ADA CE Program ARTICLE 1

Prevalence of periodontitis according to Hispanic or Latino background among study participants of the Hispanic Community Health Study/Study of Latinos

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ABSTRACT

Background. Hispanics and Latinos are an ethnically heterogeneous population with distinct oral health risk profiles. Few study investigators have examined potential variation in the burden of periodontitis according to Hispanic or Latino background.

Methods. The authors used a multicenter longitudinal population-based cohort study to examine the periodontal health status at screening (2008-2011) of 14,006 Hispanic and Latino adults, aged 18 to 74 years, from four U.S. communities who self-identified as Cuban, Dominican, Mexican, Puerto Rican, Central American or South American. The authors present weighted, age-standardized prevalence estimates and corrected standard errors of probing depth (PD), attachment loss (AL) and periodontitis classified according to the case definition established by the Centers for Disease Control and Prevention and the American Academy of Periodontology (CDC-AAP). The authors used a Wald χ^2 test to compare prevalence estimates across Hispanic or Latino background, age and sex.

Results. Fifty-one percent of all participants had exhibited total periodontitis (mild, moderate or severe) per the CDC-AAP classification. Cubans and Central Americans exhibited the highest prevalence of moderate periodontitis (39.9 percent and 37.2 percent, respectively). Across all ages, Mexicans had the highest prevalence of PD across severity thresholds. Among those aged 18 through 44 years, Dominicans consistently had the lowest prevalence of AL at all severity thresholds.

Conclusions. Measures of periodontitis varied significantly by age, sex and Hispanic or Latino background among the four sampled Hispanic Community Health Study/Study of Latinos communities. Further analyses are needed to account for lifestyle, behavioral, demographic and social factors, including those related to acculturation.

Practical Implications. Aggregating Hispanics and Latinos or using estimates from Mexicans may lead to substantial underestimation or overestimation of the burden of disease, thus leading to errors in the estimation of needed clinical and public health resources. This information will be useful in informing decisions from public health planning to patient-centered risk assessment.

Key Words. Periodontitis; attachment loss; probing depth; Latino; Hispanic; prevalence.

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Hispanics and Latinos are an ethnically heterogeneous population with distinct distributions of demographic, socioeconomic, chronic and oral health risk factors.[1] However, there is a paucity of data regarding potential variation in the burden of oral disease and, specifically, periodontitis according to Hispanic or Latino background. Hence, the dental community is not adequately equipped to understand the periodontal needs of the largest and fastest-growing U.S. minority population.[2]

Three decades ago (1982-1984), investigators in the Hispanic Health and Nutrition Examination Survey (HHANES) examined the general and oral health of Hispanics and Latinos across the United States. In multivariable adjusted analyses, Puerto Ricans in the HHANES study exhibited the highest prevalence of periodontitis compared with Cuban and Mexican Americans.[3] Apart from HHANES, most studies have focused on Mexicans, the largest Hispanic or Latino background group in the United States.[2] However, systemic disease rates and risk factor profiles have been shown to vary significantly across Hispanic and Latino backgrounds.[4-7] Therefore, generalizing oral disease estimates across all Hispanics and Latinos in aggregate may lead to substantial underestimation or overestimation of the burden of disease and the clinical and public health resources needed for specific groups.

Data from the National Health and Nutrition Examination Survey 2009-2010 (NHANES)[8] indicated the highest prevalence of total periodontitis (mild, moderate and severe) was found among Mexican Americans, compared with that in non-Hispanic whites and non-Hispanic blacks. Periodontitis

was defined according to the classification established by the Centers for Disease Control and Prevention and American Academy of Periodontology (CDC-AAP) and modified by Eke and colleagues.[9] The prevalence of attachment loss (AL) and probing depth (PD) at all severities also was higher among Mexican Americans.[8-10] However, estimates for other Hispanic or Latino backgrounds on a national scale are unavailable. At the time HHANES was conducted, the three largest U.S. Hispanic or Latino populations—Cubans, Mexicans and Puerto Ricans—were sampled to produce national estimates; however, Hispanic or Latino communities have grown and experienced dynamic demographic changes, as is evident in the 2010 U.S. Census.[2]

