular diseases was also higher among U.S.-born adults than their immigrant counterparts. U.S.-born black adults were three times as likely to be current smokers as their immigrant counterparts (24% compared with 8%). Overall, the prevalence of hypertension was significantly higher among U.S.-born black adults than any other race/ethnicity groups. One of every three U.S.-born black adults had hypertension.

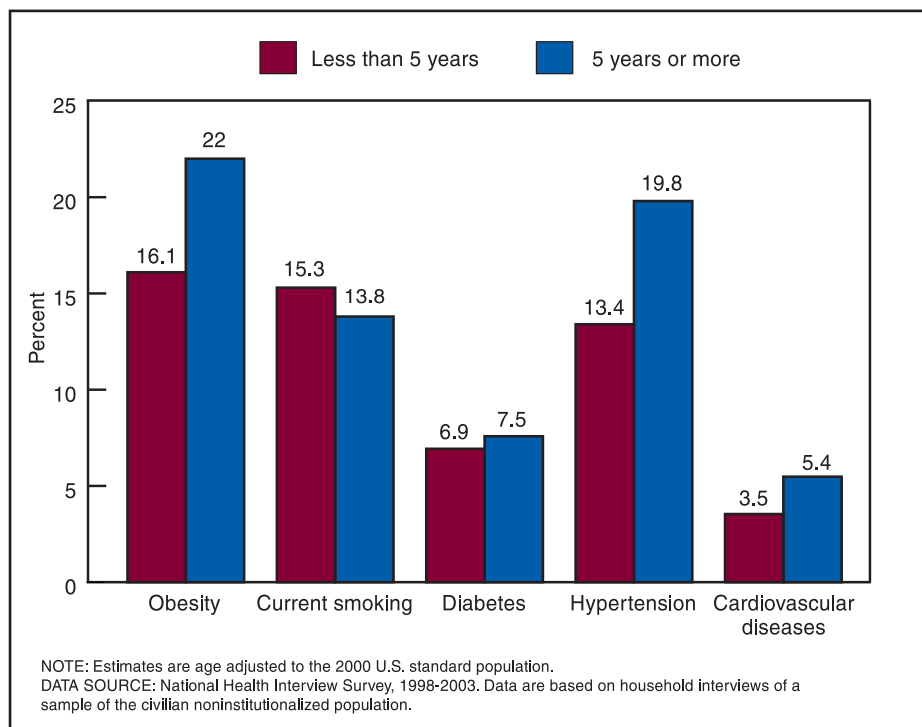


Figure 4. Percent of selected risk factors/chronic diseases among foreign-born Hispanic adults, by length of stay: United States, 1998-2003

Moreover, among the race/ethnicity groups, only U.S.-born black and Hispanic adults had higher prevalence of reported hypertension than their immigrant counterparts. U.S.-born black adults were also twice as likely as immigrant black adults to have cardiovascular disease (8% compared with 4%).

Table 5 and Figure 4 present age-adjusted estimates for selected health characteristics of immigrants by length of stay in the United States.

Selected risk factors and chronic diseases by length of stay in the United States—The prevalence of selected risk factors and chronic diseases for white, black, and Asian immigrant adults did not significantly differ by their length of stay in the United States. However, for Hispanic immigrant adults, significant differences were noted in obesity, hypertension, and cardiovascular disease by length of stay in the United States (Figure 4). Almost one-fourth of Hispanic immigrants living in the United States for 5 years or more were obese compared with 16% of more recent Hispanic immigrants (less than 5 years). Among Hispanic immigrant adults, the percentage of persons with

hypertension and cardiovascular disease significantly increased as length of stay in the U.S. increased. Hispanic immigrant adults living in the United States 5 years or more were also more likely to have hypertension (20%) and cardiovascular diseases (5%) compared with their more recent immigrant counterparts (13% and 4%, respectively). Among white immigrant adults, those living in the United States 5 years or more were more likely to rate their health positively (67%) compared with their more recent immigrant counterparts (59%). They were also less likely to report experiencing symptoms of serious psychological distress during the past 30 days than their more recent immigrant counterparts (3% compared with 9%). However, among black immigrant adults, more recent immigrants rated their health more positively than those who had been living in the United States for 5 years or more (75% compared with 63%).

Discussion

This report focused on selected physical and mental health characteristics as well as access to care

among native-born and immigrant adults in four race/ethnicity groups. The association between immigrant health status and length of stay in the United States was examined. The descriptive analyses demonstrated that access to care for immigrant adults remains a major problem. Many immigrant adults have neither health insurance coverage nor a usual source of medical care. This is particularly noticeable among Hispanic immigrant adults. Among all race/ethnicity groups in the analyses, Hispanic immigrants had the highest uninsurance rate. Additionally, Hispanic immigrant adults were significantly more likely to be without a usual source of care and to have not seen a doctor in the past year. However, in spite of having limited access to health care and being uninsured, Hispanic immigrant adults had significantly better health than their U.S.-born counterparts. They were much less likely to have bed disability days, were less likely to smoke or to be obese, were less likely to experience symptoms of serious psychological distress, and had lower prevalence of hypertension and cardiovascular disease compared with their native-born counterparts. These findings are consistent with other studies that have shown considerable health advantages for Hispanic immigrants despite adverse sociodemographic characteristics and access to care factors, often referred to as the “Hispanic paradox” (19).

Results also show that immigrant black adults enjoy substantially better health than their U.S.-born counterparts. Immigrant black adults rated their health more positively than did U.S.-born black adults, were much less likely to have limitations in ADL and IADL, and had fewer bed disability days. Immigrant black adults were also less likely to have symptoms of serious psychological distress than their native-born counterparts. They were also less likely to be current smokers and to be obese. The prevalence of chronic diseases such as hypertension and cardiovascular diseases was also lower among immigrant black adults than their native-born counterparts. These findings are consistent with the results of

previous studies on immigrant black adults (8, 20,21).

Similar to immigrant black and Hispanic adults, immigrant Asian adults were also healthier than their U.S.-born counterparts. Asian immigrants not only had fewer bed days, but they were also less likely to be obese, to have a lower prevalence of hypertension, and to have fewer risk factors for chronic diseases than their U.S.-born counterparts. These results are consistent with the previous national data from the 1992–95 NHIS, which examined health outcomes for Asian immigrant adults (10,22).

Health disparities among U.S.-born and foreign-born white adults are not as large as those noted among the other race/ethnicity groups. Like all other race/ethnicity groups in this study, white immigrant adults were healthier than their U.S.-born counterparts. White immigrants had fewer bed days, were less likely to be obese or a current smoker, and had fewer health risk factors and chronic diseases than their U.S.-born counterparts.

These results also demonstrate that health status, health conditions, and health behaviors varied substantially across the immigrant subgroups by length of stay in the United States, which is a proxy measure of acculturation. Although the prevalence of obesity remained essentially the same among white, black, and Asian immigrant adults living in the United States less than 5 years compared with those living here 5 years or more, a consistent pattern of increased obesity was observed among Hispanic immigrants as their length of residence in the United States increased. Hispanic immigrants living in the United States 5 years or more were more likely to be obese compared with Hispanic immigrants who had been living here less than 5 years. Similarly, Hispanic immigrants living in the United States 5 years or more had a higher prevalence of self-reported hypertension and cardiovascular disease than more recent Hispanic immigrants. However, white immigrant adults living in the United States 5 years or more were significantly less likely to experience symptoms of serious psychological distress compared with white

immigrants living in the United States less than 5 years. Considering self-assessed health status, white immigrant adults living in the United States 5 years or more were much more likely to be in excellent or good health compared with white immigrants living in the United States less than 5 years. Among black immigrant adults, this trend was the opposite—black immigrants living in the United States 5 years or more were much less likely to be in excellent or very good health compared with more recent black immigrants. These results are consistent with studies that have shown that the role of acculturation in health outcomes for immigrants is complex and varies by the health measure being examined (23,24). They also suggest that the mechanism by which acculturation affects health outcomes may not be the same for all race/ethnicity groups.

Several factors may account for the positive health profile that immigrants have when compared with their native-born counterparts. Selectivity among immigrants may play an important role in the differences observed. Persons who immigrate tend to be in much better health than those who remain in their countries of origin, a well-known phenomenon referred to as the “healthy migrant” effect (25). These differences may also reflect nativity differences in behavioral, cultural, and lifestyle factors such as smoking, physical activity, dietary habits, and nutrition, which are known to have an effect on health outcomes (20,26,27). The comparatively negative health outcomes among U.S.-born black adults may be related to social factors such as race/ethnicity discrimination, lower educational attainment, lower income, and higher poverty compared to immigrant black adults (20,21).

Several limitations of this study should be noted. Sample size constraints limited the ability to explore some important differences such as the variation in selected health outcomes for immigrant and native-born groups by sex and race. Previous studies have shown that health characteristics vary substantially by sex. Although it has been well established in the literature that better health outcomes are

associated with higher socioeconomic status, there is no adjustment for socioeconomic status in this study. Another important limitation was the inability of respondents who spoke neither English nor Spanish to complete the interview. Although the survey instrument was translated into Spanish, no other language translations were made for NHIS. Non-English-speaking and non-Spanish-speaking white, black, and Asian immigrants may have had difficulty responding to questions posed in English or Spanish or may have relied on English-speaking or Spanish-speaking household members to assist in translating questions during the interview. Previous studies have also shown that Asian and Hispanic populations are extremely heterogeneous groups with distinct cultures and languages. Health outcomes vary significantly among Asian (e.g., Japanese, Chinese, Filipino, Asian Indian, Korean, Vietnamese) and Hispanic (e.g., Mexican, Cuban, Puerto Rican) subgroups (28,29). A recent study also highlighted differences in health outcomes among non-Hispanic black immigrants (30). However, limited sample sizes precluded looking at health outcomes separately for each of these population subgroups. Finally, this study was unable to assess the degree to which the concepts on the survey were culturally appropriate for immigrant respondents.

