

ORAL HEALTH EVALUATION: INCIDENCE OF TOOTH LOSS IN ADULT POPULATION OF BOSNIA AND HERZEGOVINA

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ABSTRACT

OBJECTIVE: To estimate the mean number of missing teeth, prevalence of functional dentition and total tooth loss (edentulism) among adults and the elderly in Bosnia and Herzegovina, comparing the results with other developed countries of the world.

METHOD: Data from 500 adults aged 35-44 and 500 elderly individuals aged 65-74 were analyzed. The number of teeth lost, the prevalence of individuals with functional dentition (presence of < 21 natural teeth) and of edentulism (loss of all natural teeth) were estimated by analyzing radiographic data base of Faculty of Dentistry with clinics in Sarajevo.

RESULTS: In the age group 35-44, after reviewing 500 panoramic radiographs, the average number of missing teeth was 8.5, 53.8% participants had functional dentition and 1% were edentulous. In the age group 65-74, after reviewing 500 panoramic radiographs, the average number of missing teeth was 16.5, 8,4% participants had functional dentition and 12,6% were edentulous.

CONCLUSIONS: Analyzing survey results it is noticeable that oral health status in population of Bosnia and Herzegovina is lower regarding developed countries of the world.

Introduction

Tooth loss is considered to be one of the main oral health problems due to its high prevalence and the aesthetical, functional, psychological and social effects it produces. [1,2,3] It reflects oral health problems accumulated throughout life, cultural aspects and the decision to extract a tooth as an orthodontic treatment option. [4,5] Epidemiological studies show that tooth loss presents a marker of social inequality in diverse societies; population groups at the bottom of the socioeconomic hierarchy have higher rates of tooth loss than those situated at the top of the scale. [6] However, in many cases tooth loss is avoidable.

Masticatory efficiency (assessed as comminution efficiency) and masticatory ability (self-reported) are both linked to the number of teeth. A minimum of 20 teeth with nine to 10 pairs of contacting units (including anterior teeth) is associated with adequate efficiency and ability. [7] Tooth numbers below that level field impaired masticatory efficiency and are likely to result in reduction in reported masticatory ability. Aesthetics and satisfaction are markedly impaired with loss of anterior teeth. Satisfaction is most likely to be achieved in people who also retain a premolar dentition. [7]

Method and materials

Main method of conducting data was the analysis of panoramic radiographs from data base of Faculty of Dentistry with clinics in Sarajevo. The number of teeth lost, the prevalence of individuals with functional dentition (presence of < 21 natural teeth) and of edentulism (loss of all natural teeth) were estimated for adults and the elderly. From the total number of panoramic radiographs, 500 were analyzed in the age group 35-44, while the remaining number 500 shots were analyzed in the age group 65-74. Third molars were not considered and are not part of the statistics, so the potentially maximum number of teeth was 28: 4 molars, 4 premolars, 2 canines and 4 incisors in the upper and lower jaw.

Results

In the adult age group, 304 analyzed panoramic radiographs were females' radiographs, remaining 196 radiographs were male. After reviewing 500 panoramic radiographs in the age group 35-44, the average number of missing teeth was 8.5, 53.8% participants had functional dentition and 1% were edentulous. Regarding gender, women had fewer missing teeth, higher rate of functional dentition, but also higher rate of edentulism than men as shown in Table 1 and Chart 1.

35-44	MALE	FEMALE	POPULATION
MISSING TEETH	9	8	8,5
FUNCTIONAL DENTITION	45,4%	59,2%	53,8%
DENTULISM	0,4%	0,6%	1%

Table 1: Average number of missing teeth, percentage of functional dentition and edentulism per gender in 35-44 age group.

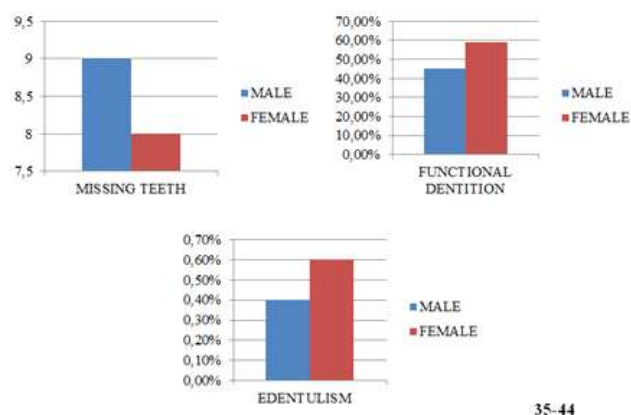


Chart 1: Gender differences of missing teeth, functional dentition and edentulism within 35-44 age group.

