



RESEARCH ARTICLE

Major Oral and Dental Health Problems among Geriatric Residents of Nursing Homes in a defined Population in Iran

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ABSTRACT

Introduction: Increase in life expectancy implies the need for more attention to the health of the elderly population, and oral health is not an exception. This study determined the frequency of major oral and dental health problems among institutionalized elderly adults in Qazvin, Iran.

Materials and methods: In this cross-sectional study, 112 residents of geriatric nursing homes participated. History of systemic diseases and oral symptoms was asked and recorded; then, participants undertook a clinical intra- and extraoral examination. Examination consisted of oral mucosa, periodontal and dental assessment, and temporomandibular joint (TMJ) assessment.

Results: In total, 93 women and 19 men with an average age of 74.9 (± 14.7) and 71.6 (± 11.3) years respectively, were examined. A total of 73 patients were completely edentulous. Examination of the oral mucosa showed that 48 patients (42%) had changes in their oral mucosa. Pale mucosa and fissure tongue had the most frequency. However, denture stomatitis was the most prevalent disorder related to the denture. Xerostomia was the most frequent complaining symptom (67.8%) followed by dysphagia (53.7%) and dysgeusia (25.8%). A total of 26 patients (23.2%) had abnormal "clicking" sounds during TMJ assessment.

Decayed, missing, and filling teeth (DMF) index in 39 dentate patients revealed 89.7% had decayed teeth, 100% had missing, and 2.6% had filling teeth. Community Periodontal Index of Treatment Needs (CPITN) revealed more than half of the participants had deep or shallow pockets.

Conclusion: Oral and dental health of elderly people in this study was not acceptable. They should be persuaded that there are continual needs for oral health care. Oral examination should be performed as part of development programs for older adults.

Keywords: Dental status, Geriatric dentistry, Institution, Oral lesions.

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INTRODUCTION

The increase in the elderly population because of the increase in life expectancy, implies the need for more attention to this group.¹ More than one milliard of the population in 2020 will have more than 60 years, and about 60% of them will live in developing countries.^{2,3}

With aging, the body undergoes several changes, which affect all parts of the body and the oral cavity is not an exception. Age-related changes in the mouth include changes in teeth (attrition, pulpal recession, and fibrosis), changes in periodontium (gingival recession, loss of periodontal attachment, and bone support), and increasing oral mucosal lesions (denture-related and tobacco-related lesions). Therefore, dentists should have adequate knowledge and be aware of particular issues regarding oral health in this group.²⁻⁴

There are some studies showing that institutionalized elderly have more oral and dental problems than the others.⁵⁻⁸

If the old people receive proper health care and improve their attitudes toward oral health, oral health problems and its several consequent medical disorders will be prevented.⁸

Considering the fact that most of the medical and health services are dedicated to the youth and infants and less care is given to the old group in populated developing countries, such as Iran; and data on oral health status in the elderly people are limited in Iran,² we decided to assess the major problems of geriatric oral and dental health among the residents of nursing homes.

MATERIALS AND METHODS

This cross-sectional descriptive study was conducted in nursing homes in Qazvin, Iran. Totally, 112 residents of geriatric nursing homes participated. All nursing homes in Qazvin city were considered, and all those who would like to participate in the study were selected

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by convenience sampling. This research was conducted in full accordance with the World Medical Association declaration of Helsinki. The Research Ethics Committee of the Dental Faculty of Qazvin University of Medical Sciences, Qazvin, Islamic Republic of Iran, approved this study. Informed consent was obtained from the participants or their relatives. Data were collected by organizing face-to-face interviews guided by an arranged questionnaire in a two-month period. Some participants were excluded because of the complexity of communication, due to problems, such as hearing deficiencies or severe psychological diseases. We confirm that patient information remained confidential, and data were anonymized and deidentified for analysis.

The data consisted of demographic information; history of systemic diseases filled from medical records of patients, questions regarding oral symptoms, and the results from intra- and extraoral examinations.

Extraoral examination included temporomandibular joint (TMJ) assessment. Intraoral examination consisted of oral mucosa, periodontal, and dental assessment. Examination was performed under standard conditions, using proper light and disposable mirrors, explorers, and latex gloves. The entire oral cavity was examined for existence of mucosal lesions. The periodontal assessment was done by using the Community Periodontal Index of Treatment Needs (CPITN) index. Conventional codes were used to explain the periodontal condition. Code 0: No sign of disease; Code 1: Presence of gingival bleeding; Code 2: Existing calculus, Code 3: Shallow periodontal pocket (4–5 mm), Code 4: Deep periodontal pocket (6 mm and more). Decayed, missing, and filling teeth index was also determined. Obviously, these two later tests were performed only for the patients who had teeth. A senior dental student performed the examination under the supervision of one oral medicine specialist to address potential sources of bias.

