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Trends in Nutrient Intakes and Chronic Health Conditions Among Mexican-American Adults, a 25-year Profile: United States, 1982–2006

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Abstract

Objective—To provide estimates of selected nutrient intakes and chronic health conditions among Mexican-American adults aged 20–74 years in the United States, from 1982 through 2006.

Methods—Data on Mexican-American adults come from the following surveys: the Hispanic Health and Nutrition Examination Survey (HHANES, 1982–1984 (n=3,935)); the Third National Health and Nutrition Examination Survey (NHANES III, 1988–1994 (n=4,641)); and NHANES 1999–2006 (n=4,084). Prevalence estimates were calculated and trend analyses were conducted for each nutrient intake and health condition in the study. Statistical significance of differences between common estimates from each survey period was evaluated using two-sided *t*-tests ($p<0.05$).

Results—Between 1982–1984 and 1999–2006, the percent kilocalories from total fat, saturated fat, and protein intake among Mexican-American adults decreased, while carbohydrate and mean total energy intake increased. During this same time period, the prevalence of obesity and diabetes among Mexican-American adults increased, the prevalence of dental caries decreased, and the prevalence of high blood pressure remained stable. The overall prevalence of high total serum cholesterol among this group did not differ significantly from 1988–1994 to 1999–2006.

Conclusion—Monitoring trends in diet and health conditions among Mexican-American adults can inform the development of targeted prevention efforts to improve the health of this rapidly increasing population.

Keywords: diet • health conditions • disparities • NHANES

Introduction

The Hispanic population is one of the most rapidly growing ethnic groups in the United States. More than one-half

of the growth in the total U.S. population between 2000 and 2010 is attributable to the increase in the Hispanic population (1). According to

the U.S. Census, as of July 1, 2009, Hispanic persons of all races are estimated to represent approximately 16% of the U.S. population, about 48.4 million individuals (2). The U.S. Census Bureau projects that by the year 2050 there will be 132.8 million Hispanic individuals comprising 30% of the U.S. population. Persons of Mexican origin comprise the largest portion of this Hispanic population. Of the U.S. Hispanic population in 2008, 66% was of Mexican origin.

The health status of this growing ethnic group is of increasing interest to both policy makers and researchers. The prevalence of and trends in dietary habits and chronic health conditions of the overall U.S. population have been well documented (3–13). This report will provide prevalence estimates of selected dietary and health characteristics for Mexican-American adults over a 25-year span using data collected from NHANES, conducted by the Centers for Disease Control and Prevention's National Center for Health Statistics.



U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES
Centers for Disease Control and Prevention
National Center for Health Statistics



Methods

Survey design and source of data

NHANES is designed to monitor the health and nutritional status of the civilian, noninstitutionalized U.S. population. The surveys consist of interviews conducted in participants' homes, standardized physical examinations conducted in mobile examination centers (MEC), and laboratory tests using blood and urine specimens provided by participants during the physical examination. The NHANES sample is selected through a complex, multistage design that includes selection of primary sampling units (counties), household segments within the counties, and finally sample persons from selected households. The sample design includes oversampling to provide more precise estimates for certain population subgroups (including Mexican-American persons).

This report used data collected on Mexican-American individuals from NHANES surveys conducted from 1982 through 2006. HHANES—a special health examination survey of three major Hispanic groups (Mexican-American, Cuban-American, and Puerto-Rican persons)—was conducted from 1982 through 1984 on persons aged 6 months to 74 years in the civilian, noninstitutionalized population of the United States. The HHANES included interview (n=3,935), examination (n=3,326), and fasting subsample examination (n=1,655) data for persons aged 20–74 years of Mexican origin or ancestry, whose ethnicity was Hispanic. HHANES was not designed as a national Hispanic survey and no national estimates for the Hispanic population can be made, although the three subgroups included represented about 76% of the 1980 Hispanic-origin population in the United States. In particular, the HHANES Mexican-origin sampling universe included about 84% of the 1980 Mexican-origin population in the United States, and about 97% of

the 1980 Mexican-origin population in the five Southwestern states: California, Texas, Arizona, Colorado, and New Mexico (14). NHANES III conducted from 1988 through 1994 on persons 2 months and over, was the seventh in a series of examination surveys based on a complex, multistage sample design. NHANES III included interview (n=4,641), examination (n=4,286), and fasting subsample examination (n=2,013) data for persons aged 20–74 years of Mexican origin or ancestry, whose ethnicity was Hispanic. In 1999, NHANES became a continuous survey fielded on an ongoing basis. Each year of data collection is based on a representative sample covering all ages of the civilian noninstitutionalized U.S. population. However, due to small sample size and participant confidentiality, public-use data files are released in 2-year cycles. The continuous NHANES data used for this report are from a combination of four, 2-year cycles, 1999–2000, 2001–2002, 2003–2004, and 2005–2006 in order to provide estimates with greater statistical reliability for the Mexican-American population from these survey cycles. NHANES 1999–2006 included interview (n=4,084), examination (n=3,901), and fasting subsample examination (n=1,696) data for persons aged 20–74 years of Mexican origin or ancestry, whose ethnicity was Hispanic.

Mexican-American persons from the two national surveys (NHANES III and NHANES 1999–2006) were not targeted as they were for HHANES. However, Mexican-American persons from both national surveys were oversampled, relative to their proportion of the population, to have a larger sample size and to obtain more reliable estimates for this group.

Documentation, questionnaires, codebooks, and data files for all of the HANES surveys with each of the health, diet, and sociodemographic characteristics used in this report are available from the NHANES website: <http://www.cdc.gov/nchs/nhanes.htm>.

Definitions

Nutrient intakes

Nutrient intakes are associated with health conditions such as high total serum cholesterol, obesity, high blood pressure, dental caries, diabetes, and cardiovascular disease. Estimates of selected nutrient intakes—the consumption of energy and the macronutrients total fat, saturated fat, protein, and carbohydrates among Mexican-American adults are presented. Information on dietary intake was obtained from one 24-hour dietary recall interview administered in-person in the MEC. There have been changes in the dietary interview methodology and food composition databases used in the surveys that may contribute in part to differences in energy and macronutrient intakes. In particular, the HHANES dietary interviews included few or no weekend days for Mexican-American participants to operational logistics, while the subsequent surveys did include weekend days. Nutrient intakes were calculated from the individual foods and beverages reported in the dietary recall interview. The U.S. Department of Agriculture's Nutrient Data Laboratory (NDL) is responsible for providing information on the nutrient content of foods consumed in the United States. Different databases were used to calculate nutrient composition of foods for each survey; however, all were based on data from the NDL (15–17). Total energy intake was defined as kilocalories (kcal) consumed from protein, carbohydrate, total fat, and alcohol. Because intake from alcohol is not presented here, the sum of percent kcal for any group will not add to 100. Macronutrient intakes (total fat, saturated fat, protein, and carbohydrates) were calculated as percentages of total kcal. Intake of macronutrients is given in grams on the data files and the following standard conversion factors are used to convert grams to kcal: 4 kcal/gram for protein and carbohydrate and 9 kcal/gram for total fat and saturated fat. Total fat includes all forms

of fat—saturated, polyunsaturated, and monounsaturated.

Chronic health conditions

Estimates of selected chronic health conditions—high serum cholesterol, obesity, high blood pressure, diabetes, and dental caries among Mexican-American adults are presented. These are all prevalent conditions in the United States population and are related to health care utilization and costs as well as other serious conditions such as heart disease and stroke. High total serum cholesterol was defined as serum total cholesterol ≥ 240 mg/dL or currently taking medication to lower serum cholesterol. There is no medication data available for serum cholesterol in HHANES, so only data for NHANES III and later are presented. Obesity was defined as body mass index (BMI) ≥ 30 . BMI is calculated using measured weight in kilograms divided by measured height in meters squared, rounded to one decimal place. High blood pressure was defined as a systolic blood pressure ≥ 140 mm Hg or a diastolic blood pressure ≥ 90 mm Hg or currently taking medication to lower high blood pressure. The maximum number of blood pressure measurements varied across the surveys. The average of up to two blood pressure measurements was used for HHANES and an average of up to three blood pressure measurements was used for NHANES III and NHANES 1999–2006. Diabetes (diagnosed or undiagnosed) was defined using self-reported information on a previous physician diagnosis of diabetes or having fasting plasma glucose of at least 126 mg/dL for those who fasted between 8 to less than 24 hours. Because of changes to the fasting plasma glucose methodology in 2005–2006, fasting plasma glucose data for 2005–2006 were adjusted to be compatible with earlier years as recommended in NHANES documentation (18). Dental caries was defined as having one or more permanent teeth with untreated or treated decay. Dental caries data are not presented for 2005–2006 due to methodological changes.

