Comparison of periodontal condition by residential areas in Korean adult population: KNOHS 2000

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Introduction

Periodontal disease is a major oral health problem, which affects a considerable proportion of the adult population. U.S. national survey showed that periodontal diseases are prevalent in the U.S. adult population and about 35% had chronic periodontitis1). It is known that the prevalence of periodontitis increased steadily with increasing age, and both gender and race/ethnicity are also major factors related to periodontitis2-6). Besides, the effect of socioeconomics and behavioral factors on periodontal health has been studied for a few decades5-9). Borrell and Crawford10) suggested that race/ethnicity, education and income were associated with
inequalities in the presence of periodontitis in the U.S. Borrell et al.9) investigated not only perception of oral health but also dental check-up frequency and current smoking to identify the difference in prevalence of established periodontitis and factors influencing the effect of race on the prevalence of periodontitis.

Recent epidemiological study in Africa found that location was significantly associated with oral health knowledge, attitudes and practices11). A study which examined risk factors related to prevalence of periodontitis such as socioeconomic and lifestyle characteristics by contrasting rural, urban-marginal, urban environments and concluded that urban, low social class elders appeared to have worse periodontal conditions12). The another finding described that Chinese adults lived in urban areas had the higher prevalence of considerable attachment loss than those in rural areas13).

The aim of this study was to examine an association between the residential area-metropolitan, city and the rural areas-and the periodontal condition in Korean adult population.

Material and Method

1. Study population

Data for the periodontal condition were obtained from the dataset of the Korean National Oral Health Survey (KNOHS) conducted in year 2000 which aimed to investigate oral health status and attitudes toward oral health every three years. A total of 21,829 was selected using the stratified by region and clustered sampling methods and the sample design of KNOHS 2000 is described in detail elsewhere14-16). Age under 18, no information about the Community Periodontal Index (CPI) scores and area of residence were excluded from being considered as subjects. A total of 6,525 subjects aged 18 to 90 years were categorized by areas: metropolitan, city and rural areas. The number of subjects in metropolitan, city and rural areas was 3,914 (60.0%), 969 (14.8%), and 1,642 (25.2%), respectively.

2. Oral examination

The periodontal condition was examined according to World Health Organization guidelines17) by 15 trained dentists and they carried out an oral examination using CPI probes under proper artificial lights. The following CPI coding system was used to record periodontal status: 0, healthy periodontium; 1, bleeding observed after probing; 2, calculus detected during probing, but the black band on the probe was visible; 3, pocket 4~5 mm (the black band on the probe is within the gingival margin); 4, pocket ≥6 mm (black band on the probe not visible); x, excluded sextant (<2 teeth present); and 9, not recorded17). The highest score of sextance was recorded as individual’s periodontal condition. Oral examiners were educated twice for a calibration about the other oral health indices as well as CPI index. The periodontal condition was classified into the good condition (a CPI score of<3) and the poor condition (a CPI score of≥3) in this study, based on information of a national survey in Hungary18).

3. Covariates

We considered covariates as (1) sociodemographic factors, (2) perceived oral health status and health-related behaviors, and (3) presence of the systemic diseases. Sociodemographic factors included following factors: age, gender, and education. Health-related behaviors included following factors: recent dental check-ups, type of recent dental treatment, tooth brushing frequency, and smoking habits. Systemic diseases consisted of diabetes and heart disease. Self-reported questionnaires were utilized to investigate all information on covariates for subjects.

4. Statistical analysis

A chi-square test was used to compare characteristics of study population by areas and to compare the distribution of CPI scores by region, age, and gender. The proportion of the poor periodontal condition (CPI≥3) according to regions was assessed by the chi-square test. Multiple logistic regression analyses were applied to identify an association between residential areas and the periodontal condition after adjust-