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Seroprevalence of six infectious diseases among adults in the United States by race/ethnicity: Data from the third National Health and Nutrition Examination Survey, 1988–94

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Abstract

Objective—To provide seroprevalence estimates for six selected infectious agents by various sociodemographic and risk behavior variables stratified by race/ethnicity for adults age 20 years or more.

Methods—Seroprevalence estimates for hepatitis A, B, and C, *Toxoplasma gondii, Helicobacter pylori*, and Herpes simplex-2 were calculated from data in the third National Health and Nutrition Examination Survey, 1988–94 utilizing weights to account for differential oversampling by race/ethnicity and nonresponse to the interview and examination. Standard errors and 95% confidence intervals were calculated taking into account the complex sample design.

Results—Age-adjusted prevalence estimates and 95% confidence intervals are presented for three enteric infectious diseases hepatitis A, *Toxoplasma gondii, Helicobacter pylori*, as well as three blood-borne/sexually transmitted diseases, hepatitis B, hepatitis C, and Herpes simplex-2 stratified by race/ethnicity and by various demographic factors including gender, poverty index, population size of area of residence, country of birth, household crowding, and years of education. In addition, estimates are presented for the three blood-borne/sexually transmitted diseases by various risk behaviors that include marital status, age at first sexual intercourse, number of lifetime sexual partners, cocaine use, and marijuana use.

Keywords: Infectious disease • Hepatitis • Herpes simplex-2 • *Toxoplasma gondii* • *Helicobacter pylori* • National Health and Nutrition Examination Survey

Introduction

The National Health and Nutrition Examination Survey (NHANES) provides information from a nationally representative sample on the health and nutritional status of the civilian noninstitutionalized population of the United States. The objectives of this report are to provide race/ethnic specific estimates of the seroprevalence of three enteric pathogens, *Toxoplasma gondii, Helicobacter pylori*, and hepatitis A virus (HAV) and three blood-borne/sexually transmissible diseases, hepatitis B virus (HBV), hepatitis C virus (HCV), and Herpes simplex virus type 2 (HSV-2) in the U.S. population in 1988–94 by various demographic, socioeconomic, and behavioral characteristics. Serologic measurements of the prevalence of these infections

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were included in the survey because these diseases are not reportable (*Toxoplasma gondii, Helicobacter pylori* and HSV-2), or only clinical cases are reportable, although the majority of infections are asymptomatic (the hepatitis viruses). Therefore, population-based serologic studies provide the best estimate of the infection burden and are needed to develop and evaluate prevention efforts.

Methods

The NHANES III, conducted during 1988–94, included a sample of approximately 40,000 persons aged 2 months or over from 89 randomly selected locations throughout the United States. The survey was divided into two 3-year components (phase 1, 1988–91, and phase 2, 1991–94) so that national estimates could be produced for each 3-year period as well as for the total 6 years. NHANES III was based on a complex, stratified, multistage, probability cluster sample design (1). Persons 5 years and under and those over 59 years of age, black Americans, and Mexican Americans were sampled at higher frequencies than other persons. Race/ethnicity was obtained by self-report and analyses were performed on non-Hispanic white persons, non-Hispanic black persons, or Mexican Americans. Individuals who did not identify themselves as belonging to one of these categories were not analyzed separately but were included in the total sample. Only those individuals age 20 years and over who were examined and had a blood sample obtained for the laboratory assays were included in these analyses. Data is available on younger age groups and can be obtained at http://www.cdc.gov/nchs/about/major/nhanes/datalink.htm.

Testing for *H. pylori* antibody was only done on participants examined in the first phase (1988–91) of the study. Sexual behavior and drug use data were obtained from person's age 20–59 years and, therefore, analyses of the sexually transmissible and blood-borne infections were restricted to this age group. Overall response for the interview among sample persons age 20 and over was 81 percent (82 percent for those 20–59) and for the examination 73 percent (76 percent for those age 20–59). Availability of serum for testing out of those examined for the three enteric infections was consistent across all race/ethnic groups and outcomes (85–94 percent of those examined) but was lower among those in the oldest age group (80–82 percent of those age 70 years or over compared with 88–95 percent for all the other age groups). Availability of serum for testing was also consistent across all race/ethnic groups for the three sexually transmitted infections (91–96 percent of those examined for HBV and HCV and 71–77 percent of those examined for HSV-2) and across all age groups for both HBV and HCV (93–95 percent of those examined). For HSV-2 testing, availability was lowest among those 50–59 years of age (47 percent of those examined versus 77–80 percent for those 20–49 years of age). More detailed information on serum availability and response rates can be found in previous reports (2–6).

