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Frequency Of Prosthetic Treatment Of Permanent Dental Arches

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Abstract

Background: Teeth as part of the masticatory system play an important role in maintaining the positive self-image of each individual. The purpose of our study is to determine the frequency of prosthodontics treatment by gender, jaws, age groups and time period.

Material and methods: In the period 2017-2021, 1785 patients were examined. The age of the examinees was from 13 to 82 years. The data obtained were entered into patient records using the WHO-modified oral health assessment form, adapted and modified to the nature of our study.

Results: The percentage of males is 51% and the percentage of females is 49%, while the percentage in the maxilla is 58% and in the mandible 42%. The age group 60-69 years has the highest percentage 31.04%, while the age group 20-29 years has a lowest percentage 8.31%, and the age group up to 19 years is represented by 0%. The number of prosthetic appliances present according to the time period show that the period of 6-10 years has a higher percentage with 39.71%, while the lowest percentage is in the age group 30 and more years with 1.15%.

Conclusion

1. Males and females value oral health and show almost identical care for the prosthetic treatment of their dental arches.
2. Prosthetic treatment in a higher percentage of the maxillary dental arch shows the importance that patients given to aesthetics.
3. Differences between the results of different authors regarding dental systems rehabilitated with partial prosthetic appliances, according to age groups, can be described to:
- variations during the planning of the study process
- excessive representation of certain age groups and
- types of prosthetic appliances which may have an impact on the contingent examined.
4. Prosthetic appliances, due to the action of biological forces, as a result of their damage, , should be repeated every 5- 7 years.

Keywords: Prosthetic appliances, dental arches, treatment, frequency

Introduction

The oral cavity (*cavum oris*) represents the initial part of the human digestive tract and serves for chewing as well as preparing food for swallowing. This cavity by the dental and gingival system (*arcus dentogingivalis*) is divided into the vestibule

(*vestibulum oris)* and the true space of the mouth *(cavum oris proprium)*.[1,2,3,4]

Teeth as part of the masticatory system play an important role in maintaining the positive self-image of each individual, while the absence of one or more teeth is quite traumatic and shocking, and is considered a serious life event that requires significant social and psychological correction.[5,6,7,8]

Arguments about tooth loss have changed.[9] Studies have shown that some of the factors such as attitude, behavior, dental care and health care system play an important role in the decision to protect teeth. In particular, there is a significant link between toothless status and financial status which is usually associated with low occupational levels.[10] Functional, phonation and aesthetic disorders resulting from tooth loss are the factors that affect the dental health, general health and quality of life of the patient and should be treated. [11]

The causes of missing natural teeth are different: congenital that occupy about 2% and acquired that are present with about 90% of them, not to mention the percentage of missing teeth that occurs as a result of various actions.[12,13,14,15] Direct causes are oral diseases, primarily caries and parodontopathies, which are present and accompany modern man. [15,16]

The absence of certain teeth, a group of teeth or the entire dental system, in one or both jaws, brings about complex disorders such as: aesthetic, phonetic, functional and topographical that are jointly reflected in the digestive system and in the psyche of people, as well as forcing the patient to seek the help of the dentist for their remediation. In this case, the prosthodontics is the one who through oral rehabilitation should make the treatment of the disordered dental system in these patients.[15,16]

Oral rehabilitation means any type of dental intervention that is undertaken and that aims to restore the normal functioning of the dental system. In the narrow prosthetic aspect, oral rehabilitation represents the correction of simple or complicated abnormalities of the stomatognatic system as a need for prosthetic restorations of damaged or lost masticatory units in patients with permanent dentition.[17]

Prosthodontics disciplines with their construction and reconstruction skills not infrequently complete the treatment of oral rehabilitation, or in the process of therapy itself act independently. The prosthodontics treatment combines several clinical and laboratory procedures that lead to the insertion of the fixed (*crowns and bridges*) or removable (*partial and complete dentures*) prosthodontics device. [18]

Scope of prosthetic treatment is realized through partial dentures fixed for natural teeth and implants, through partial and complete removable dentures, as well as starting from the restoration of a dental crown, the rehabilitation of the occlusion to the compensation of the dental system in one or both toothless jaws.[19,20,21]

The purpose of our study is, through the data obtained from the clinical examination of our treated patients to assess the frequency of repair of dental defects with prosthetic appliances according to: gender, jaws, age groups and time period.