Conclusion

This analysis describes differences in various sociodemographic, physical, and mental health characteristics among four race/ethnicity groups of U.S.- and foreign-born adults. The results show important differences between immigrant and native-born populations and underscore the importance of nativity as a factor in the examination of health differences among various race/ethnicity populations. They may also contribute to a better understanding of the contribution of nativity to understanding health disparities among race/ethnicity populations in the United States as the Nation moves toward the goal of eliminating disparities in health for all people.

References

1. Kaiser Commission on Medicaid and the Uninsured, Immigrants' Health Care: Coverage and Access (Washington: Kaiser Family Foundation, August 2000).
2. Gibson CJ, Lennon E. Historical census statistics on the foreign-born population of the United States: 1850–1990. Population Division Working Paper No. 29, U.S. Bureau of the Census, Washington. 20233–8800.
3. Schmidley D. The foreign-born population in the United States: March 2002, U.S. Bureau of the Census, Current Population Reports, P20–539, U.S. Government Printing Office, Washington. 2003.
4. Camarota SA, McArdle N. Where immigrants live: An examination of State residency of the foreign-born by country of origin in 1990 and 2000, Washington: Center for Immigration Studies, September 2003 (<http://www.cis.org/circle.html>).
5. Singh GK, Miller BA. Health, life expectancy, and mortality patterns among immigrant populations in the United States. *Canadian J Public Health* 95 (6):14–21. 2004.
6. Hendershot GE. Health of the foreign-born population: United States, 1985–86. *Adv Data Vital Health Stat.* June 13, 156:1–6. 1988.
7. Thamer M, Richard C, Casebeer AW, Ray NF. Health insurance coverage among foreign-born US residents: the impact of race, ethnicity, and length of residence. *Am J Public Health.* 87: 96–102. 1997.
8. Lucas JW, Barr-Anderson DJ, Kington RS. Health status, health insurance, and health care utilization patterns of immigrant black men. *Am J Public Health.* 93(10): 1740–47. 2003.
9. Stephen EH, Foote K, Hendershot GE, Schoenborn CA. Health of the foreign-born population: United States, 1989–90. Advance data from vital and health statistics: no 241. Hyattsville, MD: National Center for Health Statistics. 1994.
10. Frisbie WP, Cho Y, Hummer RA. Immigration and the health of Asian and Pacific Islander adults in the United States. *Am J Epidemiology* 153(4): 372–80. 2001.
11. LeClere FB, Jensen L, Biddlecom AE. Health care utilization, family context, and adaptation among immigrants to the United States. *J Health Soc Behavior* 35(12): 370–384. 1994.
12. Ku L, Matani S. Left out: Immigrants' access to health care and insurance. *Health Affairs* 20(1): 247–56. 2001.
13. Office of Management and Budget. Revisions to the Standards for the Classification of Federal Data on Race and Ethnicity. *Federal Register* 1997; 62(210):58782–90.
14. Kessler RC, Andrews G, Colpe LJ, et al. Short screening scales to monitor population prevalences and trends in non-specific psychological distress. *Psychological Medicine* 32: 959–976. 2002.
15. Research Triangle Institute. SUDAAN user's manual, Release 9.0 Research Triangle Park, NC: Research Triangle Institute. 2002.
16. Lynch C, Parsons V. The impact of 2000 census-based population controls on health estimates in the National Health Interview Survey. 2004 Proceedings of the American Statistical Associations, Survey Research Methods Section [CD-ROM], Alexandria, VA: American Statistical Association. 2004.
17. Day JC. Population projections of the United States by age, sex, race, and Hispanic origin: 1995 to 2050, U.S. Bureau of the Census, Current Population Reports, P25–1130. Washington. U.S. Government Printing Office. 1996 (<http://www.census.gov/prod/1/pop/p25-1130>).
18. Klein RJ, Schoenborn CA. Age adjustment using the 2000 projected U.S. population. *Healthy People Statistical Notes*, no 20. Hyattsville, MD. National Center for Health Statistics. Jan. 2001.
19. Markides KS, Coreil J. The health of Hispanics in the southwestern United States: an epidemiologic paradox. *Public Health Reports* 101(3): 253–265. 1986.
20. Singh GK, Yu SM. Adverse pregnancy outcomes: differences between US- and foreign-born women in major US racial and ethnic groups. *Am J Public Health.* 86: 837–843. 1996.
21. King G, Polednak A, Bendel R, Hovey D. Cigarette smoking among native and foreign-born African Americans. *Ann Epidemiol.* 1999;9:236–244.
22. Singh GK, Siahpush M. All-cause and cause-specific mortality of immigrants and native-born in the United States. *Am J Public Health.* 91:392–99. 2001.
23. Lara M, Gamboa C, Kahramanian MI, et al. Acculturation and Latino health in the United States: a review of the literature and its sociopolitical context. *Ann Rev Public Health* 26:367–397. 2005.
24. Finch BK, Hummer RA, Reindl M, Vega WA. Validity of self-rated health among Latino(a)s. *Am J Epidemiol* 155(8): 755–759. 2002.
25. Thomas DB, Karagas MR. Migrant studies. In: Schottenfeld D, Fraumeni JF, eds, *Cancer Epidemiology and Prevention*. 2nd ed. Oxford, New York, NY: Oxford University Press. 1996:236–254.
26. Yu SM, Huang ZJ, Singh GK. Health Status and Health Services Utilization Among US Chinese, Asian Indian, Filipino, and Other Asian/Pacific Islander Children. *Pediatr.* 113:101–7. 2004.
27. Guendelman S, Gould JB, Hudes M, Eskenazi B. Generational differences in perinatal health among the Mexican American population: findings from NHANES 1982–84. *Am J Public Health.* 80(suppl): 61–65. 1990.
28. Hajat A, Lucas JB, Kington RS. Health outcomes among Hispanic subgroups: Data from the National Health Interview Survey, 1992–95. Advance data from vital and health statistics: no 310. Hyattsville, MD: National Center for Health Statistics. 2000.
29. Kuo J, Porter K. Health status of Asian Americans: United States, 1992–94. *Adv Data Vital Health Stat.* No. 298, Hyattsville, MD: National Center for Health Statistics. 1998.
30. Read JG, Emerson MO, Tarlov M. Implications of black immigrant health for U.S. racial disparities in health. *J Immigrant Health* 7(3): 205–12. 2005.
31. National Center for Health Statistics. 1998 National Health Interview Survey (NHIS). Public Use Data Release. NHIS Survey Description. ftp://ftp.cdc.gov/pub/Health_Statistics/NCHS/Dataset_Documentation/NHIS/1998/srvydesc.pdf.
32. National Center for Health Statistics. 1999 National Health Interview Survey (NHIS). Public-Use Data

- Release. NHIS Survey Description (ftp://ftp.cdc.gov/pub/Health_Statistics/NCHS/Dataset_Documentation/NHIS/1999/srvydesc.pdf).
33. National Center for Health Statistics. 2000 National Health Interview Survey (NHIS). Public-Use Data Release. NHIS Survey Description (ftp://ftp.cdc.gov/pub/Health_Statistics/NCHS/Dataset_Documentation/NHIS/2000/srvydesc.pdf).
34. National Center for Health Statistics. 2001 National Health Interview Survey (NHIS). Public-Use Data Release. NHIS Survey Description (ftp://ftp.cdc.gov/pub/Health_Statistics/NCHS/Dataset_Documentation/NHIS/2001/srvydesc.pdf).
35. National Center for Health Statistics. 2002 National Health Interview Survey (NHIS). Public-Use Data Release. NHIS Survey Description (ftp://ftp.cdc.gov/pub/Health_Statistics/NCHS/Dataset_Documentation/NHIS/2002/srvydesc.pdf).
36. National Center for Health Statistics. 2003 National Health Interview Survey (NHIS). Public-Use Data Release. NHIS Survey Description (ftp://ftp.cdc.gov/pub/Health_Statistics/NCHS/Dataset_Documentation/NHIS/2003/srvydesc.pdf).
37. Bloom B, Tonthat L. Summary health statistics for U.S. children: National Health Interview Survey, 1997. National Center for Health Statistics. Vital Health Stat 10(203). 2002.
38. Blackwell DL, Tonthat L. Summary health statistics for U.S. population: National Health Interview Survey, 1997. National Center for Health Statistics. Vital Health Stat 10(204). 2001.
39. Blackwell DL, Collins JG, Coles R. Summary health statistics for U.S. adults: National Health Interview Survey, 1997. National Center for Health Statistics. Vital Health Stat 10(205). 2002.
40. Blackwell DL, Tonthat L. Summary health statistics for U.S. children: National Health Interview Survey, 1998. National Center for Health Statistics. Vital Health Stat 10(208). 2002.
41. Blackwell DL, Tonthat L. Summary health statistics for U.S. population: National Health Interview Survey, 1998. National Center for Health Statistics. Vital Health Stat 10(207). 2002.
42. Pleis J, Coles R.. Summary health statistics for U.S. adults: National Health Interview Survey, 1998. National Center for Health Statistics. Vital Health Stat 10(209). 2002.