Demographic and socioeconomic characteristics

Because health outcomes can vary by demographic and socioeconomic characteristics, estimates of nutrient intake and health conditions are presented by age group, sex, country of birth, poverty status, education, and insurance status. Age in years was grouped into three categories 20–39 years, 40–59 years, and 60–74 years. Country of birth was classified as those born in the United States or those not born in the United States (mostly born in Mexico). Poverty status was defined by using the poverty income ratio (PIR), an index calculated by dividing family income by a poverty threshold specific to family size. PIR was reported by three levels: ≤ 1.3 (low), >1.3 – 3.5 (middle), and >3.5 (high). In 2008, a PIR of 350% was equivalent to approximately \$77,000 for a family of four; a PIR of 130% was equivalent to approximately \$29,000 for a family of four. In 2008, median household income was approximately \$50,000, and 13.2% of the population lived below the poverty level, based on U.S. Census Bureau data (19). The cut point for participation in the Supplemental Nutrition Assistance Program is 130% of the poverty level. Educational attainment was classified as less than high school, high school graduate or equivalent, and greater than high school. Health insurance was reported as having insurance or not having insurance.

Statistical Analysis

Percentages (or means) and standard errors are presented for all health characteristics in this report. Sample weights, which account for the differential probabilities of selection, nonresponse, and noncoverage were incorporated into the estimation process. The standard errors of the percentages (or means) were estimated by Taylor Series Linearization (20), a method that incorporates the sample weights and accounts for the complex sample design (14, 21,22). A relative standard error (RSE) greater than 30% was used to identify unreliable estimates. The RSE is

defined as the ratio of the standard error of the estimate divided by the estimate multiplied by 100. In the tables, an estimate with a RSE greater than 30% and less than or equal to 40 is identified with an asterisk (*). All estimates except age-specific estimates were adjusted by the direct method to the projected 2000 U.S. population age distribution using the following age intervals: 20–39 years, 40–59 years, and 60–74 years (23). Statistical tests of linear trends by survey were performed using orthogonal polynomial contrasts and tests of differences between population subgroups were performed using *t*-tests at the $p < 0.05$ level with no adjustments for multiple comparisons. Terms such as “more likely,” “less likely,” “was higher,” “was lower,” and “compared with” indicate a significant difference. Terms such as “similar” or “no difference” indicate that the statistics being compared were not statistically significant. Lack of comment regarding the difference between estimates does not mean that a significance test was performed and found to be not significant. All data analyses were performed using the statistical software SAS version 9.2 (SAS Institute, Cary, N.C.) and SUDAAN version 10.0 (RTI, Research Triangle Park, N.C.)

Results

In the following section, bulleted summaries of the estimates shown in [Tables 1–11](#) and [Figures 1–7](#) are presented. Information on statistically significant trends and comparisons between population subgroups can be located in the footnotes of the tables.

Demographic characteristics (Table 1):

- During the period of 1982–1984 through 1999–2006, over 90% of Mexican-American adults living in the United States were between the ages of 20–59 years, with over 60% aged 20–39 years.
- The percentage of Mexican-American adults who were male increased, while the percentage of Mexican-American adults who were female

decreased between 1982–1984 and 1999–2006.

- During 1982–1984, approximately 62.7% of Mexican-American adults reported being born in the United States. This number significantly decreased to 44.7% in 1988–1994 and was down to 38.2% during the 1999–2006 surveys.
- The percentage of Mexican-American adults with incomes greater than 3.5 times the poverty level or with greater than a high school education increased between 1982–1984 and 1999–2006.
- The percentage of Mexican-American adults with health insurance coverage significantly declined from 66.1% during 1982–1984 to 50.4% during 1999–2006.

Nutrient intakes (Tables 2–6 and Figures 1 and 2)

Energy intake (kcal) (Table 2):

- The mean energy intake among Mexican-American adults aged 20–74 years increased over time, from 1,983

kcal in 1982–1984 to 2,186 kcal in 1999–2006. Over this same period, mean energy intake in men increased from 2,420 kcal to 2,521 kcal, while the mean energy intake in women increased from 1,552 to 1,827 kcal (Figure 1).

- For all survey years, mean energy consumption significantly decreased with age.
- In 1982–1984, Mexican-American adults born outside the United States had higher mean energy consumption compared with those born in the United States. However, this changed in 1999–2006; when U.S.-born Mexican-American adults had higher mean energy consumption compared with those born outside the United States. This reflects a 14% increase in mean energy consumption in U.S.-born Mexican-American adults compared with a 6% increase in Mexican-American adults born outside the United States.
- For all survey years, energy consumption increased as income or educational level increased, except for 1982–1984 when mean energy

consumption did not differ by income level.

- The consumption of energy did not differ by insurance status.

Total fat intake (% kcal) (Table 3):

- Total fat intake in Mexican-American adults aged 20–74 years decreased over time, from 35.5% kcal in 1982–1984 to 31.9% kcal in 1999–2006 (Figure 2).
- There was no difference in total fat intake by age group in 1982–1984. During 1988–1994, total fat intake significantly decreased with age. However, this trend changed in 1999–2006, when total fat intake significantly increased with age.
- The percentage of total fat intake for males and females was similar in 1982–1984 and 1988–1994. However, during 1999–2006, females were more likely to have higher total fat intake compared with males.
- For all survey years, Mexican-American adults born in the United States were more likely to have higher total fat intake compared with those born outside the United States.
- For all survey years, total fat intake significantly increased as income or educational level increased.
- Adults with health insurance were more likely to have higher fat intake than those without health insurance.

Saturated fat intake (% kcal) (Table 4):

- Saturated fat intake among Mexican-American adults aged 20–74 years decreased over time, from 12.7% kcal in 1982–1984 to 10.3% kcal in 1999–2006 (Figure 2).
- For all survey years, there was no age difference in saturated fat intake.
- Females were more likely than males to have higher saturated fat intake during 1988–1994 and 1999–2006.
- For all survey years, Mexican-American adults born in the United States were more likely to have higher saturated fat intake than those born outside the United States.
- For all survey years, total fat intake increased as income or educational level increased.

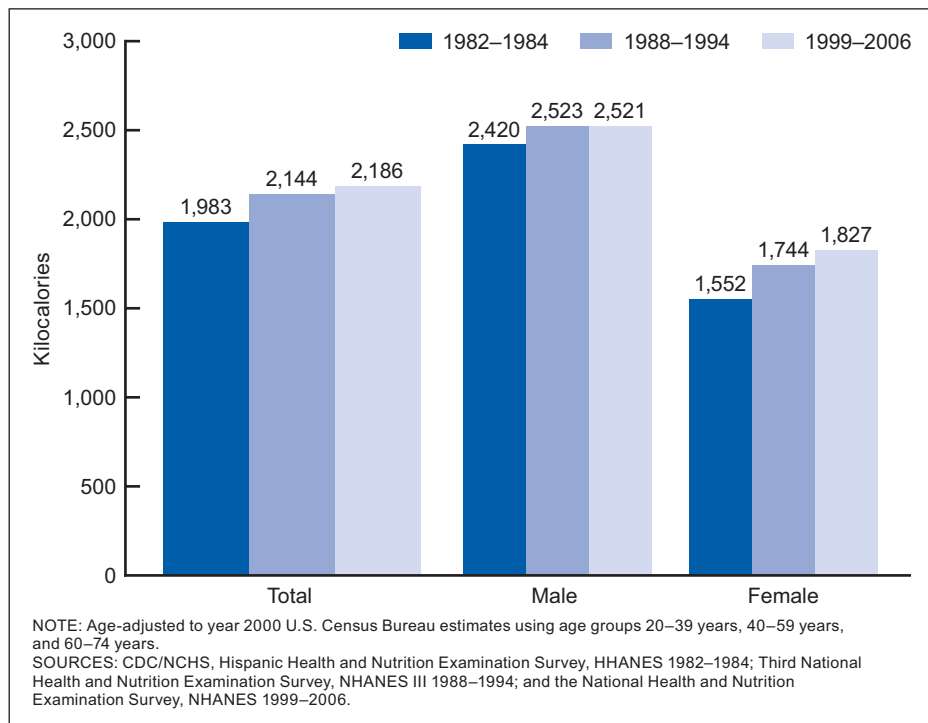


Figure 1. Energy intake in kilocalories among Mexican-American adults 20–74 years, by sex: NHANES 1982–1984 through NHANES 1999–2006