Prevalence estimates were weighted to represent the total United States population and to account for oversampling and nonresponse to the household interview and physical examination. Standard errors were calculated using SUDAAN (7), a family of statistical procedures for analysis of data from complex sample surveys. All estimates were age adjusted by the direct method to the 1980 U.S. population (8).

The laboratory and NHANES survey methods for the infectious diseases included in this report have already been published (2–6). Briefly, the serologic methods were: HAV, anti-HAV (HAVAB, Abbott Laboratories, Abbott Park, IL); *T. gondii,* IgG enzyme immonoassay (Sanofi Diagnostics Pasteur, BioRad, Hercules, CA); *H. pylori*, IgG enzyme immonoassay (Wampole Laboratories, Cranbury, NJ); HBV, antibody to hepatitis core antigen (anti-HBc) enzyme-linked immonoassay (CORAB, Abbott Laboratories, Abbott Park, IL); HCV, anti-HCV using a second generation enzyme immonoassay and a supplemental test (EIA 2.0 and HCV MATRIX, Abbott Laboratories, Abbott Park, IL); and HSV-2 type-specific immonodot assay (9).

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Table 1. Age-adjusted prevalence of antibody to *Toxoplasmosis gondii* in adult participants age 20 years and over by race/ethnicity for selected characteristics: United States, 1988–94

Characteristic	Total tested[1]	Total prevalence		Non-Hispanic white prevalence (N=6,290)		Non-Hispanic black prevalence (N=4,032)		Mexican American prevalence (N=4,010)	
		Percent	95% confidence interval	Percent	95% confidence interval	Percent	95% confidence interval	Percent	95% confidence interval
Total	14,909	25.4	(23.9–27.0)	24.0	(22.3–25.7)	26.5	(24.5–28.8)	25.3	(22.6–28.3)
Gender									
Male	6,989	26.2	(24.3–28.3)	24.7	(22.4–27.1)	28.7	(26.2–31.4)	26.5	(22.4–31.4)
Female	7,920	24.7	(22.7–26.8)	23.3	(21.0–25.8)	24.8	(22.2–27.8)	24.0	(21.9–26.3)
Poverty index									
Below poverty	3,162	31.0	(27.6–34.7)	29.7	(25.4–34.5)	27.6	(24.2–31.6)	26.8	(23.4–30.7)
At or above poverty	10,374	24.5	(22.9–26.2)	23.5	(21.8–25.3)	26.0	(24.0–28.1)	23.6	(20.2–27.5)
Population size									
Metropolitan (1 million or more)	7,196	25.4	(23.3–27.7)	22.5	(20.4–24.8)	25.7	(23.4–28.1)	27.1	(24.8–29.6)
Nonmetropolitan (less than 1 million)	7,713	25.5	(23.2–28.1)	25.1	(22.6–27.9)	27.9	(24.3–32.0)	22.7	(17.8–28.9)
Country of birth									
United States	11,819	23.4	(21.9–25.0)	23.5	(21.8–25.3)	24.9	(22.9–27.2)	17.6	(15.3–20.1)
Other	3,052	37.6	(34.0–41.6)	31.3	(27.3–36.0)	46.2	(40.2–53.0)	31.9	(28.7–35.4)
Household crowding index (persons per room)									
1 or more	3,291	32.6	(29.1–36.6)	28.0	(22.3–35.3)	31.8	(27.4–36.8)	33.8	(28.8–39.6)
0.5–0.99	5,741	26.3	(24.5–28.3)	25.8	(23.7–28.2)	25.2	(22.2–28.7)	20.7	(17.9–23.8)
Less than 0.5	5,849	23.4	(21.5–25.5)	23.2	(21.1–25.6)	26.5	(24.4–28.7)	18.3	(14.5–23.1)
Years of education									
No school or elementary	3,580	38.5	(34.7–42.6)	33.4	(26.1–42.6)	35.8	(28.5–44.9)	30.2	(26.7–34.1)
Some high school	2,442	31.9	(29.6–34.3)	31.7	(28.7–35.0)	28.3	(24.6–32.7)	25.4	(20.8–30.9)
High school graduate	4,546	25.0	(23.0–27.1)	24.4	(22.1–27.1)	24.5	(21.8–27.6)	21.1	(17.2–25.7)
Some college	4,244	20.7	(18.7–23.0)	20.1	(18.0–22.3)	25.4	(22.7–28.6)	16.8	(12.1–23.2)