Table 1. Frequencies and age-adjusted percent distributions (with standard errors) of selected demographic characteristics, by nativity and race: United States, 1998–2003

| Selected characteristic | U.S.-born adults ¹ | | | | | Foreign-born adults ² | | | | |
|--|-------------------------------|--------------|-------------|-------------|-------------|----------------------------------|--------------|-------------|-------------|-------------|
| | All U.S.-born ³ | Non-Hispanic | | | Hispanic | All foreign-born ³ | Non-Hispanic | | | Hispanic |
| | | White | Black | Asian | | | White | Black | Asian | |
| Number in thousands | | | | | | | | | | |
| All persons | 177,441 | 143,118 | 20,531 | 1,072 | 9,636 | 25,628 | 5,957 | 1,983 | 5,379 | 12,017 |
| Total | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |
| Age ⁴ | | | | | | | | | | |
| 18–34 years | 31.2 (0.25) | 28.9 (0.27) | 37.7 (0.54) | 50.4 (2.90) | 46.9 (0.71) | 37.6 (0.49) | 23.8 (0.82) | 35.8 (1.54) | 39.2 (1.04) | 44.1 (0.67) |
| 35–44 years | 21.6 (0.13) | 21.5 (0.15) | 23.0 (0.34) | 14.3 (1.40) | 20.7 (0.41) | 24.3 (0.32) | 20.7 (0.68) | 28.0 (1.23) | 23.9 (0.81) | 25.4 (0.43) |
| 45–64 years | 31.3 (0.18) | 32.4 (0.21) | 27.9 (0.44) | 22.7 (1.74) | 23.1 (0.46) | 26.9 (0.39) | 31.9 (0.81) | 29.9 (1.36) | 28.6 (0.91) | 23.2 (0.50) |
| 65 years and over | 16.0 (0.18) | 17.2 (0.20) | 11.5 (0.34) | 12.6 (1.57) | 9.3 (0.40) | 11.1 (0.30) | 23.6 (0.76) | 6.3 (0.68) | 8.2 (0.58) | 7.2 (0.34) |
| Sex | | | | | | | | | | |
| Male | 47.7 (0.16) | 48.2 (0.18) | 43.8 (0.41) | 52.8 (2.06) | 47.2 (0.54) | 49.0 (0.39) | 47.2 (0.85) | 47.3 (1.46) | 48.5 (0.97) | 50.3 (0.52) |
| Female | 52.3 (0.16) | 51.8 (0.18) | 56.2 (0.41) | 47.2 (2.06) | 52.8 (0.54) | 51.0 (0.39) | 52.8 (0.85) | 52.7 (1.46) | 51.5 (0.97) | 49.7 (0.52) |
| Education | | | | | | | | | | |
| Less than high school diploma | 15.0 (0.20) | 12.5 (0.22) | 26.0 (0.52) | 5.8 (1.04) | 31.7 (0.61) | 34.4 (0.56) | 14.1 (0.67) | 19.8 (1.18) | 15.5 (0.83) | 56.8 (0.70) |
| High school diploma or GED ⁵ | 31.1 (0.22) | 31.1 (0.25) | 31.0 (0.42) | 13.5 (1.38) | 28.6 (0.47) | 20.9 (0.36) | 24.2 (0.83) | 25.6 (1.24) | 17.9 (0.82) | 18.9 (0.45) |
| Some college - no degree | 29.9 (0.18) | 30.0 (0.20) | 28.5 (0.48) | 34.3 (1.82) | 27.5 (0.52) | 19.1 (0.34) | 24.4 (0.72) | 31.8 (1.33) | 19.9 (0.76) | 13.4 (0.38) |
| Bachelor's, Master's, professional, and doctoral degrees | 23.2 (0.26) | 25.5 (0.31) | 13.2 (0.38) | 45.0 (2.42) | 11.1 (0.39) | 23.5 (0.45) | 35.4 (0.99) | 20.7 (1.14) | 44.8 (1.05) | 8.8 (0.35) |
| Family income ⁶ | | | | | | | | | | |
| Less than \$20,000 | 18.8 (0.22) | 16.2 (0.23) | 33.3 (0.60) | 13.6 (1.43) | 26.6 (0.61) | 25.3 (0.45) | 18.3 (0.76) | 22.9 (1.28) | 18.4 (0.93) | 32.7 (0.68) |
| \$20,000 & more | 76.2 (0.24) | 79.1 (0.26) | 60.3 (0.63) | 82.8 (1.54) | 68.8 (0.62) | 69.3 (0.47) | 76.5 (0.83) | 71.3 (1.44) | 76.9 (0.99) | 61.6 (0.68) |
| \$20,000–\$34,999 | 25.2 (0.24) | 23.5 (0.26) | 35.8 (0.74) | 13.3 (1.51) | 32.3 (0.74) | 31.2 (0.58) | 23.2 (1.01) | 28.3 (1.95) | 19.6 (1.13) | 42.1 (0.90) |
| \$35,000–\$54,999 | 26.7 (0.21) | 26.4 (0.23) | 29.7 (0.59) | 19.8 (1.92) | 27.9 (0.67) | 26.8 (0.50) | 25.6 (0.98) | 29.3 (2.19) | 22.3 (1.10) | 29.8 (0.77) |
| \$55,000–\$74,999 | 18.5 (0.17) | 18.8 (0.18) | 16.6 (0.48) | 18.9 (2.06) | 17.1 (0.56) | 15.8 (0.43) | 16.6 (0.79) | 17.1 (1.59) | 17.7 (0.96) | 14.3 (0.66) |
| \$75,000 & above | 29.6 (0.31) | 31.3 (0.34) | 17.9 (0.73) | 48.1 (3.15) | 22.8 (0.72) | 26.2 (0.62) | 34.6 (1.16) | 25.3 (2.12) | 40.4 (1.52) | 13.8 (0.72) |
| Poverty status ⁷ | | | | | | | | | | |
| Poor | 7.6 (0.16) | 5.9 (0.16) | 16.3 (0.43) | 5.4 (0.83) | 13.2 (0.46) | 13.3 (0.34) | 7.6 (0.64) | 10.9 (0.89) | 10.5 (0.69) | 18.4 (0.55) |
| Near poor | 12.5 (0.15) | 11.3 (0.16) | 18.1 (0.36) | 7.9 (1.00) | 17.9 (0.43) | 18.6 (0.33) | 11.7 (0.53) | 16.6 (1.04) | 13.1 (0.75) | 25.3 (0.49) |
| Not poor | 56.6 (0.30) | 59.9 (0.32) | 39.9 (0.62) | 64.8 (2.08) | 45.7 (0.67) | 41.8 (0.49) | 53.8 (1.02) | 46.7 (1.53) | 53.5 (1.09) | 29.8 (0.59) |
| Family size | | | | | | | | | | |
| 1 | 19.4 (0.24) | 19.2 (0.27) | 23.6 (0.48) | 20.6 (1.59) | 15.3 (0.43) | 14.0 (0.31) | 19.1 (0.60) | 19.1 (1.05) | 12.8 (0.67) | 10.7 (0.45) |
| 2 | 34.4 (0.16) | 35.8 (0.17) | 27.7 (0.34) | 29.3 (1.87) | 26.9 (0.48) | 24.0 (0.34) | 31.7 (0.74) | 24.1 (1.13) | 23.8 (0.84) | 19.1 (0.43) |
| 3 | 18.3 (0.14) | 18.2 (0.15) | 19.4 (0.34) | 16.2 (1.43) | 20.0 (0.45) | 17.7 (0.29) | 18.1 (0.70) | 17.1 (0.99) | 20.2 (0.73) | 17.4 (0.40) |
| 4 | 16.6 (0.14) | 16.8 (0.16) | 15.4 (0.33) | 18.3 (1.64) | 18.0 (0.44) | 19.6 (0.31) | 18.4 (0.69) | 18.7 (1.21) | 20.5 (0.78) | 20.2 (0.42) |
| 5 or more | 11.2 (0.13) | 10.1 (0.14) | 14.0 (0.34) | 15.6 (1.96) | 19.8 (0.49) | 24.7 (0.44) | 12.7 (0.78) | 21.0 (1.34) | 22.7 (1.05) | 32.6 (0.62) |
| Marital status | | | | | | | | | | |
| Married | 57.2 (0.24) | 60.5 (0.25) | 37.1 (0.46) | 53.8 (2.15) | 53.2 (0.59) | 64.7 (0.39) | 66.0 (0.75) | 48.4 (1.54) | 68.1 (0.85) | 64.8 (0.54) |
| Never married | 22.6 (0.18) | 20.6 (0.20) | 33.3 (0.35) | 34.4 (1.61) | 24.2 (0.40) | 18.2 (0.26) | 17.0 (0.63) | 28.6 (1.09) | 19.0 (0.62) | 17.2 (0.33) |
| Divorced or separated | 12.5 (0.11) | 11.6 (0.12) | 18.5 (0.29) | 7.0 (1.03) | 15.3 (0.38) | 9.4 (0.20) | 8.8 (0.40) | 15.7 (0.88) | 5.0 (0.35) | 11.1 (0.31) |
| Widowed | 7.3 (0.07) | 6.9 (0.07) | 10.3 (0.20) | 4.5 (0.76) | 6.8 (0.28) | 7.3 (0.19) | 8.0 (0.30) | 5.9 (0.74) | 7.5 (0.53) | 6.5 (0.29) |

See footnotes at end of table.