In the elder age group, 256 analyzed panoramic radiographs were females' radiographs, remaining 244 radiographs were male. After reviewing 500 panoramic radiographs in the mentioned population, the average number of missing teeth was 16.5, 8.4% participants had functional dentition and 12.6% were edentulous. Regarding gender, it can be said that men and women are at the similar level regarding average tooth loss. Considering functional dentition and edentulism, men have better oral health status than women, as shown in Table 2 and Chart 2.

65-74	MALE	FEMALE	POPULATION
MISSING TEETH	16,7	16,3	16,5
FUNCTIONAL DENTITIONE	9,8%	7,0%	8,4%
DENTULISM	10,7%	14,5%	2,6%

Table 2: Average number of missing teeth, percentage of functional dentition and edentulism per gender in 65-74 age group.

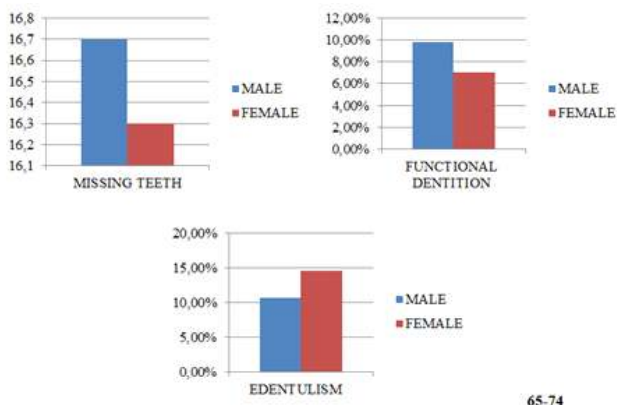


Chart 2: Gender differences of missing teeth, functional dentition and edentulism within 65-74 age group.

Discussion

As shown in Chart 3, differences between the presented countries are noticeable. Bosnia and Herzegovina has the leading position at the presented chart with the highest number of missing teeth in the population between 35 and 44 years of age. There are almost three times more missing teeth in the mentioned population in Bosnia and Herzegovina when compared to Spain. [8] We can also notice that Brazil and Russia are not far behind from the results in Bosnia and Herzegovina. [6,9]

As presented in the Chart 4, representing the functional dentition in the age group 35-44, the biggest difference is noticed between United Kingdom and Bosnia and Herzegovina. UK has the highest values, with almost 100% of functional dentition present and the lowest value stand for Bosnia and Herzegovina in the mentioned population group. [10]

Available data in the age group of 35-44 show that the highest percentage (1,9%) of edentulism is

present in the population of Hungary. Bosnia and Herzegovina however, does not lag behind Hungary. [11]

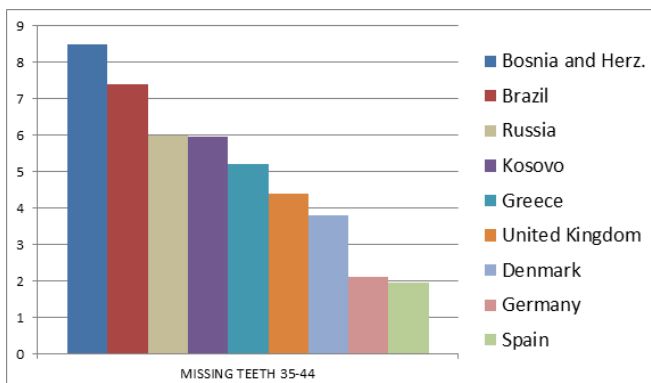


Chart 3: Average number of missing teeth in age group 35-44 in different countries.