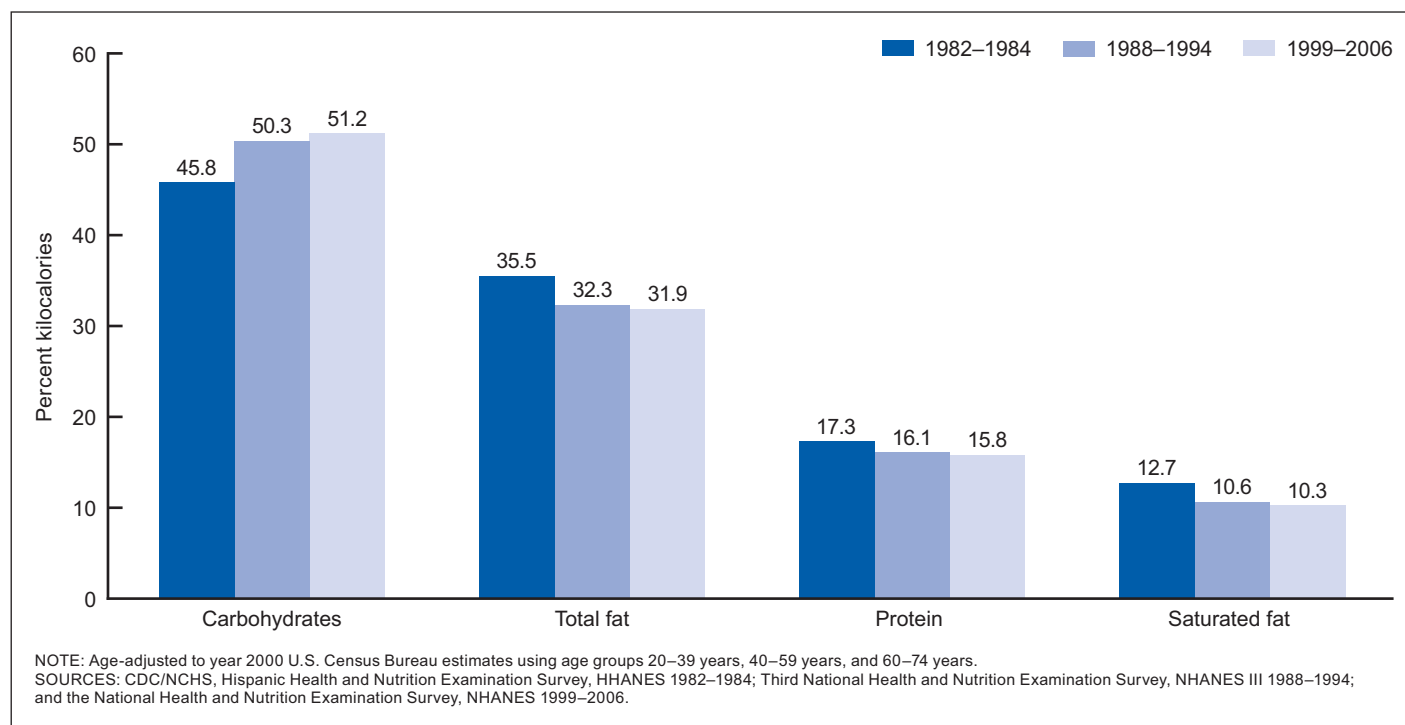


Figure 2. Percent kilocalories from carbohydrates, total fat, protein, and saturated fat intake among Mexican-American adults 20-74 years: 1982-1984 through 1999-2006

- Adults with health insurance were more likely to have higher mean saturated fat intake than those without health insurance.

Protein intake (% kcals) (Table 5):

- Protein intake among Mexican-American adults aged 20-74 years decreased over time, from 17.3% kcals in 1982-1984 to 15.8% kcals in 1999-2006 (Figure 2).
- For all survey years, protein intake significantly increased with age.
- In 1982-1984, males had higher protein intake compared with females. In 1988-1994 and 1999-2006, this sex difference was no longer present.
- There was no difference in protein intake by country of birth during 1982-1984. However, during 1988-1994 and 1999-2006, U.S.-born Mexican-American adults had lower protein intake compared with those born outside the United States.
- In 1988-1994, protein intake significantly decreased as educational level increased.
- There was no difference in protein intake among adults with regard to poverty status and insurance status.

Carbohydrate intake (% kcals) (Table 6):

- Carbohydrate intake in Mexican-American adults aged 20-74 years increased over time, from 45.8% kcals in 1982-1984 to 51.2% kcals in 1999-2006 (Figure 2).
- There was no difference in carbohydrate intake between age groups during 1982-1984 and 1999-2006. During 1988-1994, carbohydrate intake significantly increased with age.
- For all survey years, carbohydrate intake was higher for females compared with males.
- Carbohydrate intake was higher for Mexican-American adults who were born outside the United States compared with those born in the United States.
- For all survey years, carbohydrate intake significantly decreased as income or educational level increased.
- Adults without health insurance were more likely to have higher carbohydrate intake than those with health insurance.

Chronic health conditions

High serum cholesterol (Table 7):

- The overall prevalence of high serum cholesterol in Mexican-American adults aged 20-74 years did not differ significantly between 1988-1994 and 1999-2006, from 19.0% to 20.6%, respectively (Figure 3).
- In both 1988-1994 and 1999-2006, the prevalence of high serum cholesterol significantly increased with age.
- The prevalence of high serum cholesterol was not statistically different between males and females.
- In 1988-1994, Mexican-American adults born in the United States (21.0%) were more likely to have high serum cholesterol than those born outside the United States (17.0%). However, during 1999-2006, the prevalence of high serum cholesterol was similar between Mexican-American adults born in the United States (20.0%) and those born outside the United States (20.8%).
- There prevalence of high serum cholesterol did not differ by poverty, educational, or insurance status.

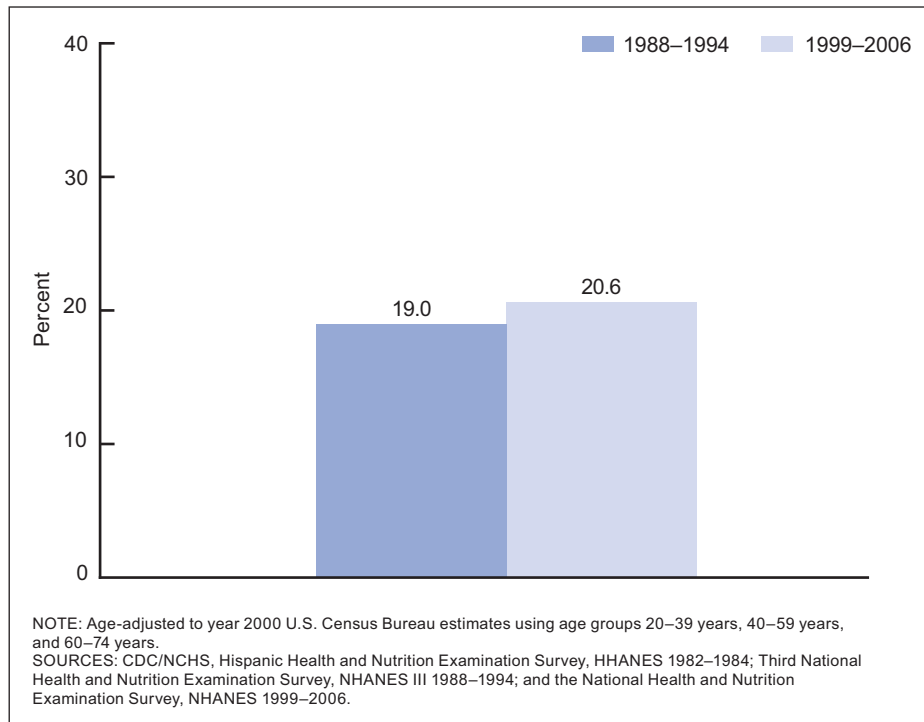


Figure 3. Prevalence of high serum cholesterol among Mexican-American adults 20–74 years: 1988–1994 through 1999–2006

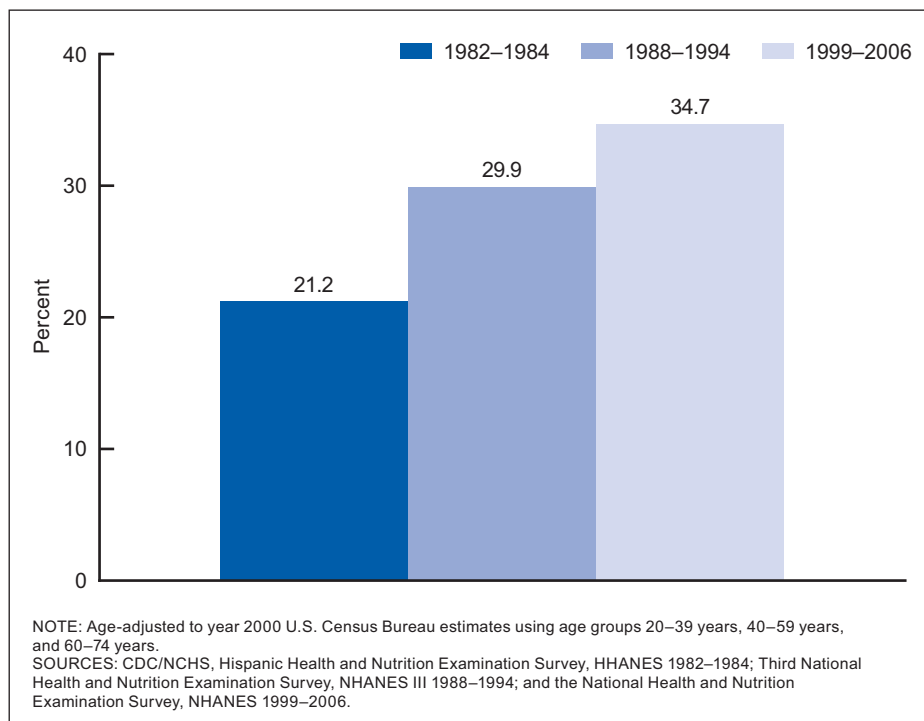


Figure 4. Prevalence of obesity among Mexican-American adults 20–74 years: 1982–1984 through 1999–2006

Obesity (Table 8):

- The prevalence of obesity in Mexican-American adults aged 20–74 years significantly increased between

1982–1984 and 1999–2006, from 21.2% to 34.7% (Figure 4).