Table 1. Frequencies and age-adjusted percent distributions (with standard errors) of selected demographic characteristics, by nativity and race: United States, 1998–2003—Con.

| Selected characteristic | U.S.-born adults ¹ | | | | | Foreign-born adults ² | | | | |
|--|-------------------------------|--------------|-------------|-------------|-------------|----------------------------------|--------------|-------------|-------------|-------------|
| | All U.S.-born ³ | Non-Hispanic | | | Hispanic | All foreign-born ³ | Non-Hispanic | | | Hispanic |
| | | White | Black | Asian | | | White | Black | Asian | |
| Number in thousands | | | | | | | | | | |
| Place of residence | | | | | | | | | | |
| MSA - central city ⁸ | 26.1 (0.58) | 21.3 (0.61) | 50.4 (1.42) | 28.3 (2.40) | 47.1 (1.38) | 41.8 (1.02) | 36.1 (1.54) | 53.7 (3.00) | 41.3 (1.68) | 44.2 (1.52) |
| MSA - not central city ⁸ | 50.8 (0.68) | 53.8 (0.75) | 33.7 (1.28) | 64.7 (4.22) | 42.2 (1.24) | 52.6 (1.03) | 58.5 (1.53) | 44.9 (3.01) | 55.2 (1.68) | 49.0 (1.55) |
| Not MSA ⁹ | 23.1 (0.50) | 24.9 (0.56) | 15.9 (1.50) | *7.0 (4.70) | 10.8 (1.42) | 5.5 (0.59) | 5.4 (0.50) | *1.4 (0.42) | 3.5 (0.63) | 6.8 (1.17) |
| Region | | | | | | | | | | |
| Northeast | 18.7 (0.30) | 19.8 (0.36) | 13.8 (0.58) | 8.8 (1.17) | 16.9 (0.78) | 24.6 (0.60) | 34.6 (1.18) | 53.2 (2.53) | 22.5 (1.20) | 14.4 (0.76) |
| Midwest | 26.9 (0.38) | 29.5 (0.43) | 19.6 (0.82) | 8.2 (1.32) | 8.5 (0.52) | 11.9 (0.55) | 18.7 (1.22) | 7.0 (1.02) | 14.9 (1.02) | 7.1 (0.64) |
| South | 37.4 (0.41) | 34.6 (0.47) | 59.4 (1.11) | 9.8 (1.16) | 35.6 (1.56) | 28.8 (0.69) | 22.6 (0.98) | 34.9 (2.50) | 20.5 (1.07) | 36.3 (1.15) |
| West | 17.0 (0.29) | 16.2 (0.33) | 7.1 (0.35) | 73.1 (2.03) | 39.0 (1.52) | 34.6 (0.68) | 24.1 (1.00) | 4.9 (0.66) | 42.0 (1.44) | 42.1 (1.07) |
| Length of time in United States ⁹ | | | | | | | | | | |
| Less than 5 years | -- | -- | -- | -- | -- | 14.8 (0.35) | 17.9 (0.83) | 14.1 (1.06) | 15.7 (0.74) | 13.8 (0.43) |
| 5 years or more | -- | -- | -- | -- | -- | 83.6 (0.35) | 81.1 (0.83) | 83.9 (1.12) | 83.1 (0.76) | 84.2 (0.44) |
| 5–10 years | -- | -- | -- | -- | -- | 14.4 (0.27) | 14.2 (0.61) | 14.6 (1.05) | 16.4 (0.72) | 13.9 (0.36) |
| 10 years or more | -- | -- | -- | -- | -- | 69.2 (0.41) | 66.9 (0.89) | 69.3 (1.34) | 66.7 (0.95) | 70.3 (0.55) |

* Estimates preceded by an asterisk have a relative standard error of greater than 30% and should be used with caution as they do not meet the standard of reliability or precision.

-- Quantity zero

¹U.S.-born is defined as having been born in one of the 50 States, the District of Columbia, Puerto Rico, or any of the other U.S. territories (e.g., American Samoa, Guam, U.S. Virgin Islands, and Northern Marianas). Persons born in a foreign country to parents who were U.S. citizens were also defined as U.S.-born.

²Foreign-born persons are defined as people living in the United States who were not U.S. citizens at birth. All naturalized citizens, legal permanent residents, illegal aliens, and persons on long-term temporary visas (such as students or guest workers) also fall in this category.

³Persons of other races and unknown race and ethnicity, unknown education, unknown family income, unknown poverty level, unknown employment status, and unknown marital status are included in the total, but not shown separately.

⁴Estimates for age group are not age adjusted.

⁵GED is General Educational Development high school equivalency diploma.

⁶The categories "Less than \$20,000" and "\$20,000 or more" include both persons reporting dollar amounts and persons reporting only that their incomes were within one of these two categories. The indented categories include only those persons who reported dollar amounts.

⁷Poverty status is based on family income and family size using the U.S. Census Bureau's poverty thresholds for the previous calendar year. "Poor" persons are defined as below the poverty threshold. "Near poor" persons have incomes of 100% to less than 200% of the poverty threshold. "Not poor" persons have incomes that are 200% of the poverty threshold or greater.

⁸MSA is metropolitan statistical area.

⁹Includes only those persons who were not born in the United States.

NOTE: Estimates are age adjusted to the year 2000 standard U.S. population using four age groups: 18–34 years, 35–44 years, 45–64 years, and 65 years and over.

DATA SOURCE: National Health Interview Survey, 1998–2003. Data are based on household interviews of a sample of the civilian noninstitutionalized population.

Table 2. Age-adjusted percent distributions (with standard errors) of selected access to care and utilization of health care services measures, by nativity and race: United States, 1998–2003

| Selected characteristic | U.S.-born adults ¹ | | | | | Foreign-born adults ² | | | | |
|---|-------------------------------|--------------|-------------|-------------|-------------|----------------------------------|--------------|-------------|-------------|-------------|
| | All U.S.-born ³ | Non-Hispanic | | | Hispanic | All foreign-born ³ | Non-Hispanic | | | Hispanic |
| | | White | Black | Asian | | | White | Black | Asian | |
| Total | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |
| Health insurance coverage ⁴ | | | | | | | | | | |
| Private | 74.3 (0.23) | 78.2 (0.24) | 56.5 (0.57) | 85.2 (1.46) | 57.4 (0.63) | 53.4 (0.51) | 70.5 (0.94) | 56.7 (1.44) | 65.1 (1.03) | 37.3 (0.61) |
| Medicaid or other public | 5.6 (0.10) | 4.0 (0.10) | 13.6 (0.38) | 3.6 (0.88) | 12.5 (0.41) | 8.9 (0.29) | 6.2 (0.57) | 7.9 (0.77) | 8.8 (0.66) | 12.5 (0.45) |
| Other | 6.9 (0.10) | 6.3 (0.10) | 11.3 (0.24) | 4.4 (0.90) | 10.5 (0.34) | 7.6 (0.22) | 7.7 (0.34) | 8.7 (0.84) | 8.5 (0.61) | 7.5 (0.33) |
| Uninsured | 10.6 (0.12) | 9.4 (0.14) | 14.7 (0.30) | 6.0 (0.84) | 15.8 (0.39) | 25.7 (0.40) | 12.8 (0.61) | 22.5 (1.18) | 14.8 (0.75) | 36.8 (0.55) |
| Usual place to go for medical care ⁵ | 87.7 (0.13) | 88.1 (0.15) | 87.1 (0.30) | 89.1 (1.10) | 83.6 (0.42) | 76.4 (0.39) | 84.9 (0.63) | 82.1 (1.09) | 81.7 (0.75) | 69.4 (0.55) |
| Unmet medical needs ⁶ | | | | | | | | | | |
| Mental care or counseling | 1.9 (0.04) | 1.8 (0.04) | 1.9 (0.10) | *0.5 (0.21) | 2.2 (0.16) | 1.4 (0.08) | 1.3 (0.18) | 1.6 (0.34) | 0.6 (0.13) | 1.8 (0.14) |
| Dental care | 9.1 (0.12) | 8.8 (0.13) | 10.5 (0.29) | 4.7 (0.87) | 11.2 (0.41) | 8.3 (0.22) | 8.3 (0.54) | 8.5 (0.78) | 5.8 (0.45) | 9.8 (0.33) |
| Prescription medicine | 6.4 (0.10) | 5.9 (0.10) | 8.7 (0.26) | *2.1 (0.69) | 8.5 (0.30) | 5.4 (0.17) | 4.2 (0.35) | 6.8 (0.61) | 3.3 (0.34) | 7.0 (0.28) |
| Time since last contact with doctor or health professional ⁷ | | | | | | | | | | |
| 6 months or less | 70.3 (0.15) | 70.8 (0.16) | 69.9 (0.44) | 69.1 (1.80) | 65.2 (0.51) | 59.3 (0.40) | 66.7 (0.84) | 66.8 (1.22) | 60.7 (0.93) | 54.0 (0.54) |
| 6 months - 1 year | 14.0 (0.11) | 13.9 (0.13) | 14.5 (0.31) | 16.0 (1.45) | 14.2 (0.37) | 14.5 (0.27) | 14.0 (0.58) | 15.1 (0.90) | 15.1 (0.66) | 14.3 (0.35) |
| 1 year or more | 15.1 (0.13) | 14.7 (0.14) | 14.8 (0.31) | 14.5 (1.37) | 19.1 (0.42) | 22.5 (0.33) | 17.8 (0.71) | 16.0 (1.07) | 21.3 (0.75) | 26.0 (0.46) |
| Never | 0.7 (0.03) | 0.6 (0.04) | 0.9 (0.08) | *0.5 (0.24) | 1.5 (0.14) | 3.8 (0.18) | 1.5 (0.22) | 2.2 (0.43) | 2.9 (0.37) | 5.6 (0.29) |
| Number of doctor visits ⁸ | | | | | | | | | | |
| None | 17.6 (0.14) | 16.9 (0.16) | 19.0 (0.39) | 14.6 (1.39) | 23.5 (0.48) | 29.0 (0.39) | 21.6 (0.77) | 21.4 (1.16) | 26.0 (0.81) | 34.9 (0.53) |
| 1–3 visits | 43.1 (0.17) | 43.4 (0.20) | 42.5 (0.39) | 46.2 (2.40) | 40.4 (0.56) | 41.6 (0.40) | 44.8 (0.83) | 46.1 (1.40) | 45.7 (0.96) | 37.4 (0.53) |
| 4–9 visits | 24.4 (0.14) | 24.7 (0.16) | 24.5 (0.37) | 24.5 (1.87) | 21.6 (0.43) | 19.2 (0.30) | 21.8 (0.62) | 21.7 (1.17) | 19.2 (0.80) | 17.4 (0.41) |
| 10 visits or more | 14.8 (0.12) | 15.0 (0.14) | 14.0 (0.30) | 14.7 (1.79) | 14.5 (0.41) | 10.2 (0.24) | 11.9 (0.51) | 10.9 (0.93) | 9.0 (0.56) | 10.3 (0.36) |

