

Original Article

Patients with permanent dentition treated with one partial prosthetic appliance

SHERIF SHAQIRI ^{1,2*}, KALTRINA BEQIRI¹

¹CLINIC FOR PROSTHODONTICS

“PROTETIKA AG”- TETOVA

²STUDY PROGRAM FOR DENTISTRY, FACULTY OF MEDICAL SCIENCES, UNIVERSITY OF TETOVA

Correspondence Author

Dr. Sherif. SHAQIRI

dr.sherifshaqiri@yahoo.com

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Abstract

Aim: The aim of our study is to evaluate dental defects and determine the presence and frequency of partial prosthetic appliances in examined patients, by gender, jaw and type.

Material and methods: For this purpose in the period 2015-2020, 1785 patients were examined where 52.83% of them were male, while 47.17% were female. The age of the examinees was from 13 to 82 years, with an average age of 48.2 years.

Through intra-oral examination, the type and material of the existing prosthetic appliances were determined as well as their localization according to gender and jaws. The data obtained were entered into patient records using a modified oral health assessment form according to the World Health Organization, adapted and modified to the nature of our research. Descriptive statistical method was used for processing the results, while data distribution is indicated by percentages.

Results: Of the total number of patients (420), females participate in 53% of cases, while males in 47% of cases. The maxilla in 71% of cases absolutely dominates over the mandible which has 29% of cases. Patients with one prosthetic work in 61% of cases have fixed bridges, followed by removable prostheses in 21% of cases and fixed crowns in only 18% of cases.

Conclusion: 1. The difference in per cent by results of different authors concerning the existing of one partial prosthetic appliance by our treated patients can be explained with different standards which exist in different countries from which came authors and studies.

2. Proper assessment of dental condition, tooth position, preparation of retention teeth, adaptive structures within the partial removable denture, patient education, timely check-ups and maintenance are just some of the steps required for success.

3. Treatment with partial removable dentures should ideally result in improved overall oral health, patient satisfaction, and compliance.

4. The choice of prosthetic treatment modality is mainly determined by the patient's expectations, needs, social aspects, economic consequences and educational level, as well as general health condition, oral functions, aesthetic benefits, prognosis of remaining teeth, related risks with periodontal disease, caries progression, and patient motivation to maintain oral hygiene.

Key words: Permanent dentition, prosthetic appliances, partial dentures, jaws

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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. The mouth not only serves in the initial processing of food, but also participates in the process of respiration and phonetics, as well as in it are also the senses of taste.^{1,2,3,4} All tissues, which participate in the function of chewing and swallowing, breathing, articulation of sound and production of saliva form the stomatognathic system.¹ This system is composed of a series of elements where the primary role is played by teeth, periodontium, alveolar ridge of upper and lower jaw, temporomandibular joints, chewing muscles and other muscles, parts of the nervous system, blood and lymph vessels, salivary glands, oral mucosa, etc.^{1,5,6,7}

Teeth as part of the masticatory system play an important role in maintaining the positive self-image of each individual, while their loss results in significant disabilities which can hinder and have a profound negative impact on social activities. The loss of one or more teeth is quite traumatic and shocking and is considered a serious life event that requires significant social and psychological correction.^{8,9,10,11} Tooth loss in general, or the loss of all teeth, known as complete edentulism weakens the quality of life and affects the way patients behave in society, the mood and understanding of care.^{12,13,14,15}

The condition of partial and especially complete edentulism causes, in addition to the morphological

changes of the neuromuscular apparatus, also comprehensive changes in the functioning of the masticatory muscles, consequently the chewing changes in essence, as well as promotes the appearance of psychological disorders.^{16,17}

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.^{12,18,19,20} Direct causes are oral diseases, primarily caries and periodontitis, which are present and accompany mankind today.^{20,21}

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 human psyche, as well as forcing the patient to seek the help of the dentist for the repair of teeth. In this case, the prosthetic dentist is the one who through oral rehabilitation should repair the disordered dental system in these patients.^{20,21}

Missing teeth can be replaced with prosthetic appliances that would improve the patient's condition and ability to chew, while in partial edentulism they will preserve the health and integrity of the dental systems, and in most cases undermine patients' self-confidence.²²

