Prevalence of Doctor-Diagnosed Arthritis and Arthritis-Attributable Effects Among Hispanic Adults, by Hispanic Subgroup — United States, 2002, 2003, 2006, and 2009

Arthritis affects approximately 50 million adults in the United States, making it one of the most prevalent health conditions among U.S. adults and the most common cause of disability (*1*). Arthritis is associated with substantial activity limitation, work disability, increased prevalence of obesity, reduced quality of life, and high health-care costs (*1–3*). Among U.S. adults, the prevalence of arthritis and arthritis-attributable effects (e.g., arthritis-attributable activity limitations [AAAL]) varies among racial/ethnic groups; non-Hispanic whites and non-Hispanic blacks have a higher prevalence of doctor- diagnosed arthritis compared with Hispanics, but Hispanics and non-Hispanic blacks have a higher prevalence of arthritis-attributable effects compared with non-Hispanic whites (*1,2*). The prevalence of arthritis and its effects among specific Hispanic subgroups has not been studied in a nationally representative sample of U.S. adults. To determine the annualized prevalence of arthritis and arthritis-attributable effects among Hispanic subgroups, CDC analyzed National Health Interview Survey (NHIS) data for 2002, 2003, 2006, and 2009 combined. This report describes the results of that analysis, which indicated that the age-adjusted prevalence of arthritis ranged from 11.7% among Cubans/Cuban Americans to 21.8% among Puerto Ricans; an estimated 3.1 million Hispanics had arthritis during these years. Among all subgroups of Hispanics with arthritis, at least 20% of persons with arthritis reported an arthritis-attributable effect: AAAL (range: 21.1% among Cubans/Cuban Americans to 48.5% among Puerto Ricans); arthritis-attributable work limitations (AAWL) (range: 32.9% among Central/South Americans to 41.6% among Mexican Americans); and severe joint pain (SJP) (range: 23.7% among Cubans/Cuban Americans to 44.1% among Puerto Ricans). These findings identify Hispanic subgroups with high burdens of arthritis who likely are in need of interventions designed to improve their quality of life.

The annualized prevalence of arthritis and three measures of arthritis-attributable effects (AAAL, AAWL, and SJP) among adults aged ≥18 years were estimated using data from NHIS, an in-person, nationally representative survey of the noninstitutionalized U.S. civilian population. Data were from the NHIS sample adult survey component; for this module, one adult per selected household was chosen randomly to participate. The survey oversampled Asians (2006 and 2009), blacks, and Hispanics. Additionally, in 2006, NHIS sampling procedures were revised so that persons in these racial/ethnic subgroups

aged ≥65 years have an increased probability of being selected as an adult in the sample. Response rates for the sample adult survey component were 74.3% in 2002 (31,044 respondents), 74.2% in 2003 (30,852 respondents), 70.8% in 2006 (24,275 respondents), and 65.4% in 2009 (27,731 respondents).* To date, these are the only survey years in which all of the arthritis-attributable effects have been measured. All analyses included adjustment for the multistage complex survey design. Sampling weights were applied so that estimates are representative of the noninstitutionalized U.S. civilian population.

Doctor-diagnosed arthritis was defined as a response of "yes" to the question, "Have you ever been told by a doctor or other health professional that you have some form of arthritis, rheumatoid arthritis, gout, lupus, or fibromyalgia?" Persons with arthritis who responded "yes" to the question, "Are you now limited in any way in any of your usual activities because of arthritis or joint symptoms?" were classified as having AAAL. Those with arthritis aged 18–64 years who responded "yes" to the question, "Do arthritis or joint symptoms now affect whether you work, the type of work you do, or the amount of work you do?" were classified as having AAWL. Respondents with arthritis also were asked to rate their average joint pain during the preceding 30 days on a scale of 0 (no pain) to 10 (extreme pain); SJP was defined as a rating of 7 or higher.

