

Self-Reported Diabetes in Mexican Americans: HHANES 1982–84

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Abstract: In the Hispanic Health and Nutrition Examination Survey (HHANES) of 3,928 Mexican Americans ages 20–74 years, the age-adjusted prevalence of self-reported diabetes was 6.8 percent among men and 7.6 percent among women. Comparable age-adjusted rates for the US population in a national survey were 2.9 percent in men and 3.8 percent in women. The prevalence of diabetes in Mexican Americans is greater in older age groups, was similar in men and women, and among women only was inversely associated with education. (*Am J Public Health* 1989; 79:770–772.)

Introduction

Community-based studies have shown that Mexican Americans in Texas have a three- to five-fold increase in the prevalence of diagnosed and undiagnosed non-insulin dependent diabetes mellitus when compared to non-Hispanic Whites.^{1–4} The higher prevalence of obesity,^{1–5} the more centralized fat distribution,⁶ and genetic factors related to admixture with the indigenous peoples of the Americas among Mexican Americans may partly explain this increased prevalence.³ Diabetes may not only be more prevalent but also more severe in its manifestations in this population.^{7–9}

This report presents data on self-reported diabetes from the Hispanic Health and Nutrition Examination Survey (HHANES) and compares them to data from the second National Health and Nutrition Examination Survey (NHANES II).

Methods

HHANES was conducted in the southwestern United States (Arizona, California, Colorado, New Mexico, and Texas) between 1982–84. A stratified probability sample of the civilian, noninstitutionalized Mexican origin population was generated using a four-stage process.¹⁰ The weighted estimates presented in this report are representative of

Mexican Americans in those five states. Details of the HHANES sample design, operational plan, and quality control procedures have been published.¹¹

The adult sample person questionnaire interviews were conducted by trained bilingual interviewers in the person's household in either English or Spanish. Mexican Americans ages 20–70 were asked: "Do you have diabetes or sugar diabetes?" Persons answering yes were then asked: "Did a doctor tell you that you have it?" Those who responded yes to both questions were defined as having self-reported diabetes.¹²

The acculturation scale developed for use in HHANES was based on eight of 20 items selected from an acculturation scale developed by Cuellar, *et al.*¹³ An average score of eight items is based on language orientation (Spanish to English is scored from 1 to 5) and ethnic identification (Mexican to "American" scored from 1 to 5). For the purpose of this analysis, tertiles were used to categorize the acculturation scores into low, middle, and high groups.

Data on self-reported diabetes from the second National Health and Nutrition Examination Survey (NHANES II), a national probability sample of non-institutionalized civilians, are used for comparison.^{14–16}

Statistical Analysis

Age-adjustment was carried out by means of direct standardization, using the US 1980 Census population as the standard.¹⁷ Standard errors of age-adjusted rates were estimated using SESUDAAN.¹⁸ For age-specific rates, the variances were calculated using the assumption of simple random sampling and then adjusted by the average design effect (1.0 in this case).^{19,20} Association of self-reported diabetes with education, income, and acculturation were tested by multidimensional contingency table chi-square analysis, controlling for age and sex.

Results

A total of 4,735 Mexican Americans ages 20 through 74 were selected for the survey, with 3,928 (83 percent) completing the diabetes section of the household questionnaire. Respondents had a mean age of 36 years and were evenly divided between sexes; 64 percent were born in the United States. The comparison population from NHANES II consisted of 17,390 selected sample persons ages 20–74 years, of which 15,357 (88.3 percent) completed the diabetes questionnaire.

The age-adjusted prevalence rate for self-reported diabetes in Mexican Americans ages 20 through 74 years was 6.8 percent among men and 7.6 percent among women. Comparable rates for the US population measured in NHANES II were 2.9 percent for men and 3.8 percent for women.¹⁷

The prevalence of self-reported diabetes in Mexican Americans was greater in the older age groups of both sexes (Table

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1), as it was in the general US population.^{17,18} There were no differences between rates in males and females within three of the four age groups of Mexican Americans, although prevalence in women 45 to 54 years of age was 1.8 times as high as in men. In comparison with NHANES II rates for each age group, self-reported diabetes was two to three times as prevalent for Mexican American men and women.