The Hispanic Community Health Study/Study of Latinos (HCHS/SOL) is the first large-scale study of U.S. Hispanics and Latinos to sample various backgrounds of origin—representing Cuban, Dominican, Mexican, Puerto Rican, Central American and South American—from diverse socioeconomic and acculturation backgrounds.[11,12] This study provides a unique opportunity to inform the dental community of the periodontal health status of participants in HCHS/SOL according to background of origin. Throughout, we refer to groups according to their or their family's country of origin. We provide the prevalence of periodontal measures in aggregate, according to Hispanic or Latino background, age, sex, severity and extent. This information will be useful in informing decisions in areas ranging from public health planning to patient-centered risk assessment.

METHODS

Statement of ethics. The institutional review boards of all participating institutions approved this study, and all procedures followed were in accordance with the respective institutional guidelines. Participants provided written informed consent to participate.

Study design, setting and selection of participants. The HCHS/SOL is a multicenter longitudinal population-based cohort study of the health status, risk factor profile and disease burden of U.S. Hispanics and Latinos. Details of the complex sampling design and methodology have been published previously.[11,12] Briefly, the HCHS/SOL investigators enrolled 16,415 participants through a stratified multistage area probability sample of people aged 18 through 74 years at screening from randomly selected households in four U.S. field centers (Bronx, N.Y.; Chicago; Miami; San Diego). Baseline examination was conducted from 2008 to 2011 and yearly telephone follow-up assessment was conducted approximately three years after baseline. The probability-based sampling allowed HCHS/SOL investigators to estimate the prevalence of diseases and baseline risk factors in the target population, which included all noninstitutionalized Hispanic or Latino adults aged 18 through 74 years who resided in the four defined community areas.

Participants who self-identified as Hispanic or Latino identified their background (or their families) as Cuban, Dominican, Mexican, Puerto Rican, Central American or South American (with country specified). A category was allowed for "other" or more than one background; however, interpretation of this group's data was limited by their sparse and heterogeneous nature. Participants were excluded from recruitment into the study if they planned to move out of the area in less than three years or had severe health problems, a disability or a mental illness that would impair informed consent or physical attendance at examinations.

Study participants underwent comprehensive clinical examinations (as described by Sorlie and colleagues[12]), both medical and oral, and behavioral (for example, tobacco use, dietary intake, physical activity) and sociodemographic (socioeconomic status, migration history) assessments. The dental examination included tooth count, caries, restoration and periodontal assessments in addition to completion of a questionnaire on oral health behaviors and dental health care utilization. These analyses included participants who attended the HCHS/SOL field center baseline dental examination, were eligible for a periodontal examination and for whom sample weights and complete values were available for the variables analyzed. We excluded participants from our analysis if they were missing data for periodontal measurements (n = 2,370), Hispanic or Latino background (n = 31) or age (n = 8). This resulted in a final sample of 14,006 study participants for analysis.

Periodontitis assessment and classification. Dental examiners (using calibrated technique) and trained recorders conducted periodontal examinations at one of four field centers. Examiners assessed six sites—the distofacial, midfacial, mesiofacial, mesiolingual, midlingual and distolingual aspects—on fully erupted permanent teeth (in patients with one to 28 teeth present, excluding third molars). The examiners excluded participants who required prophylactic antibiotic coverage for the periodontal examination and those who were edentulous. At each site, the examiners measured twice to estimate PD and AL by using a periodontal probe (UNC-12, Hu-Friedy, Rotterdam, Netherlands) with graduated 1-millimeter increments. After the complete oral examination, study participants received a summary of their oral health results and were advised to seek follow-up care if necessary.

Examinations were conducted in three one-year waves, and examiners' techniques were recalibrated each

ABBREVIATION KEY. **AL:** Attachment loss. **CDC-AAP:** Centers for Disease Control and Prevention and American Academy of Periodontology. **HCHS/SOL:** Hispanic Community Health Study/Study of Latinos. **HHANES:** Hispanic Health and Nutrition Examination Survey. **NHANES:** National Health and Nutrition Examination Survey. **PD:** Probing depth.