[1]Total includes other race/ethnic groups.

Table 2. Age-adjusted prevalence of antibody to *Helicobacter pylori* in adult participants age 20 years and over by race/ethnicity for selected characteristics: United States, 1988–91

Characteristic	Total tested[1]	Total prevalence		Non-Hispanic white prevalence (N=3,353)		Non-Hispanic black prevalence (N=1,851)		Mexican American prevalence (N=2,021)	
		Percent	95% confidence interval	Percent	95% confidence interval	Percent	95% confidence interval	Percent	95% confidence interval
Total	7,465	32.7	(29.9–35.8)	26.2	(23.8–28.8)	52.7	(50.2–55.4)	61.6	(58.3–65.1)
Gender									
Male	3,748	34.2	(31.1–37.6)	27.5	(24.5–30.8)	58.3	(54.9–62.0)	63.4	(59.8–67.2)
Female	3,717	31.4	(28.5–34.5)	25.0	(22.5–27.8)	48.2	(45.5–51.1)	59.4	(55.4–63.7)
Poverty index									
Below poverty	1,402	48.0	(43.9–52.4)	36.3	(29.3–45.0)	54.5	(50.9–58.3)	70.9	(65.9–76.4)
At or above poverty	5,270	30.2	(27.2–33.5)	25.1	(22.7–27.8)	51.5	(48.9–54.2)	55.0	(51.3–59.0)
Population size									
Metropolitan (1 million or more)	3,704	30.6	(26.5–35.4)	23.1	(20.6–25.9)	51.5	(48.5–54.6)	59.1	(56.2–62.2)
Nonmetropolitan (less than 1 million)	3,761	34.7	(31.5–38.3)	28.9	(25.7–32.6)	[2]54.1	(49.9–58.7)	[2]64.2	(58.5–70.5)
Country of birth									
United States	5,969	29.1	(26.9–31.5)	25.2	(22.8–28.0)	51.7	(49.1–54.4)	53.4	(48.1–59.3)
Other	1,489	56.8	(51.0–63.3)	42.5	(34.0–52.9)	[2]68.7	(57.4–82.1)	68.2	(63.2–73.6)
Household crowding index (persons per room)									
1 or more	1,712	50.9	(46.4–55.9)	38.7	(31.4–47.6)	57.9	(51.2–65.6)	66.8	(59.9–74.4)
0.5–0.99	2,880	33.6	(30.8–36.8)	28.1	(25.6–30.8)	51.3	(48.7–54.1)	55.6	(51.6–59.9)
Less than 0.5	2,862	26.3	(22.7–30.3)	23.1	(19.7–27.1)	49.2	(44.3–54.6)	48.2	(39.2–59.3)
Years of education									
No school or elementary	1,809	57.8	(53.4–62.5)	42.4	(35.3–50.9)	64.4	(56.0–74.0)	71.2	(65.6–77.3)
Some high school	1,283	41.8	(38.6–45.4)	36.1	(31.9–40.8)	57.0	(53.1–61.2)	58.2	(51.8–65.3)
High school graduate	2,228	33.5	(29.7–37.8)	27.9	(24.4–32.0)	51.3	(46.8–56.2)	55.5	(49.3–62.5)
Some college	2,095	22.8	(19.7–26.4)	18.1	(15.7–20.8)	46.0	(41.5–51.0)	55.4	(48.9–62.8)

[1]Total includes other race/ethnic groups.

[2]Prevalence estimates and 95% confidence limits may be unreliable because too few sample persons were represented in the subgroup. (Criteria used was the number stratum minus the number of primary sampling units was less than 10 for the population subgroup designated).