Prevalence of arthritis and 95% confidence intervals (CIs) were generated for seven self-identified Hispanic subgroups: Mexican, Mexican American, Central and South American, Puerto Rican, other/multiple Hispanic, Cuban/Cuban American, and Dominican/Dominican American. The prevalence of arthritis was estimated among all Hispanic adults, whereas prevalence of arthritis-attributable effects (i.e., AAAL, AAWL, and SJP) was estimated only among adults with arthritis. Age-adjusted prevalence, standardized to the 2000 U.S. standard population (*4*), was estimated for subgroup comparisons; unadjusted prevalence (Table 1) was estimated for program planning. Age-adjusted prevalence of doctor-diagnosed arthritis among Hispanic subgroups also was stratified by age group, sex, education, and body mass index (BMI). Statistical significance was defined as nonoverlapping CIs.

Puerto Ricans reported the highest age-adjusted prevalence of arthritis (21.8%; CI = 19.6%–24.3%) (Table 1, Figure) and

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* Additional information available at http://www.cdc.gov/nchs/nhis/quest_data_related_1997_forward.htm.

TABLE 1. Prevalence of doctor-diagnosed arthritis and three arthritis-attributable effects among Hispanic adults, by Hispanic subgroup — United States, 2002, 2003, 2006, and 2009

Effect	Mexican %	Mexican (95% CI)	Mexican American %	Mexican American (95% CI)	Central/South American %	Central/South American (95% CI)	Puerto Rican %	Puerto Rican (95% CI)	Other/Multiple Hispanic subgroups %	Other/Multiple Hispanic subgroups (95% CI)	Cuban/Cuban American %	Cuban/Cuban American (95% CI)	Dominican/Dominican American %	Dominican/Dominican American (95% CI)
Unweighted total sample size	7,562		4,875		3,056		2,012		904		1,036		636	
Doctor-diagnosed arthritis														
Unweighted sample size	710		737		282		410		188		194		82	
Weighted average annual no.	876,500		845,100		382,600		505,700		197,400		178,300		113,000	
Unadjusted	8.3	(7.5–9.1)	13.2	(12.0–14.5)	8.7	(7.5–10.1)	18.9	(16.8–21.2)	18.0	(14.9–21.6)	15.0	(12.3–18.1)	14.2	(10.9–18.2)
Age-adjusted	14.2	(13.0–15.6)	17.8	(16.2–19.5)	13.0	(11.4–14.9)	21.8	(19.6–24.3)	18.6	(15.8–21.7)	11.7	(10.0–13.7)	15.8	(12.5–19.8)
Arthritis-attributable activity limitations*														
Weighted average annual no.	400,400		383,500		132,800		256,600		83,500		61,000		46,100	
Unadjusted	45.7	(41.0–50.5)	45.4	(40.6–50.4)	34.9	(28.4–42.1)	50.8	(44.8–56.8)	42.3	(33.4–51.7)	34.2	(26.8–42.5)	40.8	(26.8–56.4)
Age-adjusted	41.6	(35.9–47.5)	43.9	(38.2–49.6)	32.3	(24.9–40.7)	48.5	(41.7–55.3)	44.2	(34.6–54.2)	21.1	(13.9–30.8)	33.4	(22.2–46.8)
Arthritis-attributable work limitations*†														
Weighted average annual no.	251,000		263,500		95,100		148,900		43,700		21,200		51,800	
Unadjusted	40.5	(34.6–46.7)	43.6	(37.5–49.8)	35.7	(27.9–44.3)	42.0	(34.8–49.4)	33.9	(24.3–44.9)	34.4	(19.1–53.9)	52.8	(35.0–69.8)
Age-adjusted	38.6	(31.8–45.8)	41.6	(34.6–48.9)	32.9	(24.3–42.8)	38.8	(31.3–46.8)	35.2	(24.1–48.0)	38.8	(17.0–66.2)	37.1	(21.9–55.3)
Severe joint pain*														
Weighted average annual no.	351,300		306,800		126,100		228,800		59,100		54,300		52,100	
Unadjusted	40.1	(35.7–44.8)	36.4	(32.3–40.6)	33.0	(26.6–40.0)	45.2	(39.0–51.7)	29.9	(23.4–37.4)	30.5	(24.9–36.6)	46.1	(32.5–60.2)
Age-adjusted	39.5	(34.0–45.4)	34.3	(29.5–39.6)	28.9	(22.1–36.8)	44.1	(36.8–51.8)	28.1	(20.0–38.0)	23.7	(14.5–36.3)	37.5	(26.9–49.5)

Abbreviation: CI = confidence interval.