* Estimates preceded by an asterisk have a relative standard error of greater than 30% and should be used with caution as they do not meet the standard of reliability or precision.

¹U.S.-born is defined as having been born in one of the 50 States, the District of Columbia, Puerto Rico, or any of the other U.S. territories (e.g., American Samoa, Guam, U.S. Virgin Islands, and Northern Marianas). Persons born in a foreign country to parents who were U.S. citizens were also defined as U.S.-born.

²Foreign-born persons are defined as people living in the United States who were not U.S. citizens at birth. All naturalized citizens, legal permanent residents, illegal aliens, and persons on long-term temporary visas (such as students or guest workers) also fall in this category.

³Persons of other races and unknown race and ethnicity are included in the total.

⁴Classification of health insurance coverage is based on a hierarchy of mutually exclusive categories. Persons with more than one type of health insurance were assigned to the first appropriate category in the hierarchy. The category "Uninsured" includes persons who had no coverage as well as those who had only Indian Health Service coverage or had only a private plan that paid for one type of service such as accidents or dental care.

⁵Usual place to go for medical care is based on a question in the survey that asked, "Is there a place that you usually go to when you are sick or need advice about your health?"

⁶Unmet medical needs is based on a question in the survey that asked, "During the past 12 months, was there any time when you needed any of the following, but didn't get it because you couldn't afford it?"

⁷Time since last contact with a doctor or health professional is based on a question in the survey that asked respondents, "About how long has it been since you saw or talked to a doctor or other health care professional about your own health?" These contacts may include office visits, hospital visits, home visits, and phone calls (but not calls made for arranging appointments).

⁸Number of doctor visits is based on a question in the survey that asked respondents, "During the past 12 months, how many times have you seen a doctor or other health care professional about your own health at a doctor's office, a clinic, or some other place?" Respondents are instructed to exclude overnight hospitalizations, visits to hospital emergency rooms, home visits, or telephone calls.

NOTE: Estimates are age adjusted to the year 2000 standard U.S. population using four age groups: 18–34 years, 35–44 years, 45–64 years, and 65 years and over.

DATA SOURCE: National Health Interview Survey, 1998–2003. Data are based on household interviews of a sample of the civilian noninstitutionalized population.

Table 3. Age-adjusted percent distributions (with standard errors) of selected health status measures and average number of bed days, by nativity and race: United States, 1998–2003

| Selected characteristic | U.S.-born adults ¹ | | | | | Foreign-born adults ² | | | | |
|---|-------------------------------|--------------|-------------|-------------|-------------|----------------------------------|--------------|-------------|-------------|-------------|
| | All U.S.-born ³ | Non-Hispanic | | | Hispanic | All foreign-born | Non-Hispanic | | | Hispanic |
| | | White | Black | Asian | | | White | Black | Asian | |
| Total | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |
| Self-assessed health ⁴ | | | | | | | | | | |
| Excellent or very good | 63.7 (0.22) | 66.2 (0.24) | 50.6 (0.45) | 68.9 (2.09) | 54.9 (0.51) | 60.5 (0.41) | 66.4 (0.88) | 64.4 (1.14) | 65.0 (0.95) | 54.3 (0.57) |
| Good | 24.4 (0.15) | 23.3 (0.16) | 29.3 (0.37) | 21.6 (1.50) | 26.2 (0.47) | 27.1 (0.35) | 23.6 (0.72) | 23.4 (1.24) | 25.0 (0.89) | 29.8 (0.49) |
| Fair or poor | 11.8 (0.14) | 10.3 (0.15) | 20.0 (0.38) | 9.1 (1.37) | 18.8 (0.43) | 12.4 (0.26) | 9.9 (0.49) | 12.0 (0.91) | 10.0 (0.62) | 15.8 (0.41) |
| Limitation in ADL ⁵ or IADL ⁶ | | | | | | | | | | |
| ADL | 1.7 (0.04) | 1.5 (0.04) | 3.0 (0.14) | *0.7 (0.32) | 2.4 (0.19) | 1.7 (0.11) | 1.9 (0.21) | 1.5 (0.40) | 1.6 (0.28) | 1.7 (0.15) |
| IADL | 3.8 (0.06) | 3.5 (0.06) | 5.9 (0.19) | 2.9 (0.73) | 4.4 (0.21) | 3.0 (0.13) | 3.3 (0.25) | 3.0 (0.53) | 2.6 (0.31) | 3.0 (0.20) |
| Annual bed days ⁷ | | | | | | | | | | |
| None | 62.0 (0.19) | 61.5 (0.22) | 64.4 (0.44) | 58.3 (1.93) | 63.3 (0.54) | 72.8 (0.35) | 67.9 (0.78) | 72.7 (1.37) | 71.4 (0.87) | 75.0 (0.47) |
| 1–6 days | 28.6 (0.17) | 29.5 (0.20) | 24.3 (0.36) | 34.3 (1.97) | 26.1 (0.46) | 20.0 (0.31) | 24.3 (0.73) | 20.3 (1.17) | 21.2 (0.76) | 17.8 (0.41) |
| 7 days or more | 9.4 (0.10) | 9.0 (0.10) | 11.3 (0.28) | 7.3 (1.45) | 10.6 (0.36) | 7.2 (0.20) | 7.8 (0.42) | 7.0 (0.80) | 7.4 (0.53) | 7.2 (0.27) |
| Average number of bed days | 4.9 (0.08) | 4.6 (0.09) | 6.7 (0.31) | 3.4 (0.84) | 5.7 (0.33) | 3.4 (0.18) | 4.1 (0.39) | 2.7 (0.47) | 3.4 (0.49) | 3.4 (0.26) |
| Mental health | | | | | | | | | | |
| Serious psychological distress ⁸ | 2.9 (0.06) | 2.7 (0.07) | 3.3 (0.15) | *1.4 (0.45) | 4.4 (0.21) | 2.9 (0.13) | 2.9 (0.29) | 1.9 (0.31) | 1.7 (0.26) | 3.6 (0.20) |

* Estimates preceded by an asterisk have a relative standard error of greater than 30% and should be used with caution as they do not meet the standard of reliability or precision.

¹U.S.-born is defined as having been born in one of the 50 States, the District of Columbia, Puerto Rico, or any of the other U.S. territories (e.g., American Samoa, Guam, U.S. Virgin Islands, and Northern Marianas). Persons born in a foreign country to parents who were U.S. citizens were also defined as U.S.-born.

²Foreign-born persons are defined as people living in the United States who were not U.S. citizens at birth. All naturalized citizens, legal permanent residents, illegal aliens, and persons on long-term temporary visas (such as students or guest workers) also fall in this category.

³Persons of other races and unknown race and ethnicity are included in the total.

⁴Self-assessed health is based on a question in the survey that asked respondents, "Would you say [subject's name] health in general was excellent, very good, good, fair, or poor?" This information was obtained during a part of the interview that allowed proxy responses, such that a knowledgeable adult family member could respond on behalf of adults not taking part in the interview (however, the sample is based on the reported health status for the sample adult only). "Excellent" and "very good" are combined, as are "fair" and "poor."

⁵ADL is activities of daily living. Limitation in ADL is based on the question, "Because of a physical, mental, or emotional problem, does [person] need the help of other persons with PERSONAL CARE NEEDS, such as eating, bathing, dressing, or getting around inside the house?"

⁶IADL is instrumental activities of daily living. Limitation in IADL is based on the question, "Because of a physical, mental, or emotional problem, does [person] need the help of other persons with ROUTINE NEEDS, such as everyday household chores, doing necessary business, shopping, or getting around for other purposes?"

⁷Respondents were asked, "During the past 12 months, that is, since [12 month reference date] about how many days did illness or injury keep you in bed more than half of the day (Include days while an overnight patient in a hospital)?"