Increasing education among Mexican American women was associated with a significant decrease in age-adjusted rates of self-reported diabetes, but this difference was not noted among men (Table 1). The age-adjusted prevalence was higher in men with a middle tertile acculturation score (8.7 percent) than in those in the low (5.7 percent) or high (5.3 percent) tertiles. Family income was not associated with self-reported diabetes in either gender.

Self-reported treatment for diabetes was less common with insulin than with oral hypoglycemic agents (diabetes pills) in both Mexican Americans and the general population (Table 2). Adherence to special diets and to treatment with oral hypoglycemic agents was similar in the two populations. The proportion of Mexican American men who were aware of their diabetes, but not currently using any of these treatment alternatives, was considerably higher (40 percent) than reported by the NHANES II men with diabetes (27 percent).

Discussion

Because Mexican Americans are the fastest growing ethnic group in the southwestern states and diabetes is such an important contributor to morbidity and mortality in adults,²¹ accurate information on prevalence is essential to public health authorities, clinicians, and community leaders.

The prevalence of self-reported diagnosed diabetes in adult Mexican Americans in HHANES is two to three times that estimated for White and Black adults in NHANES II and about twice the rate estimated for the general population from the 1982-84 National Health Interview Survey. Data from Bexar County, Texas, showed that compared with non-Hispanic

TABLE 1—Prevalence of Self-Reported Diabetes in Mexican Americans, Ages 20-74 Years, Mexican American Portion of HHANES, 1982

	Males (N = 1795)*			Females (N = 2133)*			Total (N = 3928)*		
	N	%	SE+	N	%	SE	N	%	SE
Age (years)									
20-44	1138	1.6	.38	1297	2.3	.41	2435	1.9	.28
45-54	323	6.1	1.33	421	11.0	1.53	744	8.7	1.03
55-64	231	17.7	2.51	273	17.3	2.29	504	17.5	1.69
65-74	103	24.2	4.22	142	21.4	3.44	245	22.7	2.68
Education (years)**									
0-6	571	7.8	.81	736	10.0	1.43	1307	9.0	1.08
7-11	459	5.9	1.09	589	6.1	.95	1048	6.0	.62
12+	724	7.8	1.73	765	3.9	.58	1489	6.0	.99
Income per Household (\$\$)**									
<\$10,000	408	8.1	1.65	657	8.5	1.53	1065	8.3	1.00
10-19,999	604	6.1	.97	657	8.7	1.17	1261	7.4	.66
>20,000	621	8.1	2.81	611	6.2	1.64	1232	6.9	1.54
Acculturation**									
Low	550	5.7	.78	695	8.5	1.50	1245	7.3	1.07
Bicultural	675	8.7	.95	709	7.6	1.79	1384	8.1	1.02
High	530	5.3	2.03	672	7.8	1.76	1202	6.7	1.67

*Ns may not add up to totals because of missing data; data are weighted to the Mexican American population of the Southwest US.

**Age-adjusted to the 1980 US population

+SE = standard error.

TABLE 2—Treatment Regimens in Persons Ages 20-74 Years with Age-adjusted Self-reported Diabetes in HHANES and NHANES II

	HHANES (N = 257)*		NHANES II (N = 756)	
	Males (N = 107)	Females (N = 150)	Males (N = 318)	Females (N = 438)
Duration of diabetes (%)				
<5 yr	44	40	37	43
5-9 yr	22	22	25	22
10+ yr	34	38	37	35
Ever taken insulin (%)	32	42	35	34
Ever taken diabetes pills (%)	76	73	68	63
% Told to follow a special diabetes diet	85	92	73	76
% Currently following the diet	44	46	46	49
Current Therapy (%)				
Insulin	15	30	24	25
Insulin plus diabetes diet	10	16	17	16
Oral hypoglycemic agents	33	38	37	35
Oral agents plus diet	21	17	17	17
Specific diabetes diet alone	13	12	12	16
None of the above	40	19	27	25

*Numbers of sample persons are shown for information only; data are weighted to the Mexican American population of the Southwest US.