The purpose of our study is, through the data obtained from clinical examinations in the population of Tetova and its surroundings, to assess dental defects and to determine the presence of

partial prosthetic appliances in the examined patients, evaluating the frequency of prosthetic appliances in the oral cavity according to: - gender - jaw and - type

Material and methods

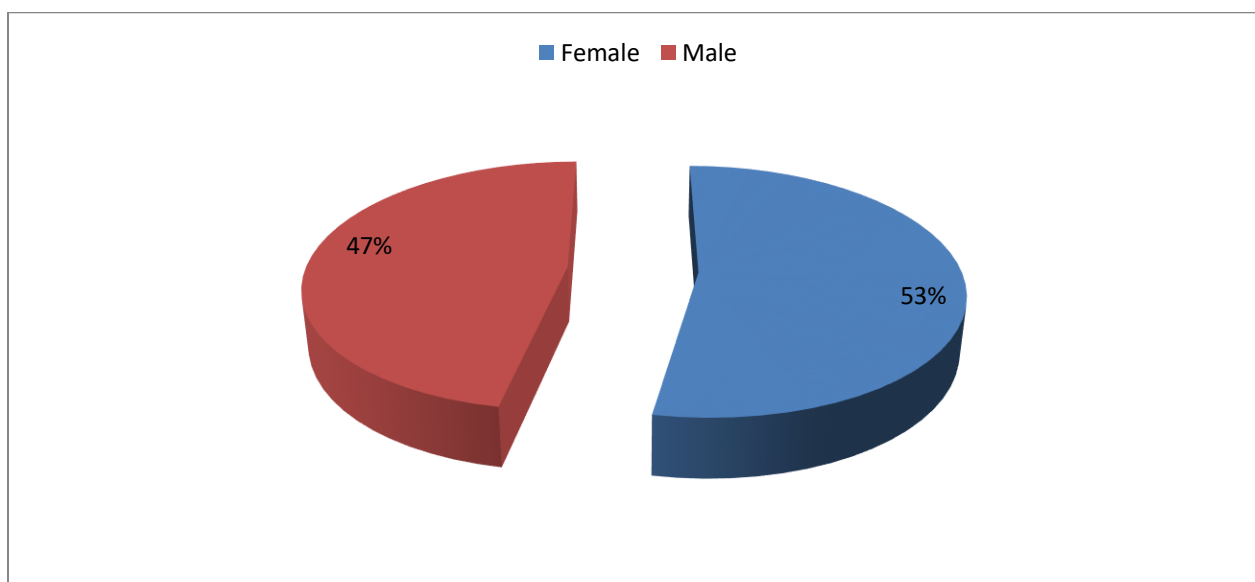
For this study were continuously followed the data obtained from patients of the city of Tetova and its surroundings, examined in the specialist dental clinic "Protetika Ag" in Tetova. For this purpose in the period 2015-2020 were examined 1785 patients who have come to our clinic expressing their complaints related to the stomatognathic system. From this group 52.83% of them were male patients while 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.

Intra-oral clinical examination was performed by means of dental mirror and probe in optimal

conditions of natural light. Through intra-oral clinical examination, the type and material of the existing prosthetic appliances were determined as well as their localization according to gender and jaws. The data obtained were entered into patient records using a modified oral health assessment form according to the World Health Organization, adapted and modified to the nature of our research. Descriptive statistical method was used for processing the results, while data distribution is indicated by percentages.