Table 3. Age-adjusted prevalence of antibody to hepatitis A virus in adult participants age 20 years and over by race/ethnicity for selected characteristics: United States, 1988–94

Characteristic	Total tested[1]	Total prevalence		Non-Hispanic white prevalence (N=6,483)		Non-Hispanic black prevalence (N=4,213)		Mexican American prevalence (N=4,264)	
		Percent	95% confidence interval	Percent	95% confidence interval	Percent	95% confidence interval	Percent	95% confidence interval
Total	15,580	37.4	(35.2–39.8)	28.9	(27.0–31.0)	50.1	(48.0–52.2)	82.0	(79.5–84.5)
Gender									
Male	7,321	37.2	(34.5–40.0)	28.5	(26.2–31.1)	49.8	(47.5–52.2)	81.3	(78.9–83.8)
Female	8,259	37.6	(35.4–40.0)	29.3	(27.2–31.5)	50.2	(47.9–52.7)	82.4	(79.3–85.7)
Poverty index									
Below poverty	3,295	56.5	(52.7–60.6)	41.9	(37.4–47.0)	52.8	(49.2–56.7)	89.4	(85.3–93.7)
At or above poverty	10,857	34.3	(32.0–36.7)	27.9	(25.9–30.0)	47.8	(45.4–50.4)	76.6	(74.3–78.9)
Population size									
Metropolitan (1 million or more)	7,640	39.0	(35.9–42.3)	26.1	(23.8–28.7)	49.5	(46.3–53.0)	82.7	(80.0–85.5)
Nonmetropolitan (less than 1 million)	7,940	35.7	(32.6–39.1)	31.1	(28.1–34.3)	50.7	(46.9–54.8)	80.4	(74.5–86.7)
Country of birth									
United States	12,279	30.7	(28.7–32.8)	27.6	(25.6–29.8)	47.7	(45.6–49.8)	64.3	(61.9–66.9)
Other	3,261	77.6	(74.3–81.0)	54.0	(46.2–63.2)	79.6	(75.4–84.0)	94.9	(93.7–96.0)
Household crowding index (persons per room)									
1 or more	3,547	63.3	(60.4–66.4)	43.7	(39.7–48.1)	55.2	(51.4–59.3)	90.0	(87.3–92.8)
0.5–0.99	5,988	38.1	(35.5–40.8)	30.5	(28.1–33.0)	51.6	(49.0–54.2)	75.3	(72.8–77.9)
Less than 0.5	6,015	29.4	(27.4–31.6)	26.5	(24.5–28.7)	45.7	(42.6–49.0)	64.4	(59.8–69.4)
Years of education									
No school or elementary	3,730	76.7	(72.8–80.7)	52.9	(46.5–60.3)	67.2	(59.3–76.2)	94.9	(93.7–96.2)
Some high school	2,553	50.1	(46.8–53.7)	41.3	(37.4–45.5)	56.6	(53.1–60.3)	86.6	(82.7–90.7)
High school graduate	4,749	34.1	(31.9–36.5)	28.7	(26.3–31.3)	46.3	(43.6–49.2)	70.8	(67.0–74.9)
Some college	4,449	27.0	(24.6–29.7)	21.6	(19.5–23.8)	42.5	(39.3–45.8)	65.0	(61.2–69.1)

[1]Total includes other race/ethnic groups.

Table 4. Age-adjusted prevalence of antibody to hepatitis B virus in adult participants age 20–59 years by race/ethnicity for selected characteristics: United States, 1988–94