* Among respondents with arthritis.

† Among respondents aged 18–64 years.

FIGURE. Age-adjusted prevalence of three arthritis-attributable effects among Hispanic adults with arthritis, by Hispanic subgroup — United States, 2002, 2003, 2006, and 2009
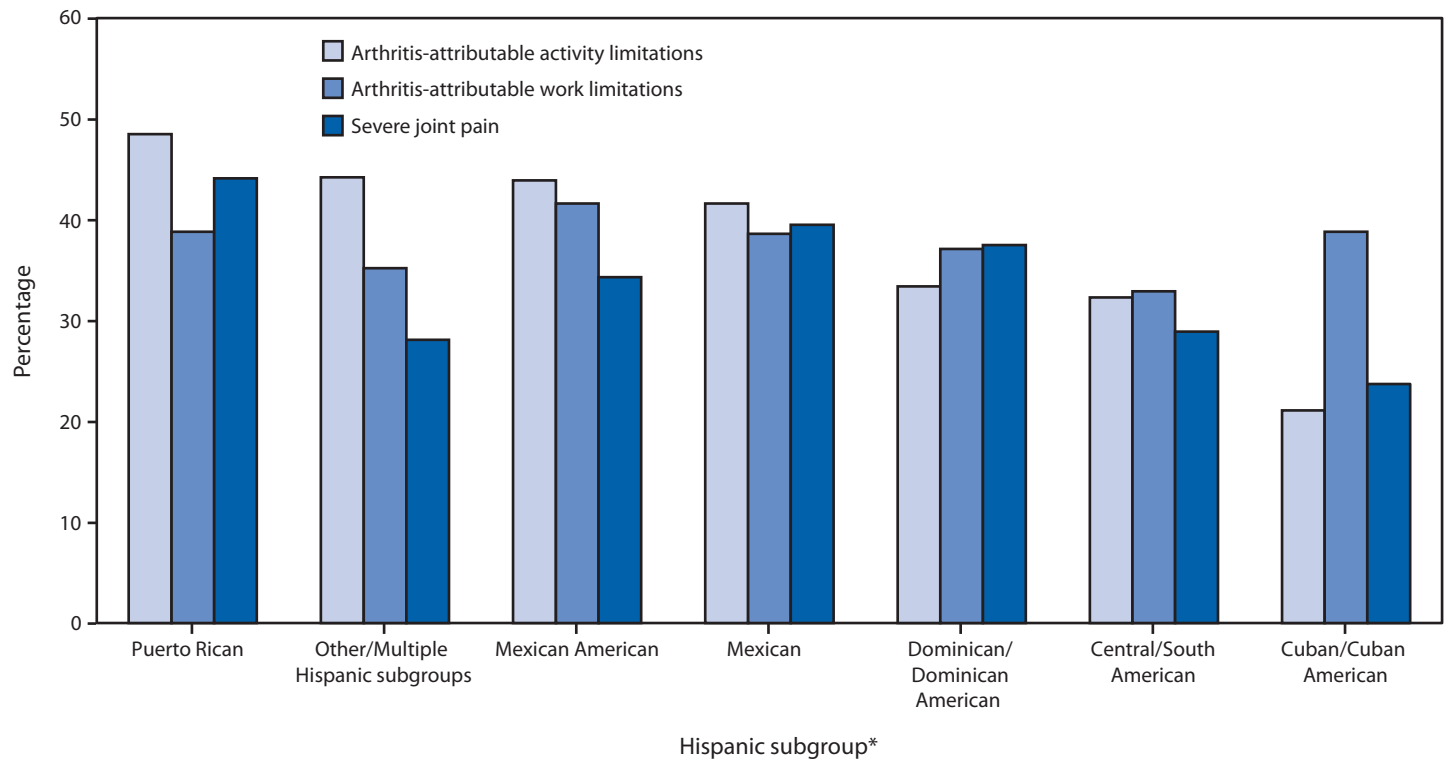
* Subgroups are in decreasing order of arthritis-attributable activity limitation prevalence.