- For all survey years, the prevalence of obesity significantly increased with age.

- Mexican-American females were consistently more likely to have a higher prevalence of obesity compared with Mexican-American males.
- For all survey years, Mexican-American adults born in the United States were more likely to have a higher prevalence of obesity than those born outside the United States.
- There were no significant linear associations with obesity by poverty income level or educational level, except for 1982–1984 when obesity significantly increased as educational level decreased.
- During 1988–1994 and 1999–2006, obese adults were more likely to have health insurance compared with those without health insurance.

High blood pressure (Table 9):

- The prevalence of high blood pressure in Mexican-American adults aged 20–74 years did not differ significantly over the three survey periods, (22.8%, 21.1%, and 22.4%, respectively).
- For all survey years, the prevalence of high blood pressure significantly increased with age.
- In 1982–1984 and 1988–1994, Mexican-American males were more likely to have high blood pressure than Mexican-American females. However, this sex difference was no longer present in 1999–2006, as estimates of high blood pressure were similar in males (21.6%) and females (22.8%).
- For all survey years, Mexican-American adults who were born in the United States were more likely to have high blood pressure compared with those born outside the United States (Figure 5).
- There was no significant difference in high blood pressure when considering poverty, education, or insurance status.

Diabetes (diagnosed or undiagnosed) (Table 10):

- The prevalence of diabetes (diagnosed or undiagnosed) among

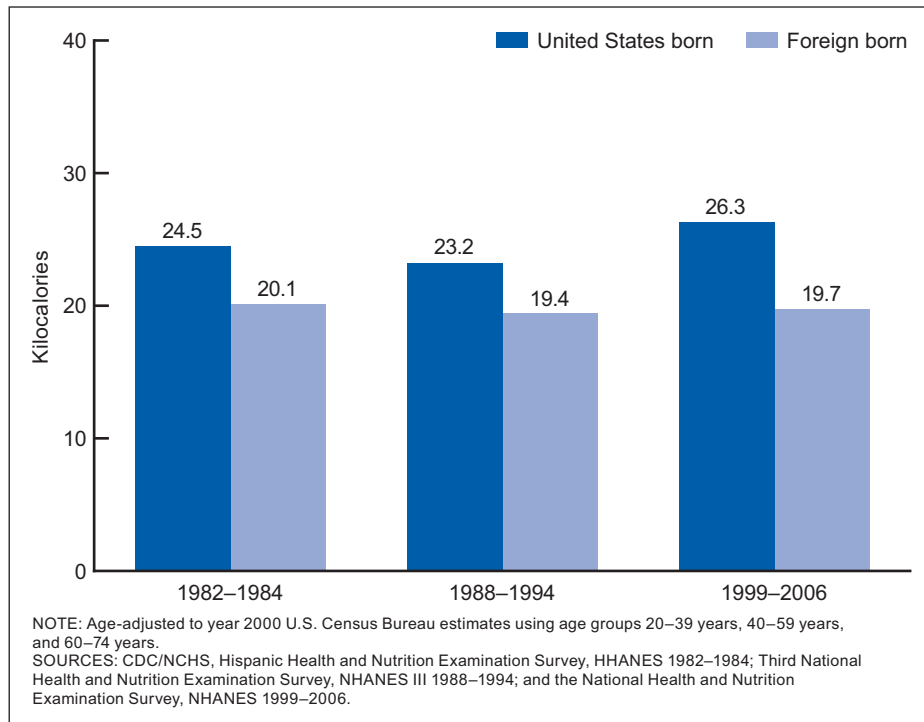


Figure 5. Prevalence of high blood pressure among Mexican-American adults 20-74 years, by country of birth: 1982-1984 through 1999-2006

Mexican-American adults aged 20-74 years significantly increased between 1982-1984 and 1999-2006, from 9.7% to 13.7% (Figure 6).

For all survey years, the prevalence of diabetes significantly increased with age.

- The prevalence of diabetes among Mexican-American adults did not differ significantly by sex, country of birth, educational level, or insurance status.
- During 1988-1994, the prevalence of diabetes significantly decreased as income level increased. There was no significant difference in the prevalence of diabetes by income level during 1982-1984 and 1999-2006.

Dental caries (Table 11):

- The prevalence of dental caries in dentate (those with one or more permanent teeth) Mexican-American adults aged 20-74 years significantly declined between 1982-1984 and 1999-2006, from 90.4% to 83.4% (Figure 7).
- For all survey years, the percentage of adults with dental caries significantly increased with age.
- Females were more likely to have dental caries compared with males (Figure 7).
- Mexican-American adults born in the United States were more likely to

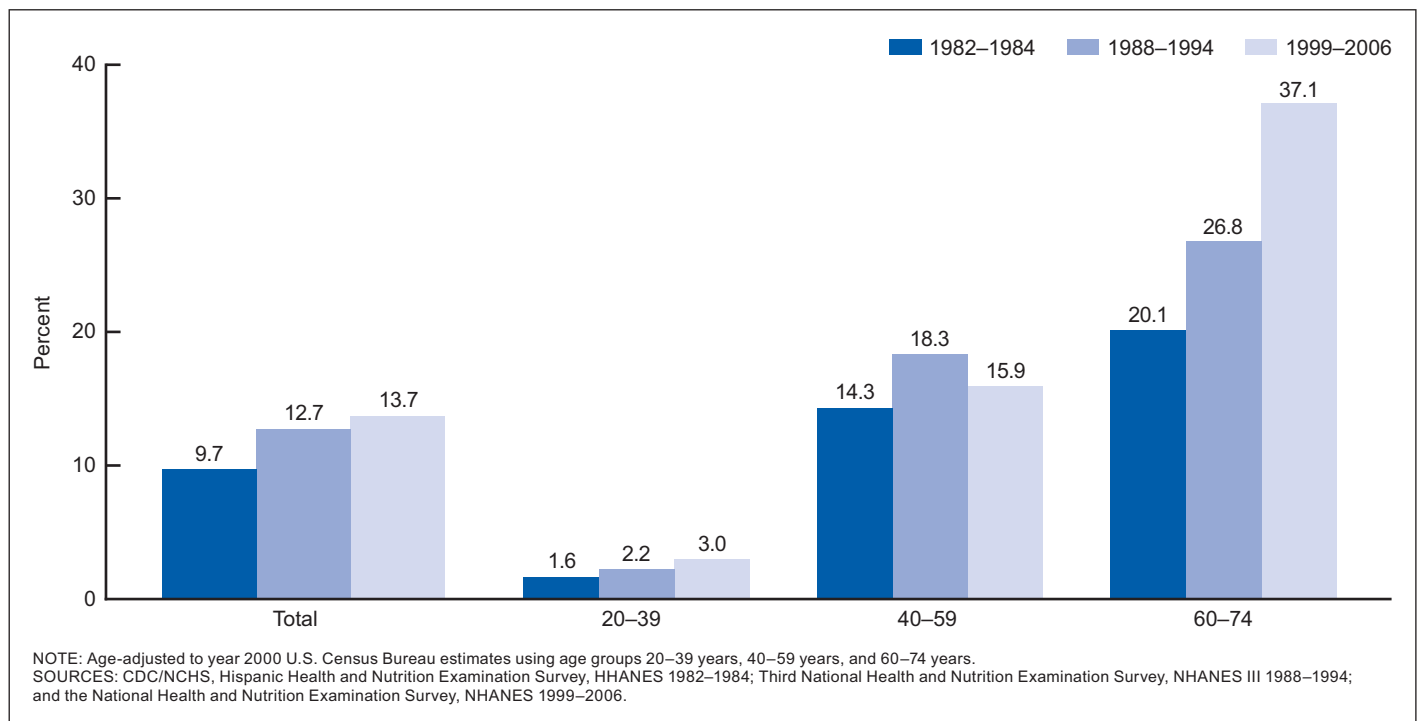


Figure 6. Prevalence of diagnosed or undiagnosed diabetes among Mexican-American adults 20-74 years, by age: 1982-1984 through 1999-2006