⁸Six psychological distress questions are included in the Sample Adult Core component. These questions ask how often a respondent experienced certain symptoms of psychological distress during the past 30 days. The response codes (0–4) of the six items for each person are summed to yield a scale with a 0–24 range. A value of 13 or more for this scale is used here to define serious psychological distress.

NOTE: Estimates are age adjusted to the year 2000 standard U.S. population using four age groups: 18–34 years, 35–44 years, 45–64 years, and 65 years and over.

Table 4. Age-adjusted percents (with standard error) of adults with selected risk factors or chronic diseases, by nativity and race: United States, 1998–2003

| Selected risk factor or chronic disease | U.S.-born adults ¹ | | | | | Foreign-born adults ² | | | | |
|---|---|--------------|-------------|-------------|-------------|----------------------------------|--------------|-------------|-------------|-------------|
| | All U.S.-born ³ | Non-Hispanic | | | | All foreign-born ³ | Non-Hispanic | | | |
| | | White | Black | Asian | Hispanic | | White | Black | Asian | Hispanic |
| | Age-adjusted percent and standard error | | | | | | | | | |
| Obesity ⁴ | 22.9 (0.14) | 20.8 (0.16) | 33.1 (0.38) | 10.7 (1.43) | 29.8 (0.55) | 15.7 (0.28) | 14.0 (0.61) | 18.5 (1.08) | 5.1 (0.45) | 21.0 (0.44) |
| Current smoking ⁵ | 24.0 (0.18) | 24.3 (0.20) | 23.8 (0.38) | 15.2 (1.42) | 20.1 (0.42) | 14.1 (0.27) | 19.3 (0.72) | 8.4 (0.67) | 11.9 (0.61) | 14.1 (0.35) |
| Diabetes ⁶ | 6.1 (0.07) | 5.3 (0.07) | 10.1 (0.24) | 5.6 (0.79) | 10.8 (0.36) | 6.0 (0.20) | 4.4 (0.33) | 8.2 (0.84) | 5.6 (0.48) | 7.4 (0.33) |
| Hypertension ⁷ | 24.3 (0.13) | 22.9 (0.15) | 34.7 (0.35) | 23.9 (1.81) | 24.5 (0.47) | 19.8 (0.30) | 20.1 (0.58) | 26.7 (1.03) | 18.9 (0.70) | 19.3 (0.39) |
| Cardiovascular disease ⁸ | 7.6 (0.07) | 7.4 (0.08) | 8.3 (0.21) | 6.6 (0.82) | 7.6 (0.29) | 5.7 (0.18) | 6.9 (0.33) | 3.9 (0.72) | 4.5 (0.44) | 5.2 (0.26) |

¹U.S.-born is defined as having been born in one of the 50 States, the District of Columbia, Puerto Rico, or any of the other U.S. territories (e.g., American Samoa, Guam, U.S. Virgin Islands, and Northern Marianas). Persons born in a foreign country to parents who were U.S. citizens were also defined as U.S.-born.

²Foreign-born persons are defined as people living in the United States who were not U.S. citizens at birth. All naturalized citizens, legal permanent residents, illegal aliens, and persons on long-term temporary visas (such as students or guest workers) also fall in this category.

³Persons of other races and unknown race and ethnicity are included in the total.

⁴Obesity is indicated by a body mass index (BMI) greater than or equal to 30.0.

⁵Current smokers have smoked at least 100 cigarettes in their lifetime and still smoke.

⁶Respondents were asked (if female other than during pregnancy) if they had ever been told by a doctor or health professional that they have diabetes or sugar diabetes.

⁷Respondents were asked if they ever been told by a doctor or health professional that they had hypertension.

⁸Cardiovascular disease includes coronary heart disease, heart attack, stroke, and angina. Respondents were asked if they had been told by a doctor or health professional that they had these conditions.

NOTE: Estimates are age adjusted to the year 2000 standard U.S. population using four age groups: 18–34 years, 35–44 years, 45–64 years, and 65 years and over.

DATA SOURCE: National Health Interview Survey, 1998–2003. Data are based on household interviews of a sample of the civilian noninstitutionalized population.

Table 5. Age-adjusted percent distributions (with standard errors) of selected health status measures for foreign-born adults, by race and length of stay: United States, 1998–2003

| Selected characteristic | Non-Hispanic | | | | | | | | |
|---|-------------------|-----------------|-------------------|-----------------|-------------------|-----------------|-------------------|-----------------|-------|
| | White | | Black | | Asian | | Hispanic | | |
| | Less than 5 years | 5 years or more | Less than 5 years | 5 years or more | Less than 5 years | 5 years or more | Less than 5 years | 5 years or more | |
| Total | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |
| Self-assessed health ¹ | | | | | | | | | |
| Excellent or very good | 58.9 (3.20) | 66.9 (0.88) | 75.2 (4.31) | 63.2 (1.21) | 67.3 (3.44) | 64.4 (1.00) | 56.9 (2.28) | 53.8 (0.59) | |
| Good | 25.4 (2.81) | 23.5 (0.77) | 15.8 (3.08) | 24.2 (1.32) | 19.4 (2.24) | 25.6 (0.96) | 29.0 (1.97) | 30.1 (0.52) | |
| Fair or poor | 15.6 (2.42) | 9.6 (0.50) | *9.0 (3.15) | 12.5 (1.00) | 12.1 (2.79) | 10.0 (0.66) | 14.1 (1.74) | 16.1 (0.44) | |
| Limitation in IADL ² or ADL ³ | | | | | | | | | |
| IADL | *5.3 (2.01) | 3.2 (0.25) | *4.2 (2.52) | 3.0 (0.55) | *1.9 (1.30) | 2.6 (0.33) | *1.0 (0.48) | 3.1 (0.21) | |
| ADL | *5.9 (2.22) | 1.7 (0.18) | *2.6 (2.29) | 1.5 (0.41) | *1.3 (1.23) | 1.6 (0.29) | *0.6 (0.38) | *1.8 (0.16) | |
| Annual bed days ⁴ | | | | | | | | | |
| None | 65.7 (2.84) | 66.7 (0.94) | 75.9 (3.82) | 71.9 (1.49) | 80.6 (2.95) | 69.7 (0.98) | 82.1 (1.58) | 73.9 (0.50) | |
| 1–6 days | 24.7 (2.59) | 24.5 (2.21) | 16.0 (3.04) | 20.9 (1.27) | 12.9 (1.60) | 22.8 (0.87) | 11.8 (1.19) | 18.8 (0.44) | |
| 7 days or more | 9.6 (2.44) | 7.9 (0.48) | 8.1 (2.40) | 7.1 (0.90) | *6.5 (2.73) | 7.5 (0.56) | 6.1 (1.22) | 7.4 (0.29) | |
| Mental health | | | | | | | | | |
| Serious psychological distress ⁵ | 8.9 (2.43) | 2.6 (0.29) | *0.1 (0.12) | 2.2 (0.37) | *1.1 (0.40) | 1.7 (0.27) | 2.6 (0.68) | 3.6 (0.21) | |
| Selected risk factors or chronic diseases | | | | | | | | | |
| Obesity ⁶ | 16.5 (2.55) | 14.9 (0.69) | 18.8 (4.76) | 18.9 (1.13) | 3.3 (0.92) | 5.3 (0.51) | 16.1 (1.71) | 22.0 (0.48) | |
| Current smoking ⁷ | 20.5 (2.14) | 19.2 (0.79) | *10.0 (3.21) | 8.5 (0.74) | 13.4 (1.97) | 11.8 (0.65) | 15.3 (1.28) | 13.8 (0.36) | |
| Diabetes ⁸ | 7.8 (2.25) | 4.2 (0.31) | *6.9 (3.10) | 8.5 (0.91) | 10.3 (3.03) | 5.3 (0.48) | 6.9 (1.32) | 7.5 (0.33) | |
| Hypertension ⁹ | 19.6 (2.48) | 20.5 (0.64) | 23.8 (3.72) | 27.4 (1.15) | 16.6 (3.10) | 19.2 (0.74) | 13.4 (1.61) | 19.8 (0.41) | |
| Cardiovascular disease ¹⁰ | 6.8 (1.84) | 6.9 (0.34) | *5.1 (2.93) | 3.9 (0.74) | *3.0 (1.90) | 4.6 (0.45) | 3.5 (0.90) | 5.4 (0.28) | |

* Estimates preceded by an asterisk have a relative standard error of greater than 30% and should be used with caution as they do not meet the standard of reliability or precision.

¹Self-assessed health is based on a question in the survey that asked respondents, "Would you say [subject's name] health in general was excellent, very good, good, fair, or poor?" This information was obtained during a part of the interview that allowed proxy responses, such that a knowledgeable adult family member could respond on behalf of adults not taking part in the interview (however, the sample is based on the reported health status for the sample adult only). "Excellent" and "very good" are combined, as are "fair" and "poor."

²IADL is instrumental activities of daily living. IADL is based on a question in the survey that asked respondents, "Because of a physical, mental, or emotional problem, [do/does] [person] need the help of other persons in handling routine needs, such as everyday household chores, doing necessary business, shopping, or getting around for other purposes?"

³ADL is activities of daily living. ADL is based on a question in the survey that asked respondents, "Because of a physical, mental, or emotional problem, [do/does] [person] need the help of other persons with personal care needs, such as eating, bathing, dressing, or getting around inside the home?"

⁴Annual bed days is based on a question in the survey that asked respondents, "During the past 12 months, about how many days did illness or injury keep you in the bed more than half of the day (include days while an overnight patient in a hospital)?"

