

## Evaluation of mastication in elderly people

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### Summary

Older people are an important population group because there is a greater percentage of the population surviving into old age. The oral health of older people is changing currently. Edentulism was a common feature of old age, 30 to 40 years ago. This is no longer the case, as increasing numbers of elderly people retain their natural teeth.

The aim of this study is to assess the mastication in a group of institutionalized elderly people of Constanta city. 100 people have been examined and the number of remaining teeth as well as the presence of prosthetic treatment has been registered, for an objective evaluation of mastication function. All the subjects have been questioned about the self-evaluation of mastication. The results showed a small number of remaining teeth (13.04) and numerous cases without prosthetic treatment or with old and/or incomplete prosthetic treatment, which lead to mastication difficulties and problems in biting and chewing of solid food.

**Key words:** elderly people, objective and subjective assessment, mastication difficulties.

### Introduction

The older population, senior citizens, is increasing. This phenomenon affects medical services, because this segment of population is the main consumer of health care. From dental standpoint, senior citizens are not related with edentulous state, because many of them present remaining teeth.

Oral health and oral health care are important to maintain proper mastication, digestion, speech, appearance and psychological well-being.

At the present time, the oral health is recognized as the absence of any pain and infection and a functional dentition (natural or prosthetic) that permits the individual to have a normal social life; functional dentition means also mastication without discomfort.

### Objective

The aim of this study was to assess the mastication in a group of institutionalized elderly people of Constanta city. In view of the fact that there

seems to be a discrepancy between the objective need and the demand for prosthetic and dental care [1], the assessment was objective (number of remaining teeth and presence of prosthetic treatment) and subjective (personal evaluation of mastication).

### Material and method

**Subjects.** 100 residents from the Old Age Home, no. 164, Unirii Street, Constanta, have been examined.

The Old Age Homes in Romania are public institutions that provide social and medical care with the following responsibilities [2]:

1. complete housing and care for residents;
2. supervising the health status of residents and providing medical care;
3. daily food preparing and distribution for residents;
4. organizing of cultural activities;
5. organizing of religious activities.

The examined group consisted of 100 people (54 males and 46 females) who could be examined in the dental office of the institution.

Residents with severe medical and/or mental condition, who were not able to walk to the dental office or who could not collaborate to this study were excluded.

**Oral examination.** The number of remaining teeth and presence of prosthetic treatment has been recorded for all the subjects.

**Questionnaire.** In the same time all investigated elders filled in a questionnaire for the self-assessment of mastication. This questionnaire consisted in the following questions:

1. Have you had difficulties during chewing?
2. Have you limited the type or quality of food due to the problems caused by teeth or dentures?
3. Have you had problems when biting or chewing solid or boiled meat?
4. Are you satisfied with the aspect of your teeth or denture?
5. Are you concerned about the aspect of your teeth or denture?

The answers for these questions were scored as follows:

- Code 1 = always;
- Code 2 = frequent;
- Code 3 = often;
- Code 4 = seldom;
- Code 5 = never.

## Results and discussion

**Age.** The age of subjects examined was between 60 and 87 years old. The mean age was 72.69; 72.62 in males and 72.78 in females. The distribution according to stages of aging was: 68% (34% males and 24% females) between 60-74 years old and 42% (20% males and 22% females) between 75-89 years old (*Chart 1*). In this study there was not a single person over 90

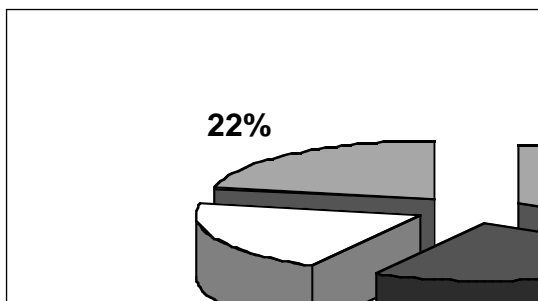


Chart 1. Distribution of group according to age and sex

years old; the majority of subjects were older adults.

**Number and distribution of remaining teeth.** From those subjects, 12% were totally edentulous (7 males and 5 females). The other subjects (88%) presented a medium number of remaining teeth – 14.82. The average number of remaining teeth in all the subjects was 13.04. The mean number of remaining teeth is shown in *Chart 2* and distribution of remaining teeth is presented in *Chart 3*.

In this study women presented more remaining teeth than men (respectively 14.17 in women and 13.59 in men) and the number of teeth decreased with the ageing (15.71 in younger subjects and 11.31 in the others).

The number of remaining teeth was higher in the mandible than in the maxilla. Usually, the number of upper missing molars is similar to lower ones, but the number of lower frontals and premolars is higher than the upper.

Nordström G. et al. [3] consider that the pattern of losing teeth is: first the lower molars are extracted then the upper ones, maxillary premolars then mandibular premolars and finally the upper frontals followed by the lower ones.