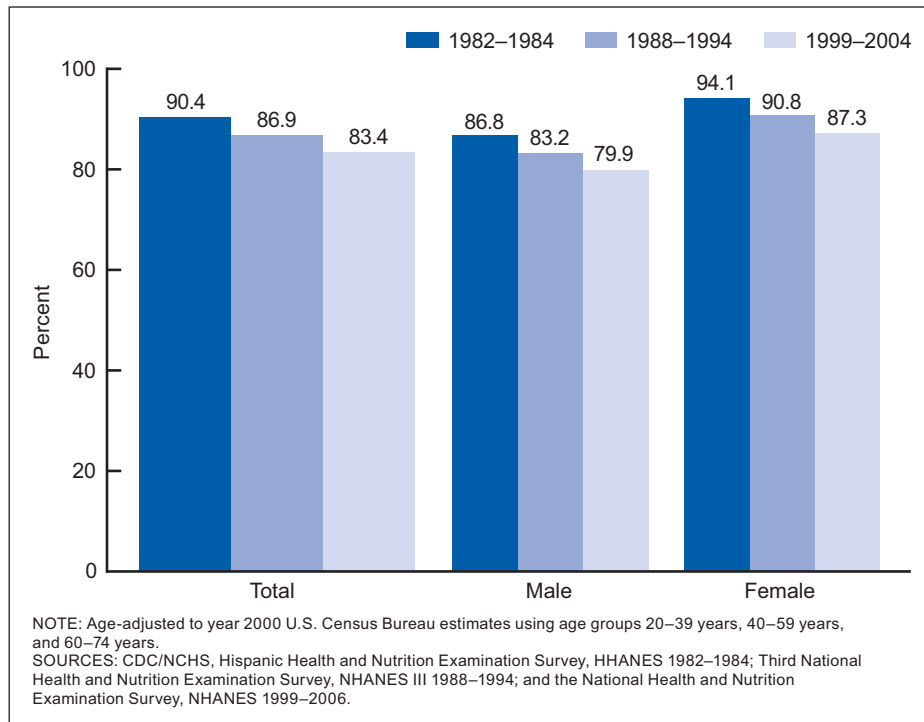


Figure 7. Prevalence of dental caries among dentate Mexican-American adults 20-74 years, by sex: 1982-1984 through 1999-2004

have dental caries compared with those born outside the United States.

- For all survey years, the prevalence of dental caries among Mexican-American adults significantly increased as income and educational levels increased.
- Adults with health insurance were more likely to have dental caries compared with those without health insurance.

Summary

Overall, total energy and carbohydrate intake among Mexican-American adults have increased over the last 25 years, while the percentage of kilocalories from dietary total fat, saturated fat, and protein intake has decreased. These findings are consistent with a previous study of the total U.S. population using NHANES data to report on trends in intake of energy and macronutrients from 1971-1974 through 1999-2000 that showed increases in intake of energy and carbohydrates, and a decrease in intake of total and saturated fat in men and women (9).

The overall trends in the prevalence of chronic health conditions such as

high total serum cholesterol, obesity, high blood pressure, dental caries, and diabetes among Mexican-American adults are similar to those reported in the overall U.S. population (3-7,13). Since the early eighties, the prevalence of diabetes among Mexican-American adults has increased. This increase in diabetes (diagnosed or undiagnosed) among Mexican-American adults has been reported elsewhere (13). The overall prevalence of high serum cholesterol among Mexican-American adults did not differ significantly between 1988-1994 and 1999-2006. The prevalence of high blood pressure among Mexican-American adults remained relatively stable between 1982-1984 and 1999-2006; however, U.S.-born Mexican-American adults were consistently more likely to have high blood pressure compared with Mexican-American adults born outside the United States. An increase in the prevalence of obesity between 1982-1984 and 1999-2006 among Mexican-American adults was also found. However, as observed with high blood pressure, U.S.-born Mexican-American adults were consistently more likely to

be obese compared with those born outside the United States. These two findings may be attributable to the “healthy immigrant effect” that has been observed in other studies (24).

Similar to the overall U.S. population, there has been a decrease in the prevalence of dental caries among Mexican-American adults (7). U.S.-born Mexican-American adults were more likely to have dental caries compared with those born outside the United States. Another study using NHANES data to look at oral health-related quality of life suggests that the Hispanic advantage is not explained by healthy immigrant selection but rather by cultural characteristics (25).

These findings provide important information on the diet and health of Mexican-American persons, a rapidly increasing ethnic population in the United States.

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Table 1. Demographic characteristics of Mexican-American adults aged 20–74 years: United States, 1982–1984 through 1999–2006

Characteristic	HHANES 1982–1984 (n=3,935)	NHANES III 1988–1994 (n=4,641)	NHANES 1999–2006 (n=4084)	Trend
	Percent distribution			
All persons	100.0	100.0	100.0	...
Age				
20–39 years	64.6	65.1	61.9	#
40–59 years	26.2	26.6	30.1	§
60–74 years	9.2	8.3	8.0	#
Sex				
Male	50.3	52.3	52.7	§
Female	49.7	47.7	47.3	§
Country of birth				
United States	62.7	44.7	38.2	§
Foreign	37.3	55.3	61.8	§
Poverty status ¹				
PIR ≤1.3	39.7	47.6	39.4	#
PIR ≥1.3–3.5	46.4	39.1	43.7	#
PIR >3.5	13.9	13.4	16.8	§
Education				
Less than high school	57.3	57.9	54.0	#
High School	24.9	24.0	20.8	§
Greater than high school	17.9	18.1	25.2	§
Health insurance status				
Yes	66.1	56.5	50.4	§
No	33.9	43.6	49.6	§

... Category not applicable.

No significant linear trend.

§ Indicates a statistically significant linear trend across survey years 1982–1984 to 1999–2006, $p < 0.05$.

¹Poverty status levels are based on poverty income ratio (PIR): calculated by dividing family income by a poverty threshold specific for family size.

NOTE: Denominator is based on all Hispanic Mexican-American persons who completed the household interview.

SOURCES: CDC/NCHS, Hispanic Health and Nutrition Examination Survey, HHANES 1982–1984; Third National Health and Nutrition Examination Survey, NHANES III 1988–1994; and National Health and Nutrition Examination Survey, NHANES 1999–2006.

Table 2. Age-adjusted energy intake in kilocalories among Mexican-American adults aged 20–74 years, by select characteristics: United States, 1982–1984 through 1999–2006

Characteristic	HHANES 1982–1984 (n=3,317)		NHANES III 1988–1994 (n=4,153)		NHANES 1999–2006 (n=3,694)		Trend
	Mean	Standard error	Mean	Standard error	Mean	Standard error	
Total ¹	1,983	21.20	2,144	17.19	2,186	21.31	\$
Age ²							
20–39 years	2,219	27.63	2,381	27.39	2,403	33.85	\$
40–59 years	1,893	30.48	2,102	24.25	2,137	25.75	\$
60–74 years	1,573	11.43	1,607	38.48	1,724	35.93	\$
Sex ³							
Male	2,420	36.44	2,523	27.49	2,521	29.91	\$
Female	1,552	14.69	1,744	22.44	1,827	23.61	\$
Country of birth ⁴							
United States	1,959	31.23	2,153	27.52	2,243	37.36	\$
Foreign	2,028	16.39	2,133	17.36	2,147	23.26	\$
Poverty status ^{5,6}							
PIR <1.3	1,946	38.99	2,034	26.78	2,117	38.44	\$
PIR >1.3–3.5	2,017	38.69	2,214	31.19	2,224	27.82	\$
PIR > 3.5	2,042	46.61	2,385	59.47	2,282	49.71	#
Education ⁷							
Less than high school	1,945	24.59	2,053	16.43	2,133	28.64	\$
High school	2,044	42.10	2,288	48.41	2,232	54.03	\$
Greater than high school	2,115	45.08	2,328	44.40	2,279	42.42	\$
Health insurance status							
Yes	1,985	28.89	2,164	24.98	2,188	27.15	\$
No	1,980	28.01	2,104	26.44	2,172	35.94	\$

\$ Indicates a statistically significant linear trend across survey years 1982–1984 to 1999–2006, $p < 0.05$.

No significant linear trend.

¹Persons of unknown country of birth, unknown poverty status, unknown education, and unknown health insurance status are included in the total.

²During 1982–1984, 1988–1994, and 1999–2006, significant linear trend by age group ($p < 0.05$).

³During 1982–1984, 1988–1994, and 1999–2006, males and females are statistically different ($p < 0.05$).

⁴During 1982–1984 and 1999–2006, U.S.-born and foreign-born adults are statistically different ($p < 0.05$).

⁵Poverty status levels are based on poverty income ratio (PIR): Calculated by dividing family income by a poverty threshold specific for family size.

⁶During 1988–1994 and 1999–2006, significant linear trend by PIR level ($p < 0.05$).

⁷During 1982–1984, 1988–1994, and 1999–2006, significant linear trend by educational level ($p < 0.05$).

NOTE: Age-adjusted to year 2000 U.S. Census Bureau estimates using age groups 20–39 years, 40–59 years, and 60–74 years.

SOURCES: CDC/NCHS, Hispanic Health and Nutrition Examination Survey, HHANES 1982–1984; Third National Health and Nutrition Examination Survey, NHANES III 1988–1994; and National Health and Nutrition Examination Survey, NHANES 1999–2006.

