



## Prevalence of Oral Lesions among Elderlies Living in Nursing Homes of Urmia City, Iran

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### Abstract

**Background & Aims:** Due to the existing problems in providing services to the elderlies with special cares, the focus on the prevention of oral diseases in this group is of special importance. The aim of this study was to evaluate the prevalence of oral lesions in elderlies' resident in Nursing homes of Urmia City, Iran in 2020.

**Materials & Methods:** In the present descriptive cross-sectional study, 300 elderly people over 65 years were selected from 9 nursing homes in Urmia, Iran and finally 280 of them were included. Data were collected using examinations, and by searching medical records and conducting interviews. The necessary information about any systemic diseases and drug consumption were obtained and a questionnaire was completed. Finally, data were analyzed by relevant statistical tests using SPSS software version 19.

**Results:** From 280 people participated in the study 90 (32.1%) were men and 190 (67.9%) were women. Among all participants, 122 (43.6%) reported at least one oral lesion, and there was a significant difference between women (49.5%) and men (31.1%) ( $P = 0.001$ ). In this study, 10 different types of lesions were recorded, the most common of which were oral candidiasis (16.1%) and denture stomatitis (10.7%). There was no significant relationship between age and smoking with the frequency of oral lesions ( $p > 0.05$ ).

**Conclusion:** The results suggested that the prevalence of lesions in the elderly inhabiting in retirements homes is high especially in women. Therefore, regular oral screening of the people can play an important role in early diagnosis and prevention.

**Keywords:** Oral Lesions, Nursing homes, Oral Care, Prevalence

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### Introduction

Due to the increase in life, an important group of people in the society is the elderly people. Certainly, this

community needs oral and dental care more than other age groups (1). Most countries set the old age within 60 to 65 (2), although it can be as early as the mid-40s or as late as the 70s in various countries (3).

Oral Mucosal Disorders Disease is among problems that along with dental and periodontal disorders generally affect the elderly people. Edentualism followed by using removable dentures may lead to various oral mucosal lesions such as denture stomatitis, angular cheilitis, Epulis fissuratum, and traumatic ulcers. These lesions can also be caused by improper dentures and poor oral hygiene. Also, some vascular lesions (varicose veins) and precancerous lesions (leukoplakia and erythroplakia) are also common between them (4, 5).

In general, the elderly people are susceptible to various diseases due to physiological and pathological changes. Immunosuppression, chronic diseases, and polypharmacy are among most frequent systemic factors. Some local factors such as the denture-wearing also endanger the health oral health (6). Smoking can also lead to oral lesions especially in this age group. Some studies have shown that the incidence of oral cancer is associated with smoking and oral mucosa lesions (7).

Due to the fact that the elderlies often do not have regular dental visits as well as inability of them to pay for medical expenses, changes in oral mucosal health have been accepted as part of the aging process (8). Therefore, the study of oral health of the elderlies is also important in society. Recent studies in Iran showed that in this group of the population, oral lesions are highly prevalent due to systemic diseases and smoking (6). Oral health information from the elderly people whether living in nursing homes or in their own homes is very limited. The prevalence of oral mucosal diseases among the elderly population before 2000 has been reported in a range of 40-45%, while in recent studies the prevalence of these lesions has been reported as 29.9% (9, 10).

Despite various studies in different countries, not enough information about the oral health of the elderly is still available and the reason may be the lack of participation of the elderly in epidemiological studies (6). However, some epidemiological studies have reported a wide range of oral lesions in different parts of the world, ranging from 1.4 to 52%, which can be

attributed to racial and cultural differences in different countries and a variety of sampling methods. (11-14).

In Spain, for example, coated tongue is the most common oral lesion, while in American adults, chewing tobacco is the most common oral mucosal lesion. Local epithelial hyperplasia has also been reported as the most common oral lesion in Brazil, South Africa, Argentina and Mexico (14, 15). Therefore, due to the racial and cultural differences between our country and other parts of the world, we cannot generalize the statistics provided in reference books to the population of our country.

Due to the rising average age in Iran, the elderly makes up a significant proportion of the population. In addition to dental problems, periodontal diseases and the risk of oral lesions increases. Epidemiological studies have reported a wide range of oral mucosal lesions in different parts of the world. Also in Iran, limited studies have been conducted in several cities. Despite the contradictory information in Iran, no studies on oral health of the elderly in Urmia are still available. Therefore, this study was performed to investigate the prevalence of oral lesions among the elderly living in nursing homes in Urmia.

## Materials & Methods

In the present descriptive cross-sectional study, all elderly people over 65 years of age who inhabit in Nursing homes in Urmia were participated. Sampling was done by easily accessible method. After obtaining permission from the Welfare Organization of West Azerbaijan Province, all individuals who were willing and able to cooperate were interviewed and examined. As a result, 300 elderly people living in 9 Nursing homes in the Urmia were selected and finally 280 of them were examined. Twenty elderly people were excluded from the study due to unwillingness to cooperate and incomplete medical records.