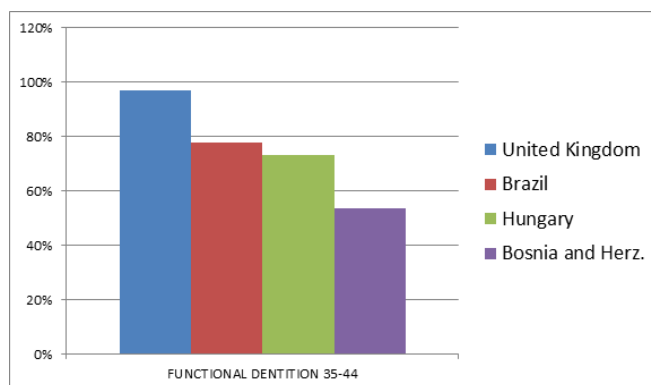


Chart 4: Differences in functional dentition between different countries within same age group.

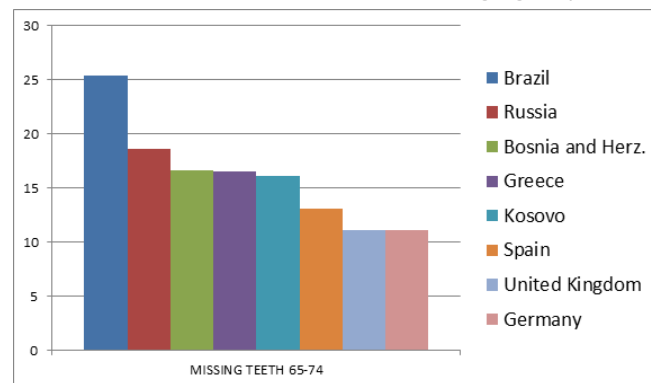


Chart 5: Average number of missing teeth in age group 65-74 in different countries.

Brazil, Russia and Bosnia and Herzegovina occupy the first three places regarding number of missing teeth in elder age group, as shown on the Chart 5. Bosnia takes third place with an average of 16,6 missing teeth per person in the mentioned population. On the other hand, United Kingdom and

Germany are showing about 2,5 times lower number of missing teeth than the three countries taking the top of the scale. Kosovo and Greece have noticeably similar numbers of missing teeth as Bosnia and Herzegovina in the elder age group. [6, 10, 12, 13, 14, 15]

Very little number (8,4%) in the elder population group has functional dentition in Bosnia and Herzegovina. If compared to elder population group of United Kingdom difference is huge, because 61% of population have functional dentition. [10]

Convincingly highest number of edentulism in the elder group stands for Brazil (53,7%). The slightest differences in numbers are found between UK, Hungary and Bosnia and Herzegovina. In UK elder population 15% is edentulous, in Hungary 19,8% population is toothless, while 12,6% elder population in Bosnia and Herzegovina has no teeth. [10,11]

This information should be taken with caution due to small test sample and question how many edentulous patients need to make panoramic radiograph, which was the only source of data for the pilot study in Bosnia and Herzegovina.

Bearing in mind the limitations of the study, as it is not a longitudinal one, possible reasons for such poor results may lie in the fact that earlier studies in children in Bosnia and Herzegovina showed a high prevalence of caries. [16, 17]

Therefore, it is logical that the situation is getting worse with age. Also, earlier research has shown the correlation of oral health in the adult population with knowledge, attitudes and practice in the area of the Sarajevo Canton. [18] The results of our research are not surprising and are in full correlation with the mentioned study.

Oral health indicators issued by WHO have clear parameters and formulas through which the state of oral health can be monitored and strategies developed based on the 5-year plans. Bosnia and Herzegovina has never submitted its data regarding adults to the WHO database, nor has developed a strategy for improving the preservation of oral health based on them.

Conclusions

Bosnia and Herzegovina is a country with a higher number of missing teeth, a lower degree of functional dentition and a higher degree of total edentulousness in the adult population compared to other countries in the world.

On the other hand, available data within the elder population group show that Bosnia and Herzegovina does not lag behind the world's developed countries when it comes to number of missing teeth and edentulism. However, this information should be taken with caution due to small test sample and question how many edentulous patients need to make panoramic radiograph, which was the only source of data for the pilot study in Bosnia and Herzegovina.

If the above is considered, it can be said that the results of the pilot study in Bosnia and Herzegovina are more reliable in adults, compared to the elder age group.

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