Table 3. Age-adjusted dietary fat (% kilocalories) among Mexican-American adults aged 20–74 years, by select characteristics: United States, 1982–1984 through 1999–2006

Characteristic	HHANES 1982–1984 (n=3,317)		NHANES III 1988–1994 (n=4,153)		NHANES 1999–2006 (n=3,694)		Trend
	Mean	Standard error	Mean	Standard error	Mean	Standard error	
Total ¹	35.5	0.33	32.3	0.25	31.9	0.27	§
Age ²							
20–39 years	35.8	0.32	32.5	0.24	31.2	0.33	§
40–59 years	35.1	0.43	32.5	0.37	32.1	0.40	§
60–74 years	35.9	0.71	31.7	0.41	33.0	0.36	§
Sex ³							
Male	35.4	0.37	32.1	0.29	31.2	0.34	§
Female	35.7	0.34	32.6	0.26	32.7	0.27	§
Country of birth ⁴							
United States	36.4	0.30	34.4	0.30	34.5	0.31	§
Foreign	34.0	0.53	30.5	0.22	30.1	0.30	§
Poverty status ^{5,6}							
PIR ≤1.3	35.3	0.18	31.5	0.35	31.2	0.36	§
PIR >1.3–3.5	35.6	0.67	33.0	0.27	31.9	0.27	§
PIR > 3.5	36.5	0.52	34.2	0.70	34.1	0.50	#
Education ⁷							
Less than high school	34.6	0.41	31.1	0.30	30.5	0.26	§
High school	36.6	0.19	33.8	0.30	32.8	0.42	§
Greater than high school	37.5	1.18	34.6	0.51	34.1	0.42	§
Health insurance status ⁸							
Yes	35.9	0.32	33.1	0.31	32.8	0.32	§
No	34.8	0.46	31.1	0.34	30.7	0.34	§

§ Indicates a statistically significant linear trend across survey years 1982–1984 to 1999–2006, $p < 0.05$.

No significant linear trend.

¹Persons of unknown country of birth, unknown poverty status, unknown education, and unknown health insurance status are included in the total.

²During 1988–1994 and 1999–2006, significant linear trend by age group ($p < 0.05$).

³During 1999–2006, males and females are statistically different ($p < 0.05$).

⁴During 1982–1984, 1988–1994, and 1999–2006, U.S.-born and foreign-born adults are statistically different ($p < 0.05$).

⁵Poverty status levels are based on poverty income ratio (PIR): Calculated by dividing family income by a poverty threshold specific for family size.

⁶During 1982–1984, 1988–1994, and 1999–2006, significant linear trend by PIR level ($p < 0.05$).

⁷During 1982–1984, 1988–1994, and 1999–2006, significant linear trend by educational level ($p < 0.05$).

⁸During 1982–1984, 1988–1994, and 1999–2006, adults with and without health insurance are statistically different ($p < 0.05$).

NOTE: Age-adjusted to year 2000 U.S. Census Bureau estimates using age groups 20–39 years, 40–59 years, and 60–74 years.

SOURCES: CDC/NCHS, Hispanic Health and Nutrition Examination Survey, HHANES 1982–1984; Third National Health and Nutrition Examination Survey, NHANES III 1988–1994; and National Health and Nutrition Examination Survey, NHANES 1999–2006.

Table 4. Age-adjusted dietary saturated fat (% kilocalories) among Mexican-American adults aged 20–74 years, by select characteristics: United States, 1982–1984 through 1999–2006

Characteristic	HHANES 1982–1984 (n=3,317)		NHANES III 1988–1994 (n=4,153)		NHANES 1999–2006 (n=3,694)		Trend
	Mean	Standard error	Mean	Standard error	Mean	Standard error	
Total ¹	12.7	0.12	10.6	0.13	10.3	0.11	§
Age							
20–39 years	12.8	0.18	10.8	0.15	10.2	0.14	§
40–59 years	12.4	0.11	10.6	0.14	10.4	0.17	§
60–74 years	13.0	0.28	10.5	0.26	10.3	0.16	§
Sex ²							
Male	12.6	0.15	10.5	0.16	10.0	0.13	§
Female	12.7	0.14	10.8	0.12	10.7	0.13	§
Country of birth ³							
United States	12.9	0.13	11.4	0.18	11.1	0.14	§
Foreign	12.3	0.19	10.0	0.13	9.7	0.13	§
Poverty status ^{4,5}							
PIR ≤1.3	12.5	0.07	10.3	0.16	10.1	0.14	§
PIR >1.3–3.5	12.7	0.27	10.9	0.16	10.4	0.12	§
PIR >3.5	12.9	0.16	11.4	0.26	10.8	0.23	#
Education ⁶							
Less than high school	12.3	0.12	10.3	0.17	9.8	0.12	§
High school	13.1	0.15	10.9	0.15	10.7	0.18	§
Greater than high school	13.4	0.47	11.5	0.22	11.0	0.17	§
Health insurance status ⁷							
Yes	12.8	0.12	10.9	0.15	10.6	0.13	§
No	12.3	0.15	10.3	0.20	9.9	0.15	§

§ Indicates a statistically significant linear trend across survey years 1982–1984 to 1999–2006, $p < 0.05$.

No significant linear trend.

¹Persons of unknown country of birth, unknown poverty status, unknown education, and unknown health insurance status are included in the total.

²During 1999–2006, males and females are statistically different ($p < 0.05$).

³During 1982–1984, 1988–1994, and 1999–2006, U.S.-born and foreign-born adults are statistically different ($p < 0.05$).

⁴Poverty status levels are based on poverty income ratio (PIR): Calculated by dividing family income by a poverty threshold specific for family size.

⁵During 1982–1984, 1988–1994, and 1999–2006, significant linear trend by PIR level ($p < 0.05$).

⁶During 1982–1984, 1988–1994, and 1999–2006, significant linear trend by educational level ($p < 0.05$).

⁷During 1982–1984, 1988–1994, and 1999–2006, adults with and without health insurance are statistically different ($p < 0.05$).

NOTE: Age-adjusted to year 2000 U.S. Census Bureau estimates using age groups 20–39 years, 40–59 years, and 60–74 years.

SOURCES: CDC/NCHS, Hispanic Health and Nutrition Examination Survey, HHANES 1982–1984; Third National Health and Nutrition Examination Survey, NHANES III 1988–1994; and National Health and Nutrition Examination Survey, NHANES 1999–2006.

Table 5. Age-adjusted dietary protein (% kilocalories) among Mexican-American adults aged 20–74 years, by select characteristics: United States, 1982–1984 through 1999–2006

Characteristic	HHANES 1982–1984 (n=3,317)		NHANES III 1988–1994 (n=4,153)		NHANES 1999–2006 (n=3,694)		Trend
	Mean	Standard error	Mean	Standard error	Mean	Standard error	
Total ¹	17.3	0.12	16.1	0.07	15.8	0.11	§
Age ²							
20–39 years	16.9	0.20	15.6	0.09	15.5	0.16	§
40–59 years	17.4	0.19	16.1	0.13	15.9	0.16	§
60–74 years	18.3	0.26	17.2	0.21	16.3	0.21	§
Sex ³							
Male	17.5	0.15	16.1	0.10	15.8	0.14	§
Female	17.2	0.10	16.1	0.09	15.8	0.14	§
Country of birth ⁴							
United States	17.2	0.14	15.6	0.13	15.3	0.13	§
Foreign	17.6	0.19	16.5	0.13	16.1	0.16	§
Poverty status ⁵							
PIR ≤1.3	17.4	0.19	16.3	0.15	15.7	0.20	§
PIR >1.3–3.5	17.2	0.20	15.9	0.14	15.8	0.17	§
PIR >3.5	17.7	0.33	15.9	0.26	15.6	0.20	#
Education ⁶							
Less than high school	17.4	0.08	16.4	0.12	15.9	0.13	§
High school	17.3	0.35	15.4	0.14	15.7	0.19	§
Greater than high school	16.9	0.61	15.8	0.17	15.5	0.20	§
Health insurance status							
Yes	17.4	0.20	15.9	0.11	15.7	0.14	§
No	17.2	0.12	16.3	0.13	15.8	0.20	§

§ Indicates a statistically significant linear trend across survey years 1982–1984 to 1999–2006, $p < 0.05$.

No significant linear trend.

¹Persons of unknown country of birth, unknown poverty status, unknown education, and unknown health insurance status are included in the total.

²During 1982–1984, 1988–1994, and 1999–2006, significant linear trend by age group ($p < 0.05$).

³During 1982–1984, males and females are statistically different ($p < 0.05$).

⁴During 1988–1994 and 1999–2006, U.S.-born and foreign born adults are statistically different ($p < 0.05$).

⁵Poverty status levels are based on poverty income ratio (PIR): Calculated by dividing family income by a poverty threshold specific for family size.

⁶During 1988–1994, significant linear trend by educational level ($p < 0.05$).

NOTE: Age-adjusted to year 2000 U.S. Census Bureau estimates using age groups 20–39 years, 40–59 years, and 60–74 years.

SOURCES: CDC/NCHS, Hispanic Health and Nutrition Examination Survey, HHANES 1982–1984; Third National Health and Nutrition Examination Survey, NHANES III 1988–1994; and National Health and Nutrition Examination Survey, NHANES 1999–2006.