The data were analyzed with Statistical package for the Social Sciences (SPSS) software version 18.0 (SPSS 18, Chicago, IL, USA). Descriptive analysis was used to describe basic features; means (\pm SD) were reported; and tests of significance were used as appropriate.

RESULTS

A total of 112 residents of the old age nursing homes consisting of 93 women (83%) and 19 men (17%) were assessed. The average age was 74.9 (\pm 14.7) for women; and 71.6 (\pm 11.3) for men. The most common systemic disease was hypertension and psychiatric disease. Table 1 shows a list of systemic disease among patients.

Seventy-three patients were completely edentulous. Forty-three patients (38.3%) wore prostheses, while

69 patients (61.7%) did not use any kind of prostheses. Forty patients (93.2%) out of these 43 people used their prostheses at day and night; three patients (6.8%) wore it only during the day; and 30 people (69.7%) needed a change of their dentures.

Examining oral mucosa revealed 48 patients (42%) had unrelated lesions to dentures in their oral mucosa, while 64 patients (58%) did not show a specific change. Oral mucosal lesions were found in participants as shown in Table 2. Assessing denture-related problems in 43 patients who wore prostheses is shown in Table 3.

Prevalence of oral symptoms among all the participants was as follow: Seventy-six patients (67.8%) suffered from xerostomia; 60 patients (53.7%) had problems in swallowing hard food; and 29 patients (25.8%) complained from dysgeusia. Temporomandibular joint assessment revealed 26 patients (23.2%) had abnormal “clicking” sounds. Determining DMF index in 39 patients who had teeth in their mouth showed that 89.7% of the patients

Table 1: Prevalence of systemic disease among participants (n = 112)

Systemic disease	No.	Percentage
Hypertension	25	22.3
Psychiatric disease	25	22.3
Cardiovascular disease	7	6.3
Gastrointestinal disease	4	3.6
Diabetes	3	2.7
Other diseases	8	7.2
More than one disease	13	11.6

Table 2: Prevalence of oral mucosal lesions unrelated to denture in participants (n = 112)

Oral lesions	No.	Percentage
Pale mucosa	16	33.3
Fissured tongue	5	10.4
Melanosis	3	6.2
Fordyce granules	3	6.2
Varix	2	4.1
Geographical tongue	2	4.1
Maxillary touri	1	2
Lichen planus	1	2
Atrophic tongue	1	2
Aphthous	1	2
Leukoedema	1	2
More than one lesion	12	25
Total	48	100

Table 3: Distribution of participants by denture-related disorders

Lesion type	No.	Percentage
Denture stomatitis	27	62.8
Traumatic ulcers	10	23.4
Epulis fissuratum	6	13.9
Total	43	100



Table 4: Distribution of participants by periodontal status

Periodontal status (CPI scores)	No.	Percentage
Bleeding on probing	3	7.7
Calculus	6	15.3
Shallow pockets (4–5 mm pocket depth)	15	38.5
Deep pockets (more than 6 mm pocket depth)	15	38.5
Total	39	100

had decayed teeth; 100% of them had missed teeth; and 2.6% had filled teeth. Results of periodontal assessment are summarized at Table 4. No case of oral leukoplakia or oral squamous cell carcinoma was detected.

DISCUSSION

The collected data in this study showed poor oral health status among residents of these old age nursing homes in Iran. In this study, from all the subjects, 65.1% were completely edentulous; 38.3% wore prostheses; and 61.7% of edentulous patients did not use any kind of prostheses. Unlüer et al⁸ reported that 67.4% of participants in Turkey were edentulous and 32.6% were partially dentate; 55.5% had complete denture, 11.9% had no denture at all. Comfort et al⁹ in a study of the institutionalized elderly in Fiji showed 43% of the population were edentulous. Simunković et al¹⁰ in a study of the institutionalized elderly in Croatia showed 45.3% of the population were totally edentulous in both jaws, and one study in Ankara showed that of 1,300 elderly population, 52.5% were completely edentulous.¹¹

Among subjects who had complete denture (42 patients), 30 patients (69.7%) needed change of their dentures. In one study in Turkey, this need was reported (16.6%) that was in contrast with this study.⁸ Miyazaki et al¹² in Japan reported 36% of examined institutionalized elderly needed new full or partial denture, and 41% needed only repair.