Interviews, examinations, questionnaires and existing records were used to collect data. With the help of the medical records of the elderly and interviews, the necessary information about the status of systemic diseases and the drugs used was obtained and a questionnaire was prepared which includes questions

related to age, gender, smoking, history of systemic diseases, dental status (edentulous, dentate), type of lesions (white and red, vesiculobulosis, pigmented, Exophytic), size and location, completed.

To achieve reliability, four strategies were considered, which are the use of structured and convergent interviews, organizing structured processes for recording and interpreting data, at least two people to conduct interviews and examinations in parallel with each other and comparing Findings and the existence of a steering committee to evaluate and implement the plan. The use of validation formulas, including the calculation of sensitivity, specificity, positive and negative predictive value (compared to a standard method) helped to determine the validity.

In this study, examinations were performed by a dental student who had sufficient knowledge about oral lesions and had completed a special course on oral lesions. In patients with oral lesions, in order to diagnose the type of lesion, an oral disease specialist was consulted with a photo taken from the lesion and a questionnaire was completed. Using Abslang, mirror and the flashlight of the soft tissue were examined and the necessary information was recorded.

SPSS software version 19.0 was used for data analysis and Kolmogorov-Smirnov test was used for data normality. Descriptive statistical tests were used to calculate the frequency, mean and standard deviation. Chi-square test, one-way analysis of variance (ANOVA), one-way analysis of variance Kruskal-Wallis, independent t-test and logistic regression model were used to analyze the data. Pearson correlation coefficient (PCC) was used to examine the relationship between variables. Also, a significant level in all statistical tests was considered 0.05 ( $P < 0.05$ ).

## Results

In the present descriptive cross-sectional study, 280 elderly people aged 65 to 97 years living in nursing homes in Urmia were evaluated. The mean age of the elderly was  $70.59 \pm 16.01$  years. 190 (67.9%) of these elderly people were female and 90 (32.1%) were male.

The results of statistical analysis showed that the prevalence of oral lesions in the elderly living in nursing homes did not have a significant relationship with their age ( $p > 0.05$ ). In addition, the results showed that the prevalence of oral lesions in female elderly is significantly higher than oral lesions in male elderly ( $P = 0.03$ ).

Smoking in all elderly patients was studied in three groups (smoking, non-smoking, history of smoking) in terms of the prevalence of oral lesions. Among the 280 elderly people studied, 30 (10.7%) smoked and 250 (89.3%) did not smoke. The results of statistical analysis showed that the prevalence of oral lesions in the elderly living in nursing homes has no significant relationship with smoking, non-smoking and history of smoking ( $p > 0.05$ ).

Among the 280 elderly studied, 140 (50.0%) had at least one systemic disease and 140 (50.0%) had no systemic disease. The most prevalent systemic diseases observed among all the elderly studied were hypertension (24.6%), diabetes (7.8%), cardiac complications (6.7%), Renal Complications (4.2%), and hypothyroidism (1.7%), rheumatoid arthritis (1.4%), epilepsy (1.4%), anemia (0.1%) and hyperthyroidism (0.7%) respectively. Most non-systemic diseases in the studied elderly were related to neurological disorders such as Alzheimer's and schizophrenia. Among the 280 elderly people studied, 64 (22.8%) had Alzheimer's disease and 6 (2.1%) had schizophrenia. Older women had more systemic diseases than older men. Based on Chi-square test, a significant difference was observed between women (61.5%) and elderly men (25.5%). ( $p = 0.003$ ).

The average number of lesions in all the elderly studied was 1.08 which was 1.09 in women and 1.07 in men. According to the statistical test, no significant difference was observed in the number of lesions between elderly men and women ( $P = 0.59$ ). Among the systemic diseases studied in the elderly living in nursing homes, only in diabetes was a significant difference in the prevalence of oral lesions ( $P = 0.01$ ) in other diseases was not significantly different ( $P > 0.05$ ).

Oral health status of all elderly patients was examined in four groups (dentualism, complete edentulous, partial edentulous) in terms of the prevalence of oral lesions. Among 280 elderly people studied, 92 (32.9%) had natural teeth, 88 (31.4%) had complete dentures, 11 (3.9%) had partial dentures and 89 (31.8%) had no teeth. The results of statistical analysis showed that the prevalence of oral lesions in the elderly living in nursing homes had a significant relationship with the groups of complete dentures ( $P = 0.01$ ) and no teeth ( $P = 0.003$ ).