Whites, Mexican Americans have a higher mortality due to diabetes²² and a greater prevalence of self-reported diabetes.²³ Rates for self-reported diabetes in Mexican Americans in Starr County, Texas,²³ and participating in the San Antonio Heart Study (Unpublished data, Michael Stern) are similar for corresponding age groups to the HHANES rates for the entire southwest US Mexican American population.

The San Antonio Heart Study²⁻⁴ has found that the age-adjusted diabetes rates for Mexican Americans are highest for those living in the Barrio (13.7 percent for men and 14.8 percent for women) and lowest among those living in the more affluent suburbs (6.1 percent for men and 3.7 percent for women).⁴ Lower rates of diabetes among Mexican Americans with greater affluence and/or acculturation, however, were not consistently observed in HHANES. A significant inverse relationship between self-reported diabetes and education was found for women but not for men. Men with middle tertile acculturation scores reported a greater prevalence of diabetes, and no significant relationship was found for family income after adjusting for age. A possible explanation for the discrepancy in these two studies is that the San Antonio Heart Study results are based on total diabetes rates (diagnosed and undiagnosed) and the HHANES data in this report include self-reported diabetes only. When oral glucose tolerance tests have been used in population studies, the total prevalence of diabetes nearly doubles. Thus the socioeconomic gradient of less diabetes with increasing affluence may be present only if undiagnosed cases are included. Less affluent Mexican Americans may have a greater prevalence of undiagnosed diabetes because they have less access to health care.

The HHANES results in Mexican Americans confirm the presence of a two- to three-fold greater prevalence of self-reported diabetes, and health care providers need to give a high priority to diabetes as a major health issue in this group. Future research comparing Hispanic subgroups may help explain the relative importance of socioeconomic, cultural, and genetic factors of this observation.

ACKNOWLEDGMENTS

This report is a product of the HHANES Diabetes Working Group supported by the National Center for Health Statistics. The writers acknowl-

edge the support of NCHS staff in data analysis, Dr. Katherine Flegal, Ms. Trena Ezzati, and Dr. Peter Gergen for their critical review of the manuscript. Dr. Perez-Stable is a Henry J. Kaiser Foundation Faculty Scholar in general internal medicine. This study presented in part at the COSSMHO Conference in New York, September 1986.

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Black/White Differences in Non-treatment of Bladder Cancer Patients and Implications for Survival

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Abstract: Analysis of 20,764 White and 882 Black bladder cancer patients diagnosed during 1978-85 indicates that Black patients were more likely than White patients to go untreated following diagnosis after adjustment for age- and stage-at-diagnosis, sex, and tumor histology (OR = 1.80, 95% CI = 1.33, 2.43). Treatment status was found to be a significant predictor of five-year survival after adjustment (treated/untreated odds ratio = 3.16, 95% CI = 2.08, 4.79). Results suggest that differences in initial therapy may contribute to the survival differential between Black and White bladder cancer patients. (*Am J Public Health* 1989;79:772-774.)

Introduction

Decreased survival in Black patients relative to White patients with bladder cancer has been documented in several reports.¹⁻⁸ A number of factors have been found to contribute

to this survival difference: age, diagnosis at more advanced stages, and more aggressive tumor histology. Within stage- and histology-specific groups, Blacks continued to have poorer five-year relative survival rates.^{5,8} Findings by Axtell and Myers⁷ suggest that different treatment patterns could also explain some of the racial differences in survival.

Questions remain regarding differences in treatment with respect to such determinants as age, stage at diagnosis, and histologic type, and their role in poorer survival among Black relative to White bladder cancer patients. We attempted to answer these questions through the study of a marker for treatment differences—non-treatment—and its association with survival in 20,764 White and 882 Black bladder cancer patients diagnosed between 1978 and 1985.

Methods

This study is based upon data collected by nine population-based tumor registries participating in the National

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