Racial and Ethnic Disparities in Periodontal Health Not Related to Socioeconomic Status of Adults Seeking Care


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Abstract

Background: Population studies consistently demonstrate greater prevalence of chronic diseases, including oral diseases, among underrepresented minorities. The objectives of this retrospective study were to measure and describe the prevalence and extent of periodontitis among adults seeking dental care within an academic practice-based network in rural North Carolina. Methods: This study used deidentified electronic health record data from adult dentate patients (>30 years) of record (2011-2017) seeking dental care who received a comprehensive periodontal examination at one of nine networked clinical centers. Periodontitis prevalence was calculated using CDC/AAP case definitions along with extent (%) scores for periodontal parameters. Comparisons focused on age, gender, race, ethnicity, tobacco use, diabetes status, payer or insurance status (as a surrogate for socioeconomic status), plaque scores, and number of teeth. Results: EHR data for 10,544 adult patients (60.5% female) indicated 79.8% having some form of periodontitis. This patient population was diverse: 22.6% Black, 4.4% American Indians, and 53.8% Whites, with 4.3% self-identified as Hispanic. Patients 50 years and older showed greater mean extent scores for clinical attachment levels relative to patients 30-49 years. Males exhibited greater periodontitis than females (p<0.001). Blacks showed significantly (p<0.001) greater periodontitis prevalence relative to Whites. Hispanics also showed greater prevalence of periodontitis (p<0.001) relative to Non-Hispanics. Significantly greater periodontitis was also noted for tobacco users (p<0.001) but not for diabetes or payer status. A multiple logistic regression analysis of periodontitis prevalence confirmed significant associations for periodontitis for age, sex, race, ethnicity, tobacco use, high plaque scores, and number of teeth (p<0.001) but not diabetes or socioeconomic status.

Conclusions: The data document that racial and ethnic inequalities in periodontal health occur within the population of adults residing in rural communities in North Carolina and seeking dental care.

Introduction

According to the latest U.S. National Health and Nutrition Examination Survey (NHANES 2009-2012), approximately 46% of U.S. adults 30 years or older have periodontitis.1 The disease predominates in underrepresented minorities. The prevalence of periodontitis among Hispanics is highest at 64%, followed by Non-Hispanic Blacks at 59% versus Non-Hispanic Whites at 41%. Periodontitis is consistently associated with other chronic, systemic conditions like diabetes, cardiovascular disease, and cancer2-4 that also follow racial and ethnic disparities.5 These differences in population health outcomes are exacerbated by the “social determinants” of health, including poverty, limited access to care, unemployment, rurality, food insecurity, poor housing, and structural racism and discrimination that disproportionately affect underrepresented minorities.6 Research on racial and ethnic health inequalities in various populations remains highly relevant since race is a strong predictor of health and quality patient care, even after adjusting for socioeconomic status (SES), age, and other factors.7 The objective of this retrospective study was to measure the prevalence and extent of periodontitis among adults seeking dental care within ECU’s academic practice-based network (PBN) in rural communities around North Carolina. This study analyzed electronic health record (EHR) data retrospectively collected between 2011 and 2017 within the ECU academic PBN.

Discussion & Conclusions

The results of the present study document racial and ethnic inequalities in periodontal health occur within the population of adults residing in rural communities in North Carolina and seeking dental care. These disparities were not related to patient socioeconomic status.

Methods & Results

Table 1. Demographics for the study population stratified by age.

Table 2. Number and percent (prevalence) of patients with periodontal health (healthy) versus mild, moderate, and severe periodontitis per CDC/AAP case definitions stratified by age.

Table 3. Patient demographics cross-tabulated by periodontal health status (healthy, mild, moderate, severe, and total periodontitis) for the population.

Table 4. Results of the multiple regression analysis including maximum likelihood estimates and odds ratio estimates.

Figure 1. Flow diagram depicting how study inclusion and exclusion criteria were applied to the EHR dataset to arrive at the sample population (n=10,544).

![Flow diagram depicting how study inclusion and exclusion criteria were applied to the EHR dataset to arrive at the sample population (n=10,544).](image-url)