Characteristic	Total tested[1]	Total prevalence		Non-Hispanic white prevalence (N=3,589)		Non-Hispanic black prevalence (N=3,275)		Mexican American prevalence (N=3,288)	
		Percent	95% confidence interval	Percent	95% confidence interval	Percent	95% confidence interval	Percent	95% confidence interval
Total	10,624	5.6	(4.8–6.5)	3.0	(2.5–3.8)	13.7	(12.1–15.5)	5.3	(4.2–6.8)
Gender									
Male	4,897	6.5	(5.6–7.6)	3.9	(3.1–5.0)	15.9	(13.3–19.0)	7.0	(5.3–9.2)
Female	5,727	4.7	(3.8–5.8)	2.2	(1.5–3.3)	11.9	(10.5–13.4)	3.6	(2.4–5.5)
Poverty index									
Below poverty	2,380	9.7	(7.8–12.2)	5.7	(3.4–9.7)	15.7	(12.9–19.2)	5.4	(3.8–7.6)
At or above poverty	7,394	4.8	(4.0–5.6)	2.8	(2.2–3.6)	12.2	(10.0–14.8)	5.2	(4.1–6.5)
Population size									
Metropolitan (1 million or more)	5,606	7.1	(5.8–8.7)	3.4	(2.5–4.7)	14.5	(12.3–17.1)	6.0	(4.5–8.1)
Nonmetropolitan (less than 1 million)	5,018	4.2	(3.4–5.1)	2.7	(2.0–3.6)	12.4	(9.4–16.4)	4.7	(3.2–6.9)
Country of birth									
United States	8,019	4.0	(3.4–4.7)	2.7	(2.1–3.4)	12.6	(10.8–14.7)	5.3	(3.8–7.3)
Other	2,574	15.0	(11.5–19.5)	9.4	(5.5–16.3)	25.9	(19.1–35.3)	5.3	(3.7–7.7)
Household crowding index (persons per room)									
1 or more	3,161	11.1	(9.1–13.4)	6.9	(4.3–11.2)	15.8	(13.1–19.1)	5.3	(3.2–9.0)
0.5–0.99	4,695	5.7	(4.4–7.2)	2.8	(2.0–3.9)	13.0	(11.7–14.4)	5.2	(3.4–8.0)
Less than 0.5	2,747	4.0	(3.1–5.4)	2.7	(1.8–3.8)	13.1	(10.5–16.4)	5.9	(4.0–8.6)
Years of education									
No school or elementary	1,769	8.2	(5.4–12.3)	4.7	(2.0–11.3)	19.4	(12.9–29.2)	5.3	(3.9–7.2)
Some high school	1,750	8.9	(6.5–12.0)	5.3	(3.3–8.6)	17.9	(14.8–21.7)	5.9	(4.2–8.3)
High school graduate	3,597	5.1	(4.3–6.2)	2.8	(2.0–3.8)	13.8	(11.6–16.4)	4.7	(2.9–7.6)
Some college	3,444	4.6	(3.9–5.4)	2.7	(2.0–3.5)	10.5	(8.1–13.5)	6.2	(3.8–10.1)
Marital status									
Divorced/separated	1,382	7.5	(5.9–9.6)	5.3	(3.6–7.9)	13.9	(10.1–19.2)	5.5	(3.2–9.6)
All others	9,221	5.3	(4.5–6.2)	2.7	(2.1–3.4)	13.8	(12.1–15.8)	5.3	(4.3–6.7)
Age at first sexual intercourse									
Under 18 years	5,667	5.8	(5.0–6.8)	3.7	(2.8–4.9)	14.5	(12.7–16.6)	7.1	(5.2–9.7)
18 years or over	4,078	4.0	(3.2–4.9)	2.3	(1.6–3.3)	9.8	(8.0–12.0)	3.6	(2.3–5.4)
Lifetime number of sexual partners									
50 or more	450	13.6	(9.4–19.5)	12.4	(7.7–19.9)	16.4	(11.0–24.3)	9.5	(4.5–20.0)
2–49	7,334	5.2	(4.5–6.0)	3.1	(2.4–4.0)	13.4	(11.7–15.4)	6.2	(4.5–8.4)
0–1	2,343	2.9	(2.2–3.9)	1.0	(0.5–2.0)	10.3	(6.9–15.4)	3.1	(1.8–5.1)
Lifetime use of cocaine									
Ever used cocaine	1,226	10.9	(8.0–14.8)	4.4	(2.7–7.0)	29.0	(22.6–37.1)	13.0	(7.1–24.0)
Never used cocaine	9,086	4.5	(3.9–5.2)	2.7	(2.1–3.4)	11.6	(10.2–13.1)	4.8	(3.6–6.3)
Lifetime use of marijuana									
100 or more times	989	10.0	(6.9–14.5)	5.4	(3.0–9.8)	25.2	(17.2–36.8)	19.9	(12.1–32.6)
1–99	3,022	4.5	(3.6–5.7)	2.8	(1.9–4.2)	14.3	(11.5–17.6)	7.8	(4.7–12.8)
Never used	6,298	4.9	(4.0–5.9)	2.5	(1.8–3.6)	11.8	(10.2–13.6)	3.9	(3.0–5.3)

[1]Total includes other race/ethnic groups.