Material and Methods

For this study, the data obtained from patients of the city of Tetova and its surroundings, examined in the specialized dental clinic "Protetika Ag" in Tetova were continuously followed. For this purpose in the period 2017-2021 were examined 1785 patients who have come to our clinic expressing their complaints related to the stomatognatic system. Of this group, 943(52.83%) of them were male patients while 842(47.17%) of them were female patients. The age of the examinees was from 13 to 82 years, with an average age of 48.2 years.

The working methodology was realized through the basic protocol followed that was applied in our study and which consisted among others of the anamnesis and intra-oral clinical examination Through the anamnesis were determined, the name and surname, gender, year of birth, profession, employment of patients and time period of prosthetic appliances, while through intra-oral clinical examination was determined, the localization of the prosthetic appliance. Intra-oral clinical examination was performed by means of dental mirror and probe in optimal conditions of natural light.

The data obtained were entered into patient records using the modified WHO oral health assessment form, adapted and modified to the nature of our

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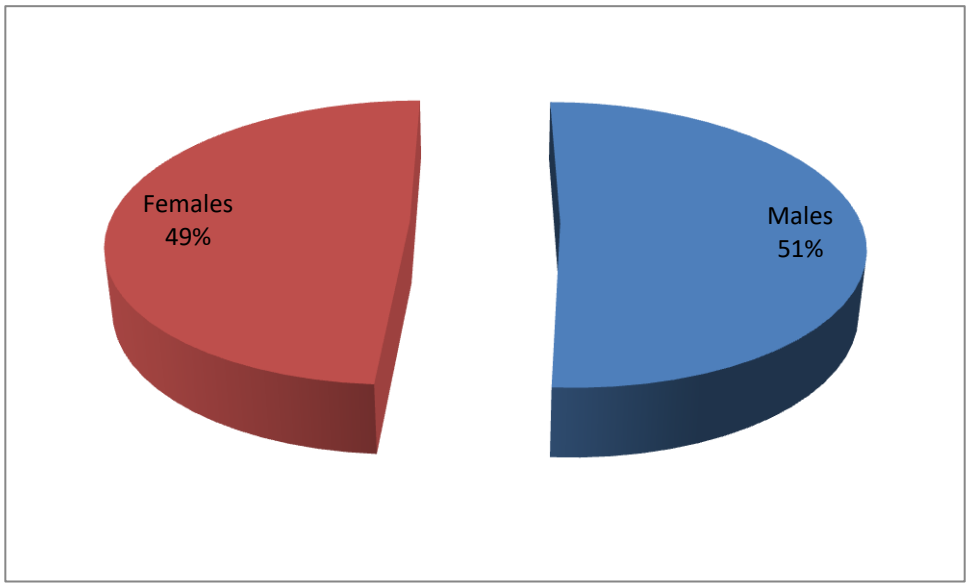
research.[22] Statistical processing of the obtained results was done according to the gender, age groups and time period of prosthetic appliances. Descriptive statistical methods were used to distribute the data in percentages, while the comparison was made by X^2-test, Fisher student test, T-test and the coefficient of probability (p)

Results

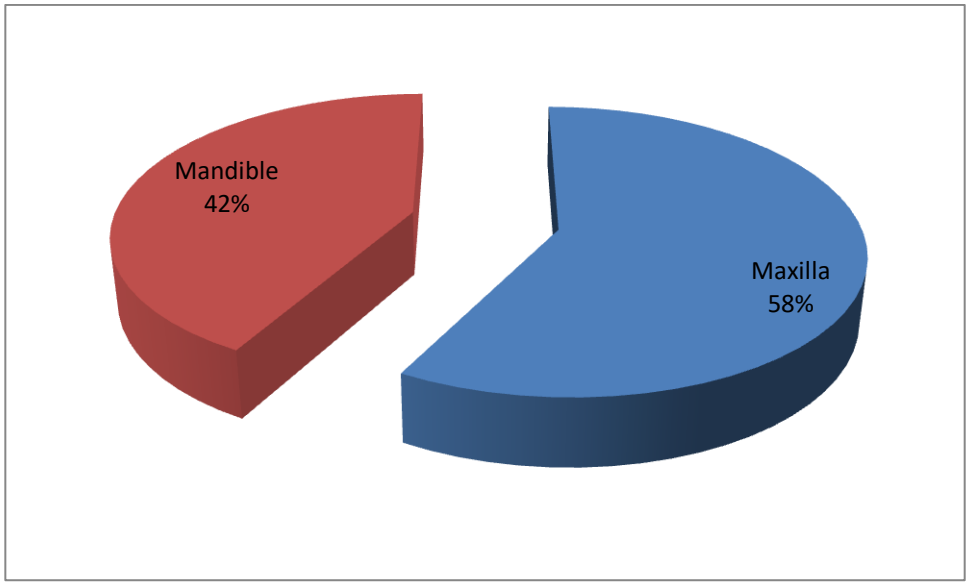
Of the total number of patients with prosthetically rehabilitated dental systems (915), the results of graph 1 show that the percentage of males is 51% (466), while that of females is 49% (449)