The number of teeth decreases with the age, teeth being extracted due to caries or periodontal disease. According to Skkoikonen K. [4], one third of teeth are extracted due to caries, another third due to periodontal disease and the rest for orthodontic or prosthetic reasons or as a consequence of injuries.

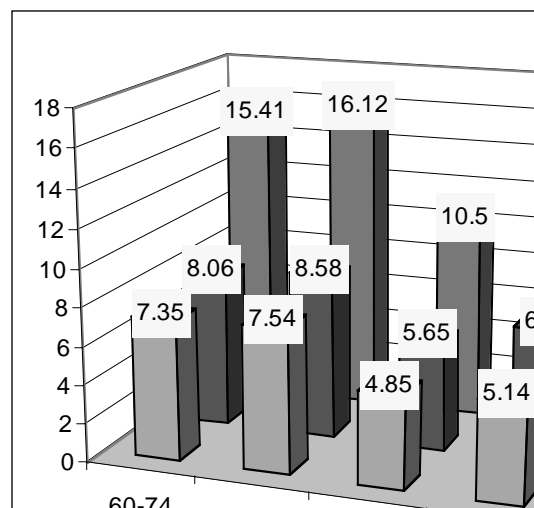
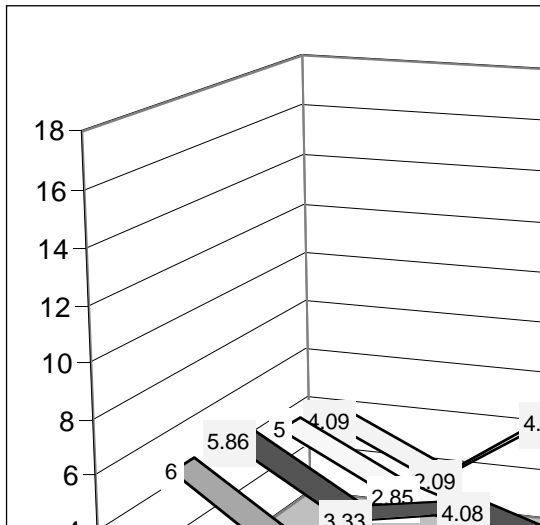
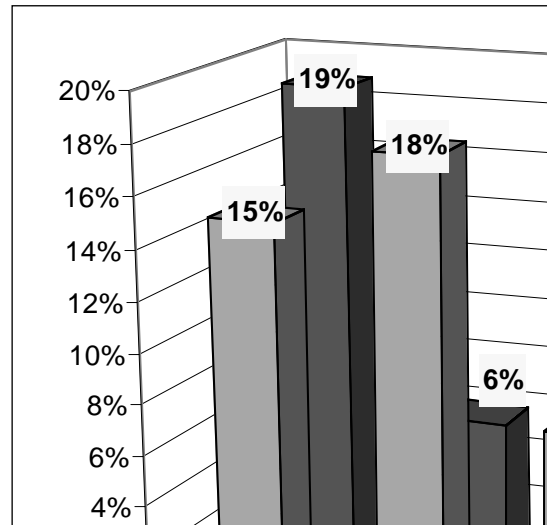


Chart 2. The mean number of remaining teeth



**Chart 3. Distribution of remaining teeth according to age and sex**



**Chart 4. Subjects with and without prosthetic treatment**

**Presence of prosthetic treatment.** 43% of subjects examined did not have prosthetic treatment. There were more men (31%) than women (12%) without prosthetic treatment (*Chart 4*). Many subjects showed old and/or incomplete prosthetic treatment, which also led to problems in biting and chewing food (*Figures 1 and 2*). 12% of the subjects wore partial dentures and 7% complete dentures.

**Self-assessment of mastication.** The questionnaire, based on GOHAI (Geriatric Oral Health Assessment Index) [5], covers two dimensions: physical (biting and chewing), questions 1 to 3, and psycho-social (interest in aspect of teeth and/or denture), question 4 and 5.

The questions refer to dental problems in the last three months.

**1. Have you had difficulties during chewing?**

69% of subjects mentioned difficulties during chewing food, in different degrees: 29% always, 19% frequent and 21% often, due to missing teeth and absence or old and less functional prosthetic treatment (*Chart 5*).

**2. Have you limited the type or quality of food due to the problems caused by teeth or dentures?**

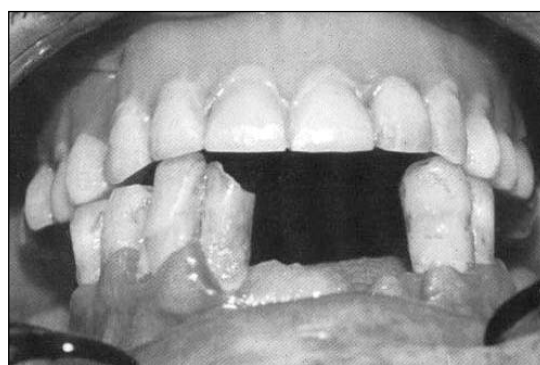
64% of those investigated limited the type or quality of food due to problems caused by teeth or denture (*Chart 6*).