Table 5. Age-adjusted prevalence of antibody to hepatitis C virus in adult participants age 20–59 years by race/ethnicity for selected characteristics: United States, 1988–94

Characteristic	Total tested[1]	Total prevalence		Non-Hispanic white prevalence (N=3,590)		Non-Hispanic black prevalence (N=3,268)		Mexican American prevalence (N=3,282)	
		Percent	95% confidence interval	Percent	95% confidence interval	Percent	95% confidence interval	Percent	95% confidence interval
Total	10,612	2.4	(2.0–3.1)	2.0	(1.5–2.7)	4.1	(3.2–5.3)	3.4	(2.6–4.5)
Gender									
Male	4,891	3.4	(2.6–4.4)	2.8	(2.0–4.2)	5.8	(4.3–7.9)	4.1	(3.1–5.6)
Female	5,721	1.5	(1.1–2.0)	1.1	(0.8–1.7)	2.8	(2.0–3.9)	2.6	(1.5–4.4)
Poverty index									
Below poverty	2,377	5.7	(4.3–7.6)	5.3	(3.1–9.2)	7.2	(5.4–9.6)	6.4	(4.4–9.3)
At or above poverty	7,386	1.9	(1.5–2.5)	1.7	(1.3–2.4)	3.4	(2.3–4.8)	2.2	(1.6–3.1)
Population size									
Metropolitan (1 million or more)	5,596	2.7	(2.1–3.6)	1.9	(1.3–2.7)	4.8	(3.7–6.2)	3.7	(2.5–5.6)
Nonmetropolitan (less than 1 million)	5,016	2.1	(1.5–3.1)	2.0	(1.4–3.1)	3.3	(1.8–5.9)	3.3	(2.4–4.6)
Country of birth									
United States	8,013	2.5	(2.0–3.1)	2.1	(1.5–2.8)	4.4	(3.4–5.6)	5.0	(3.4–7.3)
Other	2,568	2.4	(1.2–5.0)	–	–	1.6	(0.4–5.5)	2.2	(1.4–3.5)
Household crowding index (persons per room)									
1 or more	3,155	5.3	(3.8–7.3)	4.6	(2.8–7.5)	6.6	(4.7–9.5)	4.4	(2.8–6.8)
0.5–0.99	4,691	2.4	(1.7–3.4)	1.9	(1.3–2.9)	3.2	(2.1–4.8)	4.0	(2.6–6.0)
Less than 0.5	2,745	1.8	(1.3–2.4)	1.5	(0.9–2.3)	3.8	(2.6–5.5)	1.2	(0.5–3.0)
Years of education									
No school or elementary	1,764	5.0	(2.9–8.5)	8.8	(4.3–18.0)	3.6	(1.2–11.1)	2.7	(1.8–4.1)
Some high school	1,749	6.0	(4.2–8.5)	5.2	(2.8–9.6)	8.2	(6.0–11.2)	6.0	(3.8–9.5)
High school graduate	3,594	2.4	(1.8–3.3)	1.9	(1.3–3.0)	4.2	(3.3–5.5)	4.1	(2.5–6.6)
Some college	3,441	1.1	(0.7–1.7)	1.0	(0.6–1.7)	2.0	(1.3–3.2)	1.5	(0.8–2.7)
Marital status									
Divorced/separated	1,379	4.9	(3.4–6.9)	4.3	(2.6–7.1)	6.0	(4.1–8.8)	7.8	(4.7–13.1)
All others	9,212	2.1	(1.6–2.6)	1.7	(1.2–2.4)	3.5	(2.7–4.6)	2.7	(2.1–3.5)
Age at first sexual intercourse									
Under 18 years	5,661	3.5	(2.7–4.5)	3.1	(2.2–4.4)	4.6	(3.4–6.1)	5.0	(3.8–6.5)
18 years or over	4,073	0.6	(0.4–1.0)	0.3	(0.1–0.8)	2.0	(1.2–3.2)	1.6	(0.9–2.9)
Lifetime number of sexual partners									
50 or more	449	10.4	(6.2–17.5)	11.8	(6.0–23.0)	10.1	(6.3–16.3)	6.1	(2.5–15.1)
2–49	7,325	2.4	(1.9–3.0)	2.0	(1.5–2.8)	3.7	(2.7–4.9)	4.5	(3.1–6.3)
0–1	2,342	0.6	(0.4–1.1)	0.3	(0.1–1.3)	2.7	(1.7–4.2)	1.0	(0.6–1.6)
Lifetime use of cocaine									
Ever used cocaine	1,222	14.5	(10.5–20.1)	14.9	(7.7–29.1)	20.1	(16.3–24.9)	19.0	(13.2–27.1)
Never used cocaine	9,078	1.1	(0.9–1.5)	0.9	(0.6–1.4)	2.1	(1.5–2.9)	2.3	(1.5–3.6)
Lifetime use of marijuana									
100 or more times	989	10.5	(8.2–13.5)	7.3	(5.1–10.4)	17.0	(11.0–26.2)	26.0	(18.9–35.7)
1–99	3,019	2.1	(1.5–3.0)	1.5	(0.9–2.4)	5.7	(3.8–8.4)	4.6	(2.5–8.4)
Never used	6,289	0.9	(0.6–1.2)	0.6	(0.3–1.2)	1.7	(1.2–2.5)	1.8	(1.1–2.8)