Type of oral lesions in all elderly patients was divided in four groups: white and red lesions, ulcerative and blistering lesions (multiple acute ulcers, recurrent ulcers, multiple chronic ulcers and single ulcers), pigmented lesions and exophytic lesions in terms of prevalence of oral lesions was examined. Among 280 elderly people studied, 122 (43.6%) had at least one oral lesions and 158 (56.4%) had no oral lesions. Among the 90 elderly men studied, 28 (31.1%) had oral lesions and 62 (68.9%) had no oral lesions. Also, among 190 elderly women studied, 94 (49.5%) had oral disease and 96 (50.5%) had no oral disease. The most common oral disease among all the elderly studied were oral candidiasis (16.1%), denture stomatitis (10.7%), inflammatory fibrosis hyperplasia (0.5%), and melanotic macules (4.3%), respectively. Inflammatory papillary hyperplasia (1.1%), lichen planus (1.1%), smoking melanosis (1.1%), vascular lesions (1.1%), fibroids (1.1%) and gingival hyperplasia (1.1%). The results of statistical analysis showed that the prevalence of oral lesions of oral candidiasis ( $P = 0.04$ ) and melatonic macules ( $P = 0.04$ ) in the elderly living in a nursing home is significantly higher than other lesions. Also, older oral lesions were observed in older women than older men ( $P = 0.001$ ).

Oral lesions were evaluated for the prevalence of oral lesions in six areas of the cheeks, lips (vermilion and commissure), hard palate, soft palate, tongue and gums. Most of the lesions were located in the hard palate (22.5%). The lowest prevalence was in the soft palate (1.1%). The results of statistical analysis showed that the prevalence of oral lesions in the elderly living in nursing

homes has a significant relationship with the development of lesions in the hard palate ( $P = 0.012$ ).

## Discussion

Oral mucosal lesions include a very wide range of lesions including benign, precancerous and malignant. Oral health plays an important role in the quality of life of individuals. Oral lesions can lead to discomfort, pain, with chewing, swallowing, and speech functions. In addition, they can cause symptoms such as bad breath and dry mouth that may interfere with patients' daily social activities (16). According to the World Health Organization (WHO), published in 1984, due to the rising average age of the human population, an important segment of the population is the elderly and this group, like other people in the community; need to receive dental care (17).

One of the first steps in proper planning to improve the level of education, prevention and treatment of diseases is to determine the prevalence of various diseases in different communities. Due to the difference in mental condition, nutritional status, general health and oral health in non-residents and elderly residents, the prevalence of oral lesions can be different in the two groups and therefore the prevalence of oral lesions in elderly residents in nursing homes in different geographical areas. It is very important in controlling these lesions.

The results of the present study showed that 43.6% of the total elderly living in nursing homes in Urmia had at least one oral lesion. In the 2005 Trainto study in Greece, the overall prevalence of oral lesions in nursing home residents was 47% (16). In studies of the elderly living in nursing homes in Chile and Greece, 53% and 47% of people, respectively, had oral lesions, which the results of the present study in Urmia are almost consistent (18, 19). In studies such as Jainkittiyong et al. 83% (20), Melania et al. 100% (21), Maleki et al. 77% (6), Motaleb et al. 84% (3) and Mozaffari et al. 98% (22) of the elderly living at least one oral lesion has been reported in the nursing home. The lower prevalence of lesions in the present study compared to the mentioned studies may be due to the location of sampling, because

in some of the mentioned studies, sampling was performed on the elderly living in nursing homes referred to dental clinics. Also, in some of the mentioned studies, cases such as grooved tongue and varicose veins in studies performed in the elderly of Chile and Brazil, the prevalence of lesions was reported to be 37.5% and 28.4%, respectively (1, 23), which is less than the results of the present study. They are in Urmia. Sampling style, cultural differences, level of health, eating habits, level of education and even genetic differences can be responsible for these differences.

The most common oral mucosal lesions in the present study were oral candidiasis (16.1%), denture stomatitis (10.7%) and inflammatory fibrosis (0.5%), respectively. The higher prevalence of lesions such as hyperplasia, stomatitis and candidiasis in this study can be due to poor oral hygiene and lack of regular examination, which is consistent with the results of most studies conducted in this field worldwide, including Brazil, Chile, Germany, Taiwan and Venezuela. Is (1, 17, 19, 23, 24). In the present study, the prevalence of stomatitis (10.7%) in Urmia is approximately equal to the study of Rabi'i et al. In Rasht with a prevalence of 10.2% (25). Also in the present study, the prevalence of stomatitis (10.7%) in Urmia with Kossioni study with a prevalence of 39.6% (26), and some studies that reported a prevalence of 18% to 37% is much lower (20, 27-29 20 ). The high prevalence of varicose veins and grooved tongue in the elderly living in nursing homes in other parts of Iran such as Mozaffari et al., Ghaem Maghami et al., Molania et al., Rabi'i et al. After normal anatomy, lesions such as stomatitis, candidiasis and hyperplasia were as prevalent in these studies as in the present study (6, 21, 25, 30).

### Conclusion

The results showed that the prevalence of oral lesions in the elderly living in nursing homes is high. However, it is lower than in some other cities. The presence of high-risk factors such as systemic diseases and poor hygiene in the nursing home causes a large number of oral lesions such as oral candidiasis. Therefore, regular oral examination of the elderly can

play an important role in early detection and better prevention of oral lesions.

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### Ethical statement

The above-mentioned sampling protocols were approved by the Medical Ethics Committee of Urmia University of Medical Sciences, Urmia, Iran (ethical code: IR.UMSU.REC.1398.087)

### Conflict of interest

No conflict of interest declaration between the authors.

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