Cubans/Cuban Americans the lowest (11.7%; CI = 10.0%–13.7%). An estimated 3.1 million Hispanics had arthritis.

For most subgroups, arthritis prevalence was highest among persons aged ≥65 years, women, and persons who were obese (BMI ≥30) (Table 2). The pattern in the relationship between educational attainment and arthritis within subgroups was inconsistent.

Among those with arthritis, Puerto Ricans had the highest age-adjusted prevalence of AAAL (48.5%; CI = 41.7%–55.3%) and Cubans/Cuban Americans the lowest (21.1%; CI = 13.9%–30.8%); nearly 1.4 million Hispanics reported AAAL. Mexican Americans and Central/South Americans reported the highest and lowest age-adjusted prevalence of AAWL, respectively (41.6%; CI = 34.6%–48.9% and 32.9%; CI = 24.3%–42.8%); overall, an estimated 875,000 Hispanics aged 18–64 years reported AAWL. Puerto Ricans reported the highest prevalence of SJP (44.1%; CI = 36.8%–51.8%) and Cubans/Cuban Americans (23.7%; CI = 14.5%–36.3%) the lowest; overall, an estimated 1.2 million Hispanics reported SJP.

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Editorial Note

Previous analyses of NHIS data among racial/ethnic groups indicated that Hispanics overall had a lower prevalence of arthritis compared with non-Hispanic whites and blacks (*1,2*). This subgroup analysis demonstrated variability in the prevalence of arthritis among Hispanic subgroups. The prevalence among Puerto Ricans (21.8%) was similar to that observed among non-Hispanic whites (22.6%) and non-Hispanic blacks (21.4%) in the previous analysis of 2007–2009 NHIS data (*1*).

Previous NHIS analyses also have indicated that, overall, Hispanics with arthritis report a high prevalence of arthritis-attributable effects (*1,2*). Despite the low prevalence of arthritis among some Hispanic subgroups in this analysis, the prevalence of each arthritis-attributable effect measure was greater than 20% for each subgroup, indicating the substantial impact of arthritis on the lives of all Hispanic subgroups. Furthermore, the prevalence of arthritis-attributable effects among Hispanics with arthritis was similar to or higher than that for non-Hispanic blacks and non-Hispanic whites. For example, the highest prevalence of AAAL was among Puerto

What is already known on this topic?

Arthritis and arthritis-attributable effects (i.e., arthritis-attributable activity limitations, arthritis-attributable work limitations, and severe joint pain) are a major public health problem in the United States. Non-Hispanic whites and blacks have a higher prevalence of arthritis than Hispanics, but Hispanics and non-Hispanic blacks have a higher prevalence of arthritis-attributable effects than non-Hispanic whites.

What does this report add?

Based on combined and annualized data from 2002, 2003, 2006, and 2009, an estimated 3.1 million Hispanics had arthritis. The age-adjusted prevalence of arthritis ranged from 11.7% among Cubans/Cuban Americans to 21.8% among Puerto Ricans. Among persons with arthritis, the estimated prevalence of arthritis-attributable effects varied considerably among Hispanic subgroups, but in all subgroups at least 20% of persons with arthritis reported one or more of the three effects: activity limitations, work limitations, and severe joint pain.

What are the implications for public health practice?

The burden of arthritis and arthritis-attributable effects is varied but substantial among all Hispanic subgroups. Wide-scale use of culturally adapted, community-level interventions that are proven to increase physical activity and self-management skills likely would lead to meaningful improvements in the quality of life for Hispanic adults with arthritis.

Ricans (48.5%), which was similar to the prevalence of AAAL among non-Hispanic blacks (43.4%) and higher than the prevalence among non-Hispanic whites (35.0%) in the 2007–2009 NHIS (*1*).