Table 6. Age-adjusted dietary carbohydrates (% kilocalories) among Mexican-American adults 20–74 years, by select characteristics: United States, 1982–1984 through 1999–2006

Characteristic	HHANES 1982–1984 (n=3,317)		NHANES III 1988–1994 (n=4,153)		NHANES 1999–2006 (n=3,694)		Trend
	Mean	Standard error	Mean	Standard error	Mean	Standard error	
Total ¹	45.8	0.44	50.3	0.26	51.2	0.38	§
Age ²							
20–39 years	45.6	0.31	50.4	0.34	51.7	0.48	§
40–59 years	46.1	0.70	49.7	0.34	50.7	0.49	§
60–74 years	46.0	0.75	51.5	0.45	50.9	0.46	§
Sex ³							
Male	44.1	0.49	48.9	0.30	50.3	0.47	§
Female	47.5	0.42	51.7	0.31	52.0	0.38	§
Country of birth ⁴							
United States	44.8	0.40	48.4	0.35	48.6	0.39	§
Foreign	47.7	0.67	52.1	0.29	52.9	0.41	
Poverty status ^{5,6}							
PIR ≤ 1.3	46.6	0.26	51.2	0.40	52.1	0.54	§
PIR >1.3–3.5	45.7	0.83	49.9	0.28	51.1	0.39	§
PIR > 3.5	43.3	0.50	47.9	0.79	48.6	0.58	#
Education ⁷							
Less than high school	46.8	0.47	51.2	0.30	52.4	0.35	§
High school	44.4	0.35	49.5	0.40	50.0	0.54	§
Greater than high school	43.7	1.69	48.4	0.52	49.5	0.55	§
Health insurance status ⁸							
Yes	45.4	0.56	49.6	0.37	50.3	0.42	§
No	46.8	0.51	51.4	0.30	52.4	0.49	§

§ Indicates a statistically significant linear trend across survey years 1982–1984 to 1999–2006, $p < 0.05$.

No significant linear trend.

¹Persons of unknown country of birth, unknown poverty status, unknown education, and unknown health insurance status are included in the total.

²During 1988–1994, significant linear trend by age group ($p < 0.05$).

³During 1982–1984, 1988–1994, and 1999–2006, males and females are statistically different ($p < 0.05$).

⁴During 1982–1984, 1988–1994, and 1999–2006, U.S.-born and foreign-born adults are statistically different ($p < 0.05$).

⁵Poverty status levels are based on poverty income ratio (PIR): Calculated by dividing family income by a poverty threshold specific for family size.

⁶During 1982–1984, 1988–1994, and 1999–2006, significant linear trend by PIR level ($p < 0.05$).

⁷During 1982–1984, 1988–1994, and 1999–2006, significant linear trend by educational level ($p < 0.05$).

⁸During 1982–1984, 1988–1994, and 1999–2006, adults with and without health insurance are statistically different ($p < 0.05$).

NOTE: Age-adjusted to year 2000 U.S. Census Bureau estimates using age groups 20–39 years, 40–59 years, and 60–74 years.

SOURCES: CDC/NCHS, Hispanic Health and Nutrition Examination Survey, HHANES 1982–1984; Third National Health and Nutrition Examination Survey, NHANES III 1988–1994; and National Health and Nutrition Examination Survey, NHANES 1999–2006.

Table 7. Age-adjusted prevalence of high serum cholesterol among Mexican-American adults aged 20–74 years, by select characteristics: United States, 1988–1994 through 1999–2006

Characteristic	NHANES III 1988–1994 (n=4,124)		NHANES 1999–2006 (n=3,688)		Difference
	Percent	Standard error	Percent	Standard error	
Total ¹	19.0	1.09	20.6	0.76	#
Age ²					
20–39 years	10.2	0.87	10.5	0.84	#
40–59 years	21.9	1.69	24.2	1.50	#
60–74 years	35.3	2.20	38.8	1.55	#
Sex					
Male	19.5	1.46	21.5	0.98	#
Female	18.2	1.20	19.4	0.97	#
Country of birth ³					
United States	21.0	1.75	20.0	1.10	#
Foreign	17.0	1.00	20.8	0.98	§
Poverty status ⁴					
PIR ≤1.3	16.6	1.43	20.4	1.14	§
PIR >1.3–3.5	20.4	1.15	20.8	1.49	#
PIR > 3.5	21.2	2.48	19.2	1.89	#
Education					
Less than high school	18.3	1.28	20.5	1.00	#
High school	21.4	1.90	21.9	1.64	#
Greater than high school	19.6	2.21	20.6	1.47	#
Health insurance status					
Yes	19.6	1.40	21.2	0.86	#
No	17.8	1.26	19.0	1.25	#

Not significantly different.

§ Indicates a statistically significant difference in percentages between 1988–1994 and 1999–2006, $p < 0.05$.¹Persons of unknown country of birth, unknown poverty status, unknown education, and unknown health insurance status are included in the total.²During 1988–1994 and 1996–2006, significant linear trend by age group ($p < 0.05$).³During 1988–1994, U.S. born and non-U.S. born adults are statistically different ($p < 0.05$).⁴Poverty status levels are based on poverty income ratio (PIR): Calculated by dividing family income by a poverty threshold specific for family size.NOTES: Age-adjusted to year 2000 U.S. Census Bureau estimates using age groups 20–39 years, 40–59 years, and 60–74 years. High total serum cholesterol is defined as serum total cholesterol ≥ 240 mg/dL or currently taking medication to lower cholesterol.

SOURCES: CDC/NCHS, Hispanic Health and Nutrition Examination Survey, HHANES 1982–1984; Third National Health and Nutrition Examination Survey, NHANES III 1988–1994; and National Health and Nutrition Examination Survey, NHANES 1999–2006.

Table 8. Age-adjusted prevalence of obesity among Mexican-American adults aged 20–74 years, by select characteristics: United States, 1982–1984 through 1999–2006

Characteristic	HHANES 1982–1984 (n=3,251)		NHANES III 1988–1994 (n=4,140)		NHANES 1999–2006 (n=3,516)		Trend
	Mean	Standard error	Mean	Standard error	Mean	Standard error	
Total ¹	21.2	0.57	29.9	0.93	34.7	1.07	§
Age ²							
20–39 years	15.3	1.12	20.7	1.52	29.4	1.47	§
40–59 years	26.0	0.88	39.1	1.74	39.2	1.69	§
60–74 years	25.1	1.29	31.1	2.65	37.6	1.71	§
Sex ³							
Male	15.7	0.91	24.4	1.12	29.0	1.17	§
Female	26.3	1.01	36.0	1.36	41.0	1.70	§
Country of birth ⁴							
United States	23.8	0.73	34.0	1.41	41.0	1.60	§
Foreign	16.8	0.79	26.6	1.44	30.7	1.05	§
Poverty status ⁵							
PIR ≤1.3	23.5	0.90	30.0	1.44	35.1	1.64	§
PIR >1.3–3.5	20.9	0.85	29.5	1.52	32.7	1.65	§
PIR > 3.5	20.4	4.03	27.6	2.52	38.1	1.89	#
Education ⁶							
Less than high school	21.9	0.75	29.7	1.23	34.1	1.21	§
High school	19.9	1.57	29.7	2.07	33.7	2.39	§
Greater than high school	15.5	2.71	28.8	2.31	37.3	1.81	§
Health insurance status ⁷							
Yes	20.6	0.50	31.5	1.06	36.9	1.24	§
No	22.8	1.70	28.3	1.11	32.9	1.65	§

§ Indicates a statistically significant linear trend across survey years 1982–1984 to 1999–2006, $p < 0.05$.

No significant linear trend.

¹Persons of unknown country of birth, unknown poverty status, unknown education, and unknown health insurance status are included in the total.

²During 1982–1984, 1988–1994, and 1999–2006, significant linear trend by age group ($p < 0.05$)

³During 1982–1984, 1988–1994, and 1999–2006, males and females are statistically different ($p < 0.05$)

⁴During 1982–1984, 1988–1994, and 1999–2006, U.S.-born and foreign-born adults are statistically different ($p < 0.05$)

⁵Poverty status levels are based on poverty income ratio (PIR): Calculated by dividing family income by a poverty threshold specific for family size.

⁶During 1982–1984 significant linear trend by educational level ($p < 0.05$)

⁷During 1988–1994 and 1999–2006, adults with and without health insurance are statistically different ($p < 0.05$)

NOTE: Age-adjusted to year 2000 U.S. Census Bureau estimates using age groups 20–39 years, 40–59 years, and 60–74 years. Obesity is defined as having a body mass index (BMI) ≥ 30 . Pregnant females excluded.

SOURCES: CDC/NCHS, Hispanic Health and Nutrition Examination Survey, HHANES 1982–1984; Third National Health and Nutrition Examination Survey, NHANES III 1988–1994; and National Health and Nutrition Examination Survey, NHANES 1999–2006.