Graph 1. Prosthetically rehabilitated tooth arch by gender



Graph 2 shows the results of prosthetically treated dental systems according to the jaw and according to this it is seen that the percentage in the maxilla is 58%(527), while in the mandible 42%(388).

Graph 2. Prosthetically rehabilitated tooth arch by jaws



Regarding the prosthetic rehabilitated dental systems by age group, the results of table 1 show that the age group 60-69 years is the one that has the highest percentage of 31.04% (284), followed by the age group 50- 59 with 19.67% (180), age group 40-49 with 16.28% (149), age group 30-39 with 14.75% (135) and age group 70

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and over years with 9.95% (91), while age group 20- 29 years old has a lower percentage, only 8.31% (76), and the age group up to 19 years old is represented by 0%.

The value of the test - X^2 = 93.67, the number of degrees of freedom n = 5 and the value of the probability coefficient p <0.001, speak of a high statistical significance, important not coincidental of the results between the upper and lower jaw as belongs to the partial toothless and prosthetically rehabilitated dental systems according to age groups.

Table 1. Prosthetically rehabilitated dental arches by age group, sex and jaw

Age-groups	Number	Percent	Males		Females		Maxilla		Mandible	
			No.	%	No.	%	No.	%	No.	%
Up to19 years	0	0%	0	0	0	0	0	0	0	0
20-29 years	76	8.31%	31	40.79	45	59.21	46	60.53	30	39.47
30-39 years	135	14.75%	46	34.07	89	65.93	91	67.41	44	32.59
40-49 years	149	16.28%	75	50.34	74	49.66	75	50.34	74	49.66
50-59 years	180	19.67%	74	41.11	106	58.89	135	75	45	25
60-69 years	284	31.04%	209	73.59	75	26.41	134	47.18	150	52.82
70 and over years	91	9.95%	31	34.07	60	65.93	46	50.55	45	49.45
Total	915	100%	466	50.93	449	49.07	527	57.60	388	42.40
							X^2= 93.67		p<0.001	

The results in table 2 show the number and percentage of prosthetic appliances present by time period. From here it is clear that the time period 6-10 years has a larger number and higher percentage of prosthetic devices, even 554(39.71%) cases, followed by time periods: 11-15 years with 284(20.36%) cases, time period 1-5 years with 254 (18.21%) cases, time period 16-20 years with 149 (10.68%) cases, time period 20-25 years with 61 (4.37%) cases, time period up to 1 year with 46 (3.30%) cases and time periods 26-30 years with 31 (2.22%) cases, while the lowest percentage of prosthetic appliances present in the age group 30 and over years with 16(1.15%) cases.

The statistical significance of the results of the table in question regarding the percentage of prosthetic appliances present by time period is important and not random, since the value of the test- t = 8.36 and the value of the probability coefficient p <0.01.

Table 2. Prosthetic appliances present according time period

Time period	Number	Percent
Up to 1 year	**46**	**3.30%**
1-5 years	**254**	**18.21%**
6-10 years	**554**	**39.71%**
11-15 years	**284**	**20.36%**
16-20 years	**149**	**10.68%**

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21-25 years	**61**	**4.37%**
26-30 years	**31**	**2.22%**
31 end over years	**16**	**1.15%**
Total	**1395**	**100%**
	T= 8.36	**p<0.01**

Discusion

The success of prosthetic rehabilitation is the shared responsibility between the clinician and the patient.23 This implies correct diagnosis, correct treatment planning and careful execution of the work together with patient education, the initial step in management and which continues throughout the treatment and maintenance stages.

Of the total number of patients with prosthetically treated dental systems (915), the results of graph 1 showed that the percentage of males was 51%, while that of females was 49%. Eduardo P. Pellizzer et al., [24] from their study give us data that the percentage of prosthetic treatment of permanent dental arches is 64.1% in females and 35.9% in males. Authors Intisar J. Ismail, Basima M.A. Hussein [25], from theyr study gave higher percent for females with 59.1% opposite males with 40.9%. The author Shaqiri [26] in his study on fixed metal-ceramic prosthetic appliances and the frequency of the color spectrum gives results that out of a total of 156 patients with fixed metal-ceramic works, 65.38% belong to the male gender, while 34.62% belong to the female.