These are the first nationally representative estimates of the prevalence of arthritis and arthritis-attributable effects among Hispanic subgroups. The high prevalence among Puerto Ricans and low prevalence among Cuban Americans is a pattern that has been observed in previous studies. For example, a previous NHIS analysis of health status indicators (e.g., self-rated health and physical limitations) among all adults indicated a similar pattern of a high burden among Puerto Ricans and low burden among Cubans/Cuban Americans (*5*). A community-based study in Massachusetts found that a significantly higher proportion of older Puerto Ricans and Dominicans reported difficulties with activities of daily living compared with older non-Hispanic whites (e.g., 60% and 50% of Puerto Ricans and Dominicans, respectively, reported difficulties climbing stairs, compared with 43% of non-Hispanic whites) (*6*).

Studies examining the prevalence of health conditions and outcomes among Hispanic subgroups have suggested that prevalence rises with decreasing levels of education. For example, the low prevalence among Cuban/Cuban Americans and high prevalence among Puerto Ricans corresponds with the high and lower levels of educational attainment among

TABLE 2. Age-adjusted prevalence of doctor-diagnosed arthritis among Hispanic adults, by Hispanic subgroup and selected characteristics — United States, 2002, 2003, 2006, and 2009*

Characteristic	Mexican %	Mexican (95% CI)	Mexican American %	Mexican American (95% CI)	Central/South American %	Central/South American (95% CI)	Puerto Rican %	Puerto Rican (95% CI)	Other/Multiple Hispanic subgroups %	Other/Multiple Hispanic subgroups (95% CI)	Cuban/Cuban American %	Cuban/Cuban American (95% CI)	Dominican/Dominican American %	Dominican/Dominican American (95% CI)
Overall	14.2	(13.0–15.5)	17.8	(16.2–19.5)	13.0	(11.4–14.9)	21.8	(19.6–24.3)	18.6	(15.8–21.7)	11.7	(10.0–13.7)	15.8	(12.5–19.8)
Age (yrs)														
18–44	2.4	(2.0– 2.9)	4.5	(3.7–5.4)	3.4	(2.5–4.7)	7.5	(5.8–9.7)	6.9	(5.0–9.5)	2.1[†]	(1.0–4.4)	3.8	(2.2–6.5)
45–64	19.1	(16.6–21.9)	26.1	(22.8–29.8)	14.6	(11.9–17.9)	32.0	(26.8–37.7)	25.8	(19.7–32.9)	13.9	(10.5–18.1)	30.1	(20.7–41.5)
≥65	42.6	(36.9–48.5)	44.5	(38.9–50.3)	40.2	(33.0–47.9)	48.5	(41.0–56.1)	42.2	(34.2–50.7)	37.9	(32.2–44.0)	28.2	(19.3–39.1)
Sex														
Men	10.8	(9.3–12.4)	14.9	(12.8–17.3)	8.2	(6.2–10.9)	16.0	(13.0–19.7)	16.3	(11.7–22.3)	7.2	(5.3–9.9)	6.7[†]	(3.6–12.1)
Women	17.8	(16.0–19.7)	20.5	(18.6–22.6)	15.9	(13.7–18.5)	26.6	(23.7–29.7)	20.0	(16.5–23.9)	16.5	(13.8–19.7)	19.9	(16.0–24.6)
Education														
Less than high school	13.8	(12.4–5.4)	18.8	(16.7–21.2)	13.1	(10.7–16.0)	20.7	(17.7–24.0)	24.0	(19.1–29.7)	14.2	(11.8–16.9)	17.4	(13.1–22.8)
High school	12.6	(9.7–16.4)	16.6	(13.6–20.1)	11.8	(8.9–15.5)	23.8	(19.5–28.8)	17.5	(12.6–23.7)	10.4	(7.2–14.8)	10.3[†]	(4.2–23.3)
Greater than high school	17.1	(14.0–20.7)	18.5	(15.7–21.6)	13.4	(10.5–16.9)	22.1	(17.9–27.0)	15.6	(12.1–19.8)	10.7	(8.1–14.0)	15.1	(8.8–24.7)
Body mass index														
Underweight/Normal (<25.0)	10.2	(8.2–12.7)	11.8	(9.7–14.2)	11.4	(9.0–14.2)	13.9	(10.9–17.5)	12.4	(8.7–17.3)	9.5	(7.0–12.7)	10.5	(6.0–17.8)
Overweight (25.0–29.9)	14.3	(12.4–16.5)	16.5	(14.2–19.0)	13.0	(10.5–16.0)	21.0	(18.1–24.3)	17.4	(13.6–22.0)	11.9	(9.4–15.0)	13.3	(8.8–19.5)
Obese (≥30.0)	18.0	(15.7–20.6)	23.6	(20.8–26.6)	15.3	(12.1–19.1)	29.7	(25.4–34.3)	31.2	(25.1–37.9)	15.3	(11.6–19.9)	30.3	(22.9–38.9)