⁵Six psychological distress questions are included in the Sample Adult Core component. These questions ask how often a respondent experienced certain symptoms of psychological distress during the past 30 days. The response codes (0–4) of the six items for each person are summed to yield a scale with a 0–24 range. A value of 13 or more for this scale is used here to define serious psychological distress.

⁶Obesity is indicated by a body mass index (BMI) greater than or equal to 30.0.

⁷Current smokers have smoked at least 100 cigarettes in their lifetime and currently smoke.

⁸Respondents were asked (if female than other than during pregnancy) if they ever been told by a doctor or health professional that they have diabetes or sugar diabetes.

⁹Respondents were asked if they ever been told by a doctor or health professional that they had hypertension.

¹⁰Cardiovascular disease includes coronary heart disease, heart attack, stroke, and angina. Respondents were asked if they ever been told by a doctor or health professional that they had these conditions.

NOTES: Foreign-born persons are defined as people living in the United States who were not U.S. citizens at birth. All naturalized citizens, legal permanent residents, illegal aliens and persons on long-term temporary visas (such as students or guest workers) also fall in this category. Estimates are age adjusted to the year 2000 standard U.S. population using four age groups: 18–34 years, 35–44 years, 45–64 years, and 65 years and over.

DATA SOURCE: National Health Interview Survey, 1998–2003. Data are based on household interviews of a sample of the civilian noninstitutionalized population.

Technical Notes

Sample design

The National Health Interview Survey (NHIS) is a cross-sectional household interview survey of the U.S. civilian noninstitutionalized population. Data are collected continuously throughout the year in all 50 States and the District of Columbia. The NHIS uses a multistage, clustered sample design to produce national estimates for a variety of health indicators. Information on basic health topics is collected for all household members by proxy from one family member for adults not present at the time of interview and by proxy for children. Additional information is collected for one randomly sampled adult and one randomly sampled child in each family. Self-response is required for the Sample Adult questionnaire except in the case of sample adults who are physically or mentally incapable of responding for themselves. An adult family member who is knowledgeable about the sample child's health provides information for the child component. Interviews are conducted in the home using a computer-assisted personal interview (CAPI) questionnaire. Telephone follow-up is permitted to complete the survey after the initial home interview if a further in-home interview cannot be done.

Response rates

Combining years 1998–2003, NHIS interviews were completed for 225,429 households and 229,245 families, with 190,837 adults aged 18 years and over completing the Sample Adult questionnaire. The final response rate for the 1998–2003 combined household files was 89.0% and for sample adult files was 73.0%. Procedures used in calculating response rates for combined data year are described in detail in Appendix I of the Survey Description of the NHIS data files (31–36). The number of completed household, family, and sample adult interviews by year and household and sample adult response rates by year are in [Table I](#).

Table I. Completed interviews and response rates by year: National Health Interview Survey, 1998–2003

| Interviews and rates | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 |
|-----------------------------|--------|--------|--------|--------|--------|--------|
| Completed interviews | | | | | | |
| Household | 38,209 | 37,573 | 38,633 | 38,932 | 36,161 | 35,921 |
| Family | 38,773 | 38,171 | 39,264 | 39,633 | 36,831 | 36,573 |
| Sample adult | 32,440 | 30,801 | 32,374 | 33,326 | 31,044 | 30,852 |
| Response rate | | | | | | |
| Household | 90.0 | 87.6 | 88.9 | 88.9 | 89.6 | 89.2 |
| Sample adult | 73.9 | 69.6 | 72.1 | 73.8 | 74.3 | 74.2 |

Age Adjustment

Data shown in this report were age adjusted using the 2000 standard U.S. population (17,18). Age adjustment was used to allow comparison among various population subgroups that have different age structures and to allow comparison of changes over time. Age adjustment is particularly important for demographic characteristics such as race and ethnicity, nativity, education, and marital status. It is also helpful for other characteristics. The following age groups were used for age adjustment: 18–34 years, 35–44 years, 45–64 years, and 65 years and over.

Estimates were calculated using software for statistical analysis of correlated data (SUDAAN) (15). The SUDAAN procedure PROC DESCRIPT was used to produce age-adjusted percents and their standard errors.

Statistical tests performed to assess the significance of differences between estimates were two-tailed with no adjustments for multiple comparisons. The test statistic used to determine statistical significance of the difference between two percentages was:

$$Z = \frac{|X_a - X_b|}{\sqrt{S_a^2 + S_b^2}}$$

Here X_a and X_b are the two percentages being compared, and S_a and S_b are the SUDAAN-calculated standard errors of the percents. The critical value used for two-sided tests at the 0.05 level was 1.96.

Relative standard error

Estimates with a relative standard error greater than 30% are considered unreliable and are indicated with an

asterisk. The relative standard errors are calculated as follows: Relative standard error = (SE/Est)100, where SE is the standard error of the estimate, and Est is the estimate (percent, rate, mean, or frequency).

Definitions of selected terms

Sociodemographic terms

Age—The age recorded for each adult is the age at the last birthday. Age is recorded in single years and grouped using a variety of age categories depending on the purpose of the table.

Education—The categories of education are based on the years of school completed or highest degree obtained for persons aged 25 years and over. Only years completed in a school that advances a person toward an elementary or high school diploma, General Educational Development high school equivalency diploma (GED), college, university, or professional degree are included. Education in other schools and home schooling are counted only if the credits are accepted in a regular school system.

Family income—Each member of a family is classified according to the total income of all family members. Family members are all persons within the household related to each other by blood, marriage, cohabitation, or adoption. The income recorded is the total income received by all family members in the previous calendar year. Income from all sources includes wages, salaries, military pay (when an Armed Forces member lived in the family), pensions, government payments, child support or alimony, dividends, and help from relatives. Unrelated individuals

living in the same household (e.g., roommates) are considered to be separate families and are classified according to their own incomes.

Health insurance coverage—NHIS respondents were asked about their health insurance coverage at the time of the interview. Respondents reported whether they were covered by private insurance (obtained from their employer or workplace, purchased directly, or through a local or community program), Medicare, Medigap (supplemental Medicare coverage), Medicaid, State Children's Health Insurance Plan (CHIP), Indian Health Service (IHS), military coverage (including VA, TRICARE, or CHAMP-VA), a State-sponsored health plan, another government program, and/or single service plans. This information was used to form two health insurance hierarchies: one for those under age 65 years and another for persons age 65 years and over.

For persons under age 65 years, a health insurance hierarchy of four mutually exclusive categories was developed. Persons with more than one type of health insurance were assigned to the first appropriate category in the hierarchy listed below:

Private coverage—Includes persons who had any comprehensive private insurance plan (including health maintenance organizations and preferred provider organizations). These plans include those obtained through an employer, purchased directly, or through local or community programs.

Medicaid—Includes persons who do not have private coverage, but who have Medicaid or other State-sponsored health plans including SCHIP.

Other coverage—Includes persons who do not have private insurance or Medicaid (other public coverage), but who have any type of military health plan (includes VA, TRICARE, and CHAMP-VA) or Medicare. This category also includes persons who are covered by other government programs.

Uninsured—Includes persons who have not indicated that they are covered at the time of the interview under private health insurance (from employer or workplace, purchased directly, or through a State, local government, or community program), Medicare, Medicaid, SCHIP, a State-sponsored health plan, other government programs, or military health plan (includes VA, TRICARE, and CHAMP-VA). This category also includes persons who are only covered by IHS or only have a plan that pays for one type of service such as accidents or dental care.

For persons aged 65 years and over, a health insurance hierarchy of five mutually exclusive categories was developed. Persons with more than one type of health insurance were assigned to the first appropriate category in the hierarchy listed below:

Private coverage—Includes persons age 65 and over who have both Medicare and any comprehensive private health insurance plan (including health maintenance organizations and preferred provider organizations). These plans include those obtained through a current or former employer, purchased directly, or through local or community programs. This category also includes persons with private insurance only.

Medicare and Medicaid—Includes persons age 65 and over who do not have any private coverage, but have Medicare and Medicaid and or other State-sponsored health plans including SCHIP.

Medicare only—Includes persons age 65 and over who only have Medicare coverage.

Other coverage—Includes persons age 65 and over who have not been previously classified as having private, Medicare and Medicaid, or Medicare only coverage. This category also includes older persons who have only Medicaid, other State-sponsored health plans, or SCHIP as well as persons who have any type of military health plan (VA, TRICARE, and CHAMP-VA) with or without Medicare.

Uninsured—Includes persons age 65 and over who have not indicated that

they are covered at the time of the interview under private health insurance (from employer or workplace, purchased directly, or through a State, local government, or community program), Medicare, Medicaid, SCHIP, a State-sponsored health plan, other government programs, or military health plan (VA, TRICARE, and CHAMP-VA). This category also includes persons who are covered by only IHS or only have a plan that pays for one type of service such as accidents or dental care.

Weighted frequencies indicate that less than 1% of the adult population under 65 years of age and less than 1% of the adult population aged 65 and over fell into an "unknown" category.

Hispanic or Latino origin and race—Hispanic or Latino origin and race are two separate and distinct concepts. Persons of Hispanic or Latino origin may be of any race. Hispanic or Latino origin includes persons of Mexican, Puerto Rican, Cuban, Central and South American, or Spanish origins. All tables show Mexicans or Mexican Americans as a subset of Hispanic or Latino. Other groups are not shown for reasons of confidentiality or statistical reliability.

