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Original Article

Oral-health status of inpatients with schizophrenia in Taiwan

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Abstract *Background/purpose:* A cross-sectional survey of oral health was conducted in a specific psychiatric hospital in Yu-Li, Hualien County, eastern Taiwan in 2006. In this study, we provide descriptive epidemiological information on the oral-health status of inpatients with schizophrenia and evaluate associations between some potential factors and oral-health indices in this population.

Materials and methods: In total, 1103 inpatients with schizophrenia participated in this survey. A clinical survey method, consisting of an oral examination with dental instruments and a light source, was used. The indices of this survey were consistent with those recommended by the World Health Organization. Multiple regression models were used to measure the independent effect of each subject's characteristics on specific oral-health indices.

Results: Among subjects with schizophrenia, the caries experience was 98.5%; the average number of decayed, missing, and filled permanent teeth (DMFT) was 13.9; the mean filling rate of the DMFT index was 14.3%; average number of teeth was 17.7; 5% were edentulous; and 39.4% had periodontal pockets of >4 mm (community periodontal index ≥ 3). The multiple regression results indicated that the DMFT, number of teeth, and community periodontal index ≥ 3 were only associated with age after adjusting for other potential independent variables. At the same time, aging men with lower educational levels and a longer

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stay in institutions were likely to have lower filling rate of the DMFT index scores in this population.

Conclusions: The findings of this study indicate the unmet dental-treatment needs of inpatients with schizophrenia and support the conclusion that they lack proper dental care. We therefore suggest that long-term care institutions that care for inpatients with schizophrenia should exert greater efforts in providing dental care for this special population.

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Introduction

Schizophrenia is a psychiatric disorder characterized by thought disturbances and aberrant behavior. It may diminish a person's self-care abilities, including oral-hygiene maintenance.^{1,2} One study estimated that the cumulative prevalence and annual incidence density of schizophrenia in Taiwan are about 0.64 of 100 and 0.45 of 1000, respectively.³ Studies also showed that people with schizophrenia are generally perceived as receiving inadequate dental care and having poorer oral health.^{4–6} According to an earlier study, there are congenital and acquired factors contributing to the poor oral health among inpatients with schizophrenia. According to congenital factors, gender is associated with the onset and manifestation of the disorder, and patients sometimes have limited access to dental treatment because of financial constraints. As to acquired factors, some antipsychotic agents that patients consume have adverse side effects on oral health. There is also an insufficient number of dentists who can provide oral-health care in long-term care institutions.^{7,8}

Female patients with psychiatric diseases were reported to have significantly higher values for the decay, missing, and filled permanent teeth (DMFT) index than males.⁹ Most patients with schizophrenia are on medication for long periods and these medications frequently cause xerostomia, leading to an increased risk of dental caries, gingivitis, and periodontitis. Furthermore, studies indicated that age and length of stay (LOS) in institutions are both significantly associated with poor oral health among inpatients with psychiatric diseases.^{10–12}

Poor oral health was reported among psychiatric inpatients.^{13–15} However, few studies have been conducted on the oral-health status of inpatients with schizophrenia in Taiwan. Therefore, in this study, we provide descriptive epidemiological information on the oral-health status of inpatients with schizophrenia and evaluate the association between some potential factors and oral indices in this country.

Materials and methods

Subjects

This study involved a sample hospital that offers long-term medical care for chronic psychotics. Located in Hualien County, eastern Taiwan, this hospital admits psychiatric patients from all over Taiwan. As of July 2006, the hospital had admitted about 2330 patients. We selected all patients with schizophrenia (ICD-9 code: 295) as the primary

psychiatric diagnosis to undergo a standardized oral-health examination conducted at the hospital's department of dentistry. In total, 1468 patients with schizophrenia were involved in the study; whereas, 1103 patients (for a response rate of 75.1%) participated and completed the oral-health examination. Ethical clearance was obtained from the Ethical Committee of Yu-Li Hospital, Department of Health, Taiwan.

Oral-health examinations

Before the survey, we conducted pre-examinations and completed oral-health examination forms. The examination form consisted of two parts: general information and the oral-health status. General information of participating patients was obtained from chart reviews. Furthermore, an oral-health examination was performed under standard conditions in a dental chair with adequate light and proper dental instruments. The index for oral health we used was consistent with those recommended by the World Health Organization (WHO).¹⁶

Oral-health index

The DMFT index was initially determined to describe the condition of dental caries among subjects. Each tooth was scored as to whether it was sound or diseased and whether there was evidence of treated or untreated clinical caries. If a tooth was diseased it was recorded under one of the following three categories: (1) frank cavitation, untreated (decayed teeth), (2) lost for any reason or hopeless with an indication for extraction [missing teeth (MT)], or (3) evidence of restorative treatment resulting from caries [filled teeth (FT)]. Thereafter, subjects' filling rate of the DMFT index (FI) and the number of teeth (NT) were individually assessed. The FI was calculated as the rate between the number of FT and DMFT index, excluding those with no dental caries experience (CEs). Furthermore, the past and present dental CEs, (DMFT > 0) for each tooth with dichotomous measures were recorded during the oral-health examination of each subject. Edentulism (Ed) describes someone with complete tooth loss or who has only hopeless teeth that required extraction.

The community periodontal index (CPI) of the WHO, which is commonly used to assess the periodontal status, was also used in this survey. With the help of a WHO periodontal probe, the depth of periodontal pockets was measured in millimeters at six points on both the buccal (facial) and lingual (palatal) sides of each of the six index teeth. The CPI divides the dentition into sextants for measurement and the severest score of the sextants was recorded during the oral-health examinations. The CPI provides a measurement, including 0 (healthy gingiva), 1 (occurrence of gingival bleeding), 2 (supragingival or

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