In this study, from 39 dentate people, 89.7% had caries, and 2.6% had filled teeth. Carter et al¹³ reported 65% caries in dentate residents in Christchurch. In one study in Croatia, filled teeth were found in 25.9% of subjects and decayed teeth in 30.9%.¹⁰

The most common systemic diseases were hypertension and psychological problems in this research. Rabiei et al² reported cardiovascular disease and hypertension were the most systemic problems in institutionalized elderly in the north of Iran that was in line with this study. Unlüer et al⁸ reported that at least one chronic medical condition was identified in 68.4% of the elderly residents in Turkey. Also, they showed that all of them took some type of medication, either prescribed or not. In a study in Greece, the most frequent medical problems were hypertension, cardiovascular problems, and depression/anxiety that was in accordance with this study.¹⁴

The assessment of periodontal status according to CPI showed that about one-third of patients had deep periodontal pockets, whereas in a study in Turkey more than half of the subjects had calculus and periodontal pockets were seen only in 10.2%.⁸ In one study in the UK, calculus was seen in 82% of the population.¹⁵ Also, one study in French elderly showed among 348 people eligible for periodontal assessment, 5.2% had bleeding, 44.8% calculus, and 20.7% had pockets.¹⁶

In this study, 23.2% had abnormal “clicking” during TMJ assessment; this result was in accordance with Miyazaki et al's¹² study in Japan that reported clicking in 17% of patients. One study in Spain showed that 42.7% of the elderly population had at least one symptom of TMD. The most common symptoms were muscular fatigue (26.6%), noise (21.3%), and TMD pain (14.9%).¹⁷

There are many studies about the oral problem and oral soft tissue lesions. In this study, xerostomia (67.8%) and denture-induced problems (38.3%) were common among participants. Forty-two percent of the population had changes in their oral mucosa. Three most common changes were pale mucosa (14.2%), fissured tongue (4.4%), and melanosis and fordyce granules (2.6%). No cases of malignant lesions were observed.

Mozafari et al¹⁸ in Iran reported that the most common lesions were fissured tongue (66.5%), atrophic glossitis (48.8%), sublingual varicosity (42%), and xerostomia (38%).

Rabiei et al² in the north of Iran reported that dry mouth (42.1%), fissured tongue (25.9%), and atrophic tongue (25%) were the most oral disorders. Also, they reported denture stomatitis in 45.6% of participants.

In a study in Greece, the most frequent oral findings were denture-induced stomatitis (17.2%), dry mouth (14.6%), atrophy of tongue papillae (10.5%), fissured tongue (9.8%), and hemangioma (6.8%).¹⁴ In one study in Chile, the most common lesion was denture stomatitis (22.3%), followed by irritative hyperplasia (9.4%), and oral mucosal varicosities (9%). One case of oral cancer was also observed.¹⁹ Mujica et al²⁰ in the comprehensive study on prevalence of oral soft tissue lesions in an elderly Venezuelan population reported that the most common lesions were denture stomatitis, leukoplakia, and hemangioma. They have also reported 6(2%) squamous cell carcinoma.

It is obvious that denture stomatitis and dry mouth are common disorders in old people in most studies.

In this study, more than half of the participants complained from dysphasia, and a quarter of them had TMJ problem; it seems lack of teeth and prostheses led to these complications.

Physical disabilities, loss of independence, cognitive problems, forgetfulness, lack of motivation, inadequate and inappropriate nutrition in line with chronic medical

disorders, such as ischemic heart disease, diabetes mellitus, chronic respiratory disease in elder people contribute to oral hygiene deterioration and enhancing the susceptibility to oral diseases. Also, diminished function of salivary gland, changes in oral mucous membrane, teeth, and periodontium with aging influence the occurrence of certain oral problems. In addition, dental care and treatment could be a great problem in the elderly due to a combination of difficulties, which include the cost incurred, lack of insurance, the complications of transporting, and the fear of participation. Moreover, lack of interest in this field on the part of dental medical science, the shortage of organized dental care, lack of oral health knowledge, and lack of qualified nurses are key inhibiting factors in proper preventive oral health program, especially among institutionalized seniors.²¹⁻²³

This is a small study and further studies in geriatric oral health in Iran are recommended.

CONCLUSION

This study evaluated oral and dental problems in the elderly and showed the oral health of defined Iranian elderly people is not acceptable. The elderly should be persuaded that there are continual needs for oral health care. Oral examination by dentists and training of care providers that are working in residential homes should be performed as a part of development programs for older adults.

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