**3. Have you had problems when biting or chewing solid or boiled meat?**

One of the most frequent problems is biting and chewing of solid food (*Chart 7*). 43% of subjects have had always difficulties in biting or chewing hard food.



**Figure 1. Subject with a 12 year-old fixed prosthetic treatment**



**Figure 2. Subject with incomplete prosthetic treatment**



Chart 5. Results of question 1

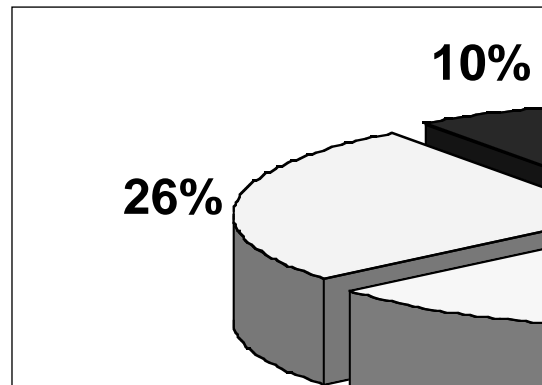


Chart 6. Results of question 2

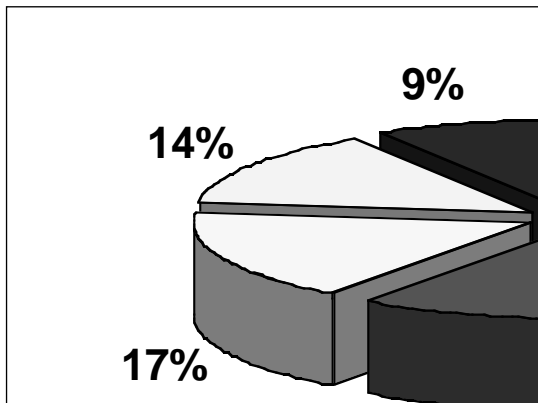


Chart 7. Results of question 3

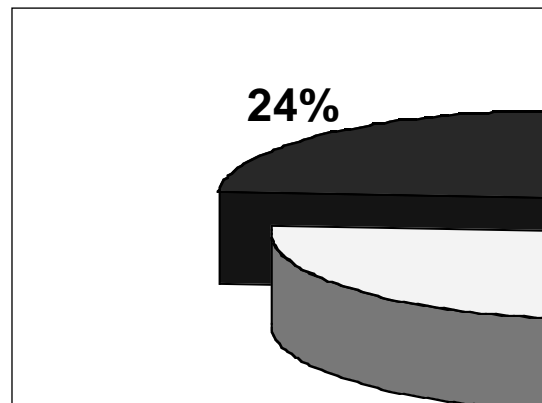


Chart 8. Results of question 4

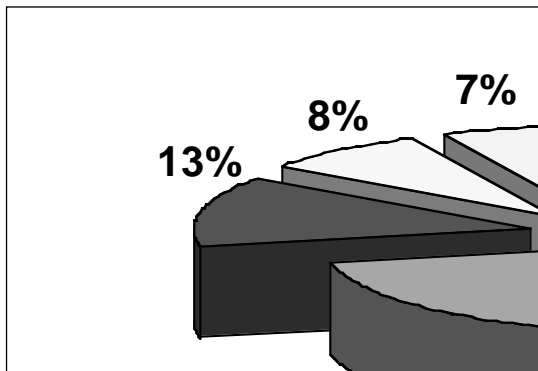


Chart 9. Results of question 5

**4. Are you satisfied with the aspect of your teeth or denture?**

78% of seniors mentioned not being satisfied with the aspect of their dentition, which impaired their social life and made them feel embarrassed and less free in relationships with other people (Chart 8).

**5. Are you concerned about the aspect of your teeth or denture?**

A large number of those examined (72%) manifested a high interest in the aspect of their teeth or denture (Chart 9). There has not been any subject to show unconsciousness about his/her dental aspect.

**Conclusion**

This study illustrates that one of the most compromised oral function in institutionalized elderly people is related to biting and chewing of food. Both methods used for assessment, patient perception and clinical judgment (mean of remaining teeth number being 13.04, mainly incisors and canines and absence of prosthetic treatment) show difficulties in mastication.

The magnitude of dental problems and treatment requirement is very high amongst institutionalized elderly.

One aim of WHO in oral health promotion is the presence of at least 20 functional teeth in seniors [6]. Having a functioning dentition of

more than 20 teeth is a reasonable threshold for an acceptable oral health and a functional dentition into old age.

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