Abbreviation: CI = confidence interval.

* All estimates except age-specific prevalence are age-adjusted.

[†] Estimates with a relative standard error > 30 and ≤50% are statistically unreliable.

Cubans/Cuban Americans and Puerto Ricans, respectively (*5*). This study did not find a consistent pattern in the relationship between arthritis prevalence and education level within subgroups (i.e., the prevalence of arthritis decreased with rising levels of education for the Cuban/Cuban American and other/multiple Hispanic subgroups only).

The findings in this report are subject to at least five limitations. First, doctor-diagnosed arthritis was self-reported; however, validation studies, which did not include Hispanics, have shown the definition to be sufficiently sensitive for public health surveillance (*1*). Second, Hispanics typically are undercounted in census counts and surveys (*7*); however, the limited amount of published information is insufficient to ascertain the impact (i.e., overestimation or underestimation) of this on estimates in this report. Third, although the analyses were based on 4 years of combined NHIS data, for some subgroups, the small sample sizes reduced the precision of some estimates. Fourth, the variability in health insurance coverage among Hispanic subgroups (e.g., in 2008, 16%, 23%, and 35% of Puerto Ricans, Cubans/Cuban Americans, and Mexicans in the United States reported being uninsured) (*8*) might account for some of the variability in prevalence of doctor-diagnosed arthritis among these subgroups. If so, arthritis prevalence might be underestimated in populations with low health insurance coverage or limited access to medical care. Finally, the prevalence of arthritis rises with increasing BMI (*1*). Some of the variability in the prevalence of arthritis and arthritis-attributable effects might be linked to varying BMI among Hispanic subgroups. Sample sizes were insufficient to examine this possibility.

Physical activity has been proven to reduce pain and improve physical function among persons with arthritis (*9*). Using evidence from focus group work with Puerto Ricans, Mexicans, Mexican Americans, Cubans/Cuban Americans, and Central/South Americans, CDC developed a health communications campaign (Buenos Días, Artritis) to promote physical activity among Spanish-speaking adults with arthritis (*10*). Self-management education (SME) is another strategy that has been proven to improve the quality of life of persons with arthritis (*9*). Tomando Control de Su Salud (Taking Control of Your Health) and Programa de Manejo Personal de la Artritis (The Arthritis Self-Management Program) are Spanish-language, culturally adapted SME programs; similarly, Manejando Mi Artritis (The Arthritis Toolkit) is a self-study program for Spanish-speaking adults with arthritis. Because wide-scale use of these evidence-based, community-level interventions would maximize their public health impact and likely lead to meaningful improvements in the quality of life for adults with arthritis, the CDC Arthritis Program funds 12 state programs to increase the availability of evidence-based physical activity and SME courses. Policies that lead to investment of public and private resources (financial and human capital) might result in increased availability and access to evidence-based intervention programs. The geographic clustering of some Hispanic subpopulations in the United States (e.g., the largest Puerto Rican community in the United States is in New

York City) indicates that identifiable areas exist that might have substantial need for these interventions and that greater use of an effective program might have a large public health impact in these areas.

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