The results of graph 2 showed that the percentage of prosthetically treated dental systems in the maxilla was 58%, while in the mandible 42%. Eduardo P. Pellizzer et al., [24] point out that the percentage of prosthetically treated permanent dental arches in their study is higher in the mandible (78.4%) than in the maxilla (56.5%). According authors Intisar J. Ismail, Basima M.A. Hussein, [25] in every age group of maxillary RPDs approximately the same percentages present when comparing males and females, while as a whole females presented higher percentages than males in wearing RPDs (64.8% and 35.2%) respectively.

Regarding prosthetic rehabilitated dental systems by age groups, the results of table 1 showed that the 60-69 age group is the one that has the highest percentage of prosthetically rehabilitated dental systems, even 31.04%, compared to aged 20-29 years which has the lowest percentage of prosthetically rehabilitated dental systems, with only 8.31%. In this regard, many authors in their studies have reached different results. Thus the author Nevalainen [27] states that, in patients with prosthetically treated dental arches, 25% had combinations of fixed and mobile dentures. The same author gives results that, 45% of patients with prosthetically treated dental systems had fixed crowns including the abutment crowns of fixed dental bridges. Eduardo P. Pellizzer et al., [24] from their study give us data that the percentage of prosthetic treatment of permanent dental arches is higher in the age group 51–60 years with 35.40%, while a lower percentage have encountered age group 20–3 years with 00.70%.

In 1608 patients examined by his study, the author Koçi N. [12], a higher percentage of partial prosthesis was encountered in the age group over 60 years in 34.6% of cases, while a lower percentage of partial prosthesis found in the age group 15-19 years only 5.3%, while the author May et al. [28], in their study on oral health of the Pakistani population, states that in the age group 35-44 only 5% had prostheses. While in the age group 65 years and above only 17% of the examined had some kind of dental prosthesis.

Partial toothless prosthetically treated in patients aged 60 and over, author Abud et al. [29], in their study encountered 9.5% of cases. Toti et al. 13, from their study in patients aged 16 years and older have found partial toothless that have been prosthetically treated in 20% of cases. The author Shaqiri [30] in his study in the contingent of patients aged 20 years and over, found male patients with fixed metal-ceramic appliances in 62.25% of cases, and female patients with fixed metal-ceramic appliances in 37.75% of cases.

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Bukleta et al., [31] in their study gave results concerning the age group that in the 35+ year-old population, the proportion of the population treated with new ARPDs was 0.23%. The proportion gradually increased with the increasing age of recipients of dentures up to the 75+ age group, and a decrease was detected in the 75+ age group. According to J Chamoko, S Khan., [32] the most common outcome recorded for this cohort is the number of 'remakes' of RPDPs, especially for those patients in the age category 65-74 and 75 years and above. No remakes were reported for individuals aged 25-34 years

The results in table 2 show the number and percentage of prosthetic appliances present by time period. From here it is clear that the time period 6-10 years has a larger number and higher percentage of prosthetic appliances in that 554 (39.71%) cases, while the lowest percentage of prosthetic appliances present in the age group 30 and over years, only 16(1.15%) cases. Nevalainen [27] talks about 8% of full prostheses over 50 years old, while most of the 75% prostheses were less than 20 years old. The authors Keraj F, et al., [33] from their study report that in 57.5% of the examined cases they encountered prosthetic appliances up to one year, while in 42.5% of cases with prosthetic appliances more than one year.

Based on the obtained pre-clinical and clinical data, from our study on the frequency of prosthetically treated permanent dental arches, as well as based on their analysis, processing and presentation, we have reached the following conclusions:

1. Males and females value oral health and show almost identical care for the prosthetically treated of their dental arches.

2. Prosthetic treatment in a higher percentage of the maxillary dental arch shows the importance that patients pay to aesthetics.

3. Differences between the results of different authors regarding dental systems rehabilitated with partial prosthetic appliances, according to age groups, can be described to: variations during the planning of the study process, excessive representation of certain age groups, and types of prosthetic appliances which may have an impact on the examined contingent.

4. Prosthetic appliances in general, due to the action of biological and mechanical forces, as a result of their damage, negative action on the teeth and the supporting apparatus, as well as on the surrounding soft tissues and ridges, should be repeated every 5- 7 years

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