– Quantity 0.

[1]Total includes other race/ethnic groups.

Table 6. Age-adjusted prevalence of antibody to Herpes simplex virus, type 2 in adult participants age 20–59 years by race/ethnicity for selected characteristics: United States, 1988–94

Characteristic	Total tested[1]	Total prevalence		Non-Hispanic white prevalence (N=2,647)		Non-Hispanic black prevalence (N=2,620)		Mexican American prevalence (N=2,662)	
		Percent	95% confidence interval	Percent	95% confidence interval	Percent	95% confidence interval	Percent	95% confidence interval
Total	8,262	24.0	(22.0–26.1)	19.2	(16.9–21.7)	50.4	(48.1–52.7)	27.9	(26.0–29.9)
Gender									
Male	4,034	19.6	(16.8–22.7)	16.5	(13.4–20.5)	38.6	(35.6–41.9)	23.2	(20.6–26.2)
Female	4,228	28.4	(26.4–30.5)	21.9	(19.5–24.6)	59.9	(57.2–62.7)	33.0	(30.4–35.7)
Poverty index									
Below poverty	1,850	38.3	(34.6–42.4)	30.0	(24.8–36.3)	57.8	(53.6–62.3)	33.9	(30.9–37.2)
At or above poverty	5,709	21.9	(19.6–24.5)	18.4	(15.8–21.5)	47.8	(44.8–50.9)	25.6	(23.0–28.4)
Population size									
Metropolitan (1 million or more)	4,472	25.1	(22.7–27.8)	18.9	(16.1–22.3)	51.5	(48.5–54.8)	26.1	(23.7–28.7)
Nonmetropolitan (less than 1 million)	3,790	22.7	(19.7–26.1)	19.3	(16.3–22.9)	48.6	(44.4–53.2)	[2]29.5	(27.0–32.2)
Country of birth									
United States	6,231	23.5	(21.6–25.7)	19.1	(16.9–21.6)	51.0	(48.9–53.3)	26.7	(24.5–29.2)
Other	2,010	27.1	(22.8–32.3)	19.3	(12.3–30.1)	43.7	(38.2–50.0)	29.7	(27.1–32.6)
Household crowding index (persons per room)									
1 or more	2,593	33.7	(29.9–38.0)	25.4	(19.6–32.7)	52.4	(49.1–56.0)	30.9	(28.3–33.9)
0.5–0.99	3,704	24.4	(21.4–27.7)	19.8	(16.4–23.8)	51.0	(47.9–54.4)	26.6	(22.9–30.8)
Less than 0.5	1,951	20.7	(18.2–23.4)	17.6	(14.9–20.9)	48.7	(44.7–53.0)	23.0	(18.5–28.6)
Years of education									
No school or elementary	1,339	35.8	(31.0–41.4)	31.7	(24.1–41.7)	56.6	(47.7–67.1)	31.5	(28.4–35.0)
Some high school	1,372	32.4	(28.5–36.8)	24.8	(20.3–30.2)	60.1	(55.5–65.2)	29.0	(24.0–35.0)
High school completed	2,812	23.9	(21.1–27.0)	20.0	(16.8–23.7)	49.7	(45.8–53.9)	23.3	(18.9–28.7)
Some college	2,690	19.4	(16.6–22.6)	16.0	(13.0–19.5)	44.2	(39.9–49.1)	21.8	(16.7–28.6)
Marital status									
Divorced/separated	1,030	38.2	(33.9–43.1)	31.6	(26.6–37.5)	59.1	(53.0–65.8)	48.7	(42.8–55.3)
All others	7,217	22.0	(19.9–24.3)	17.6	(15.1–20.5)	48.8	(46.2–51.6)	25.5	(24.0–27.1)
Age at first sexual intercourse									
Under 18 years	4,484	29.3	(26.7–32.1)	23.6	(20.5–27.1)	52.1	(49.6–54.8)	29.9	(27.2–32.9)