Table 9. Age-adjusted prevalence of high blood pressure among Mexican-American adults aged 20–74 years, by select characteristics: United States, 1982–1984 through 1999–2006

Characteristic	HHANES 1982–1984 (n=3,196)		NHANES III 1988–1994 (n=3,986)		NHANES 1999–2006 (n=3,440)	
	Percent	Standard error	Percent	Standard error	Percent	Standard error
Total ¹	22.8	0.97	21.1	0.76	22.4	0.90
Age ²						
20–39 years	6.8	0.83	5.8	0.69	5.8	0.71
40–59 years	25.6	1.60	23.3	1.47	24.8	1.44
60–74 years	58.8	1.82	56.9	1.93	60.9	1.71
Sex ³						
Male	24.4	1.40	22.2	1.00	21.6	1.00
Female	21.1	0.81	19.6	0.97	22.8	1.12
Country of birth ⁴						
United States	24.5	1.17	23.2	1.06	26.3	1.70
Foreign	20.1	1.00	19.4	1.35	19.7	0.90
Poverty status ⁵						
PIR ≤1.3	23.4	1.89	19.7	1.03	21.9	1.37
PIR >1.3–3.5	22.8	1.57	21.2	1.42	22.9	1.40
PIR >3.5	24.3	2.53	21.3	1.84	24.3	1.92
Education						
Less than high school	22.9	1.31	20.8	1.03	22.2	0.91
high school	22.8	1.76	21.7	1.85	24.5	1.66
Greater than high school	19.3	4.08	21.4	1.79	21.0	1.46
Health insurance status						
Yes	23.3	1.17	22.0	0.69	23.4	1.19
No	21.3	1.65	20.3	1.59	21.0	1.12

¹Persons of unknown country of birth, unknown poverty status, unknown education, and unknown health insurance status are included in the total.

²During 1982–1984, 1988–1994, and 1999–2006, significant linear trend by age group ($p < 0.05$)

³During 1982–1984 and 1988–1994, males and females are statistically different ($p < 0.05$)

⁴During 1982–1984, 1988–1994, and 1999–2006, U.S.-born and foreign born adults are statistically different ($p < 0.05$)

⁵Poverty status levels are based on poverty income ratio (PIR): Calculated by dividing family income by a poverty threshold specific for family size.

NOTES: Age-adjusted to year 2000 U.S. Census Bureau estimates using age groups 20–39 years, 40–59 years, and 60–74 years. High blood pressure is defined as a systolic blood pressure \geq 140 mm Hg or a diastolic blood pressure \geq 90 mm Hg or currently taking medication to lower high blood pressure. Pregnant females excluded. There was no significant linear trend for high blood pressure from 1982–1984 to 1999–2006.

SOURCES: CDC/NCHS, Hispanic Health and Nutrition Examination Survey, HHANES 1982–1984; Third National Health and Nutrition Examination Survey, NHANES III 1988–1994; and National Health and Nutrition Examination Survey, NHANES 1999–2006.

Table 10. Age-adjusted prevalence of diagnosed or undiagnosed diabetes among Mexican-American adults aged 20–74 years, by select characteristics: United States, NHANES 1982–1984 through NHANES 1999–2006

Characteristic	HHANES 1982–1984 (n=1,654)		NHANES III 1988–1994 (n=2,012)		NHANES 1999–2006 (n=1,694)		Trend
	Percent	Standard error	Percent	Standard error	Percent	Standard error	
Total ¹	9.7	0.99	12.7	0.80	13.7	1.12	§
Age ²							
20–39 years	1.6	0.41	2.2	0.43	3.0	0.87	#
40–59 years	14.3	1.89	18.3	1.52	15.9	2.05	#
60–74 years	20.1	3.68	26.8	3.11	37.1	2.81	§
Sex							
Male	10.6	1.09	11.8	0.97	13.7	1.41	#
Female	8.9	1.19	13.4	1.26	13.6	1.49	§
Country of birth							
United States	10.4	1.19	12.9	1.21	14.6	1.55	§
Foreign	8.6	1.09	13.0	1.02	12.9	1.31	§
Poverty status ^{3,4}							
PIR ≤ 1.3	9.1	1.21	13.4	1.75	15.4	1.66	§
PIR >1.3–3.5	10.4	1.68	12.4	1.29	12.3	1.66	#
PIR >3.5	11.2	2.97	7.7	2.24	11.6	2.47	#
Education							
Less than high school	9.7	0.84	13.6	0.98	14.7	1.26	§
High school	8.3	1.60	8.9	1.65	9.8	1.70	#
Greater than high school	*7.0	2.38	13.2	2.66	14.0	2.57	§
Health insurance status							
Yes	9.6	0.93	12.9	1.14	13.8	1.43	§
No	10.1	1.64	12.7	2.35	14.5	1.48	§

§ Indicates a statistically significant linear trend across survey years 1982–1984 to 1999–2006, $p < 0.05$.

No significant linear trend.

* Estimates preceded by an (*) have a relative standard error greater than 30% and less than or equal to 40% and should be used with caution as they do not meet the standards of reliability or precision.

¹Persons of unknown country of birth, unknown poverty status, unknown education, and unknown health insurance status are included in the total.

²During 1982–1984, 1988–1994, and 1999–2006, significant linear trend by age group ($p < 0.05$).

³Poverty status levels are based on poverty income ratio (PIR): Calculated by dividing family income by a poverty threshold specific for family size.

⁴During 1988–1994, significant linear trend by PIR level ($p < 0.05$).

NOTE: Age-adjusted to year 2000 U.S. Census Bureau estimates using age groups 20–39 years, 40–59 years, and 60–74 years. Diabetes (diagnosed or undiagnosed) is defined as previous physician diagnosis of diabetes or having fasting plasma glucose of at least 126 mg/dL for those who fasted between 8 to less than 24 hours.

SOURCES: CDC/NCHS, Hispanic Health and Nutrition Examination Survey, HHANES 1982–1984; Third National Health and Nutrition Examination Survey, NHANES III 1988–1994; and National Health and Nutrition Examination Survey, NHANES 1999–2006.

Table 11. Age-adjusted prevalence of dental caries among dentate Mexican-American adults aged 20–74 years, by select characteristics: United States, 1982–1984 through 1999–2004

Characteristic	HHANES 1982–1984 (n=2,999)		NHANES III 1988–1994 (n=4,029)		NHANES 1999–2004 (n=2,589)		Trend
	Percent	Standard error	Percent	Standard error	Percent	Standard error	
Total ¹	90.4	1.18	86.9	0.67	83.4	1.39	§
Age ²							
20–39 years	87.0	1.73	83.5	1.12	77.9	1.87	§
40–59 years	93.4	1.20	90.1	0.91	87.0	1.83	§
60–74 years	91.9	0.66	87.7	1.64	89.1	1.55	#
Sex ³							
Male	86.8	1.73	83.2	1.10	79.9	1.71	§
Female	94.1	0.86	90.8	0.70	87.3	1.60	§
Country of birth ⁴							
United States	92.3	1.10	92.4	0.91	88.0	1.64	§
Foreign	87.1	1.92	82.0	0.97	80.1	1.75	§
Poverty status ^{5,6}							
PIR ≤ 1.3	88.3	1.14	81.2	1.13	80.5	1.81	§
PIR >1.3–3.5	90.6	1.53	89.7	1.11	82.3	1.93	§
PIR >3.5	94.5	1.52	95.8	0.89	92.3	1.76	#
Education ⁷							
Less than high school	87.8	1.22	82.9	1.00	79.3	1.59	§
High school	93.4	1.50	92.5	0.80	84.1	2.34	§
Greater than high school	96.0	0.94	93.9	0.88	91.3	1.12	§
Health insurance status ⁸							
Yes	91.7	1.30	90.1	0.72	87.3	1.18	§
No	87.9	1.30	82.4	1.00	79.0	2.35	§

§ Indicates a statistically significant linear trend across survey years 1982–1984 to 1999–2006, $p < 0.05$.

No significant linear trend.

¹Persons of unknown country of birth, unknown poverty status, unknown education, and unknown health insurance status are included in the total.

²During 1982–1984, 1988–1994, and 1999–2006, significant linear trend by age group ($p < 0.05$).

³During 1982–1984, 1988–1994, and 1999–2006, males and females are statistically different ($p < 0.05$).

⁴During 1982–1984, 1988–1994, and 1999–2006, U.S.-born and foreign born adults are statistically different ($p < 0.05$).

⁵Poverty status levels are based on poverty income ratio (PIR): Calculated by dividing family income by a poverty threshold specific for family size.

⁶During 1982–1984, 1988–1994, and 1999–2006, significant linear trend by PIR level ($p < 0.05$).

⁷During 1982–1984, 1988–1994, and 1999–2006, significant linear trend by educational level ($p < 0.05$).

⁸During 1982–1984, 1988–1994, and 1999–2006, adults with and without health insurance are statistically different ($p < 0.05$).

NOTE: Age-adjusted to year 2000 U.S. Census Bureau estimates using age groups 20–39 years, 40–59 years, and 60–74 years. Dental caries is defined as having one or more permanent teeth with untreated or treated decay.

SOURCES: CDC/NCHS, Hispanic Health and Nutrition Examination Survey, HHANES 1982–1984; Third National Health and Nutrition Examination Survey, NHANES III 1988–1994; and National Health and Nutrition Examination Survey, NHANES 1999–2006.

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