In the 1997 and 1998 Summary Health Statistics reports (37–42), Hispanic ethnicity was shown as a part of race/ethnicity, which also included categories for non-Hispanic white, non-Hispanic black, and non-Hispanic other (some tables showed Mexican Americans as a subset of Hispanics). Beginning in 1999, the categories for race were expanded to be consistent with the 1997 Office of Management and Budget (OMB) Federal guidelines (13), and race and Hispanic or Latino origin are now shown differently. Hispanic or Latino origin and race is divided into "Hispanic or Latino" and "Not Hispanic or Latino." "Hispanic or Latino" includes a subset of "Mexican or Mexican American." "Not Hispanic or Latino" is further divided into "White, single race" and "Black or African American, single race." Persons in these categories indicated only a single race group (see the definition of race in this section of the "Technical Notes" for more information). Data are not shown for other "Not Hispanic or

Latino single race” persons or multiple race persons due to statistical unreliability as measured by the relative standard errors of the estimates (but are included in the total for “Not Hispanic or Latino”).

The text in this report uses shorter versions of the new OMB race and Hispanic or Latino origin terms for conciseness, and the tables use the complete terms. For example, the category “Not Hispanic or Latino, Black or African American, single race” in the tables is referred to as “non-Hispanic black” in the text.

Marital status—Respondents were asked to choose a marital status category. Adults could select the category they felt most appropriate for their marital situation. Beginning in 1997, a new marital status category, “living with a partner,” also termed “cohabiting,” was added, and persons who were “living with a partner” were considered members of the same family, whereas in the pre-1997 NHIS, they were considered separate families. A legally annulled marriage is considered as not having taken place. Marital status is classified into the following five categories:

Married—This category includes all persons who identify themselves as married and who are not separated from their spouses. Married persons living apart because of circumstances of their employment are considered married. Persons may identify themselves as married regardless of the legal status of the marriage or sex of the spouses.

Separated and divorced—This category includes persons who are legally separated from their spouse or living apart for reasons of marital discord, and those who are divorced.

Widowed—This category includes persons who have lost their spouse due to death.

Never married—This category includes persons who were never married.

Living with partner—This category includes unmarried persons

regardless of sex who are living together as a couple, but do not identify themselves as married.

Place of residence—Place of residence 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 with 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 to define MSAs. The number of adjacent counties included in an MSA is not limited, and boundaries may cross State lines. The metropolitan populations in this report are based on MSAs as defined in the 1990 census. In the tables for this report, place of residence is based on a variable in the 2003 Person data file indicating MSA size. This variable is collapsed into three categories: MSAs with a population of 1,000,000 or more, MSAs with a population of less than 1,000,000, and areas that are not within an MSA.

Poverty status—Poverty status is based on family income and family size using the U.S. Census Bureau’s poverty thresholds. “Poor” persons are defined as persons whose family incomes are below the poverty threshold. “Near Poor” persons have family incomes of 100% to less than 200% of the poverty threshold. “Not Poor” persons have family incomes that are 200% of the poverty threshold or greater.

Race—In this report, race/ethnicity consists of four categories: non-Hispanic white, non-Hispanic black or African American, non-Hispanic Asian, and Hispanic. Persons in these categories are all single race persons in accordance with the 1997 Office of Management and Budget (OMB) Federal guidelines (13). Multiple race persons, non-Hispanic American Indian and Alaska Native persons, and non-Hispanic Native Hawaiian and other Pacific Islander persons are not shown separately, but are included in the totals column of the report tables. Prior to 2003, “Other race” was a separate race response on the NHIS. In the 2003 NHIS, however,

editing procedures were changed to maintain consistency with the U.S. Census Bureau procedures for collecting and editing data on race and ethnicity. As a result of these changes, in cases where “Other race” was mentioned along with one or more OMB race groups, the “Other race” response is dropped, and the OMB race group information is retained on the NHIS data file. In cases where “Other race” was the only race response, it is treated as missing and the race is imputed. Although this change has resulted in an increase in the number of persons in the OMB race category “White” because this is numerically the largest group, the change is not expected to have a substantial effect on the estimates in this report. More information about the race/ethnicity editing procedures used by the Census Bureau can be found at the following Web site: <http://www.census.gov/popest/archives/files/MRSF-01-US1.html>.

The text in this report uses shorter versions of the new OMB race terms for conciseness and the tables use the complete terms. For example, the category “Black or African American, single race” in the tables is referred to as “Black” in the text.

Region—In the geographic classification of the U.S. population, States are grouped into four regions used by the Census Bureau:

| <i>Region</i> | <i>States included</i> |
|---------------|---|
| Northeast | Maine, Vermont, New Hampshire, Massachusetts, Connecticut, Rhode Island, New York, New Jersey, and Pennsylvania; |
| Midwest | Ohio, Illinois, Indiana, Michigan, Wisconsin, Minnesota, Iowa, Missouri, North Dakota, South Dakota, Kansas, and Nebraska; |
| South | Delaware, Maryland, District of Columbia, West Virginia, Virginia, Kentucky, Tennessee, North Carolina, South Carolina, Georgia, Florida, Alabama, Mississippi, Louisiana, Oklahoma, Arkansas, and Texas; |

West Washington, Oregon, California, Nevada, New Mexico, Arizona, Idaho, Utah, Colorado, Montana, Wyoming, Alaska, and Hawaii.

Terms related to health characteristics and outcomes

Bed day—A day during which a person stayed in bed more than half a day because of illness or injury. All hospital days for inpatients are considered bed days even if the patient was not in bed more than half a day.

Doctor or other health professional—Doctor refers to medical doctors (MDs) and osteopathic physicians (DOs), including general practitioners and all types of specialists (such as surgeons, internists, gynecologists, obstetricians, proctologists, psychiatrists, dermatologists, and ophthalmologists). Other health care professional includes physician assistants, psychologists, nurses, physical therapists, chiropractors.

Health status—Respondent-assessed health status is obtained from a question in the survey that asked respondents, “Would you say your health in general was excellent, very good, good, fair, or poor?” Information was obtained about all respondents, with proxy responses allowed for adults not taking part in the interview. Prior health status is obtained from the question asked of all sample adults, “Compared with twelve months ago, would you say that your health is better, worse, or about the same?”

Terms relating to sample adult behavior

Body mass index—Body mass index (BMI) is calculated from the sample adult’s responses to survey questions regarding height and weight. $BMI = \text{Weight (in kg)} / [\text{Height (in m)}]^2$. For both sexes, the category “Underweight” is defined as a BMI less than 18.5; healthy weight is defined as a BMI greater than or equal to 18.5 and less than 25.0; overweight is defined as a BMI greater than or equal to 25.0 and less than 30.0; and obese is defined as a BMI greater than or equal to 30.0.

Cigarette smoking status—Information on cigarette smoking status at the time of interview is derived from two questions on the survey. All respondents are first asked, “Have you smoked at least 100 cigarettes in your entire life?” Respondents who answered “yes” to the previous question are then asked, “Do you now smoke cigarettes every day, some days, or not at all?”

Current smoker—There are two categories of current smokers. Persons in the first category smoke every day, and persons in the second category smoke only on some days.

Former smoker—This category includes persons who have smoked at least 100 cigarettes in their lifetime, but currently do not smoke at all.

Nonsmoker—This category includes persons who have never smoked at least 100 cigarettes in their lifetime.

Number of visits to a doctor or other health professional in the past 12 months—This is the number of visits to a doctor’s office, clinic, or other place that respondents have made in the past 12 months regarding their own personal health. Overnight hospital stays, hospital emergency room visits, home visits, and telephone calls are excluded.

Time since last physician or other health care professional contact—This is the length of time, prior to the week of interview, since the respondent last consulted a physician or other health care professional in person or by telephone for health treatment or advice of any type. This may include a contact while a patient is in the hospital as well as a contact from a home visit. The information for the time since the sample adult last had contact with a physician or other health care professional is obtained from two questions—one from the Family Core and one from the Sample Adult Core. In the Family Core the family respondent is shown a calendar detailing the 2 weeks before the interview week and is then asked the following question: “During those 2 weeks, did see a doctor or other health care

professional at a doctor’s office, a clinic, an emergency room, or some other place?” In the Sample Adult Core, the respondent is asked: “About how long has it been since you saw or talked to a doctor or other health professional about your own health?” The response categories for this sample adult question are: “6 months or less,” “more than 6 months, but not more than 1 year ago,” “more than 1 year, but not more than 2 years ago,” “more than 2 years, but not more than 5 years ago,” “more than 5 years ago,” and “never.” If the answer to the Family Core question is “yes,” and if the person to whom the question refers is the sample adult, then the Sample Adult Core question is not asked; rather, an implied response to the Sample Adult Core question of “6 months or less” is recorded. If the family respondent and the sample adult were not the same person and an answer of “yes” was given to the Family Core question, then the “6 months or less” implied response to the Sample Adult question is proxy reported (which occurs for approximately 4% of sample adults).

Usual place of health care—Usual place of health care was based on a question that asked whether respondents had a place that they usually went to when they were sick or needed advice about their health. If the answer was “yes,” they were asked, “What kind of place {is it/do you go to most often} - a clinic, a doctor’s office, an emergency room, or some other place?” The choices for this second question are: “clinic or health center,” “doctor’s office or HMO,” “hospital emergency room,” “hospital outpatient department,” “some other place,” or “doesn’t go to one place most often.” Although “hospital emergency room” is not considered a “usual place of health care” in other publications, in this report it is combined with “hospital outpatient clinic.” Also combined in this report are “some other place” and “doesn’t go to one place most often.”

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