18 years or over	3,081	18.0	(15.6–20.8)	14.4	(11.7–17.7)	48.4	(43.4–54.0)	26.6	(23.6–29.9)
Lifetime number of sexual partners									
50 or more	348	41.8	(35.0–50.0)	41.6	(32.2–53.9)	48.9	(40.8–58.5)	[2]45.6	(36.9–56.3)
2–49	5,741	26.4	(24.4–28.6)	21.0	(18.6–23.6)	53.3	(50.7–56.0)	30.2	(26.4–34.5)
0–1	1,762	11.0	(8.7–14.0)	7.7	(5.2–11.4)	32.5	(25.7–41.0)	21.0	(18.4–24.0)
Lifetime use of cocaine									
Ever used cocaine	987	36.3	(25.6–51.3)	34.2	(22.1–53.1)	60.8	(56.3–65.6)	26.0	(19.0–35.6)
Never used cocaine	7,026	22.1	(20.2–24.2)	16.9	(14.7–19.5)	49.6	(46.9–52.3)	27.8	(25.6–30.2)
Lifetime use of marijuana									
100 or more times	812	35.9	(29.0–44.6)	35.7	(28.0–45.4)	52.2	(40.1–67.8)	19.2	(14.5–25.5)
1–99 times	2,420	26.1	(22.7–30.1)	21.9	(18.0–26.7)	49.6	(42.7–57.6)	30.2	(23.3–39.1)
Never used	4,779	20.7	(18.1–23.7)	14.2	(11.0–18.5)	49.2	(45.9–52.8)	27.1	(24.9–29.5)

[1]Total includes other race/ethnic groups.

[2]Prevalence estimates and 95% confidence limits may be unreliable because too few sample persons represented in the subgroup. (Criteria used was the number stratum minus the number primary sampling units was less than 10 for the population subgroup designated.)

Technical Notes

Poverty index was calculated by dividing the total family income by the poverty threshold adjusted for family size at the year of the interview (10) and categorized as either below poverty (less than 1) or at or above poverty (1 or more). Education was coded from last year of school completed and categorized as no schooling or elementary school only, some high school, high school completed, and some college. Crowding was coded from the number of residents in the household divided by the number of rooms in the household and grouped as less than 0.5 persons per room (ppr), 0.5–1.0 ppr, and greater than 1.0 ppr. Metropolitan residence was defined as residence in a county with a population of one million or more, and foreign birth was defined as those born outside of the United States as compared with those born in the United States. Behavioral risk factors included age of first sexual intercourse (under 18 years of age versus 18 years or over), lifetime number of sexual partners (0–9 versus 10 or more) and history of illegal drug use. The drug use variables were limited to cocaine (including crack—coded as ever versus never) and marijuana use, and did not include mode of administration or injecting history. Marijuana use was coded as 0–2 times, 3–99, and 100 or more times.

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