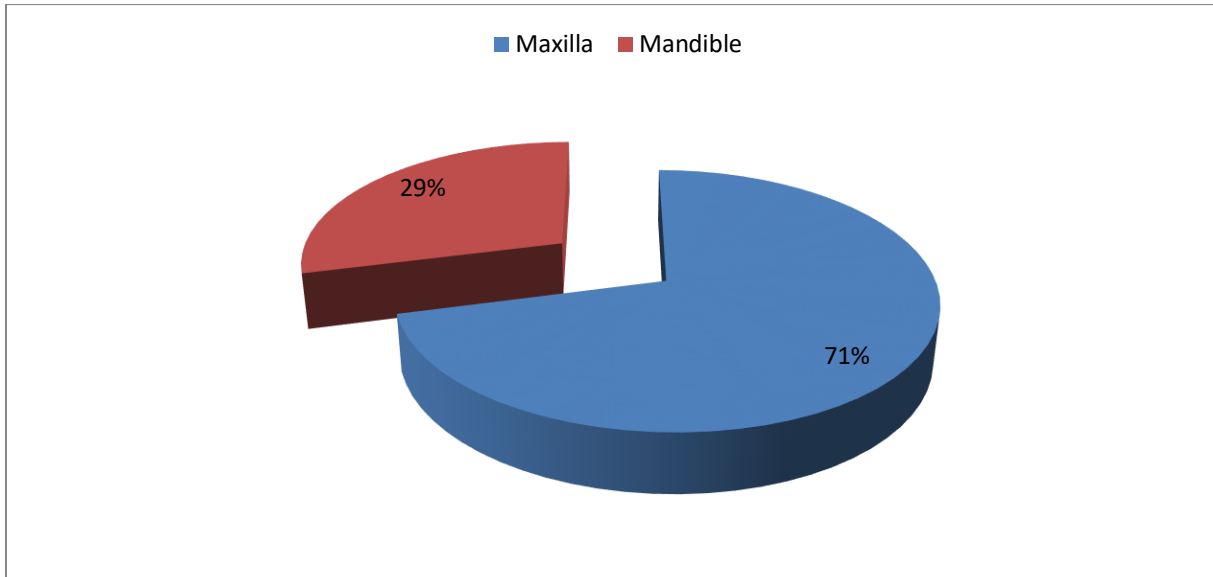
Results

After compiling, analyzing and elaborating the data from the patients' cards, as well as after the statistical processing, the presentation of the obtained results was approached as follows: Graph 1 presents the results by gender for patients with one partial prosthetic appliance, which shows that from the total number of patients (420), the female gender with 53% of cases dominates over the male gender which has 47% of cases.



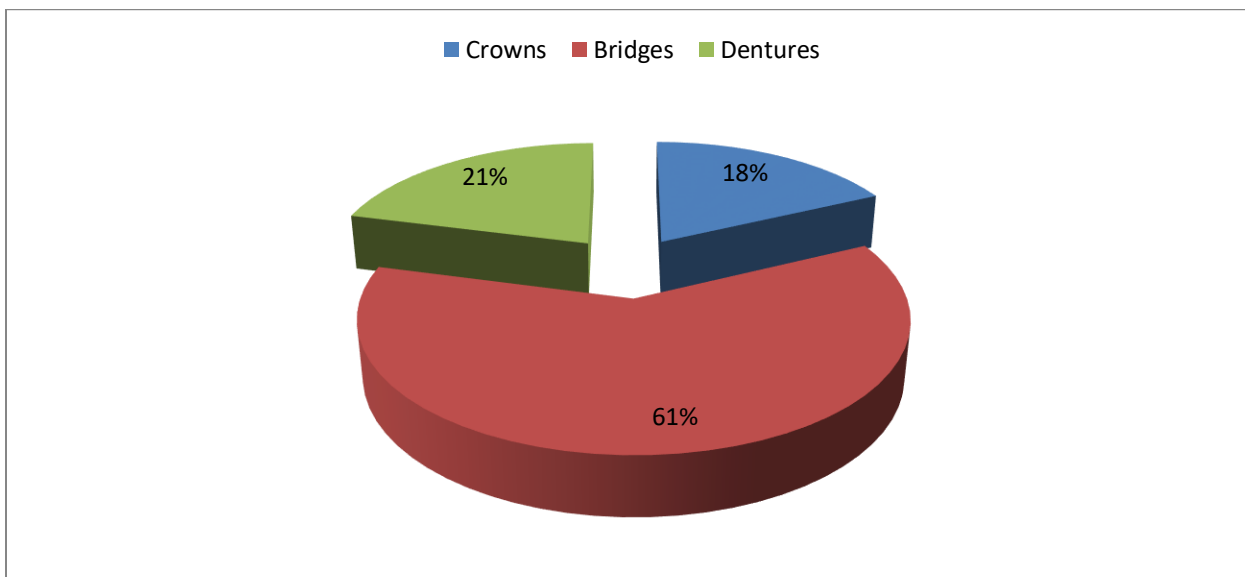
Graph 1.Patients with one partial prosthetic appliance by gender

Graph 2 presents the results according to the jaw for patients with one partial prosthetic appliance, where it is seen that the maxilla in 71% of cases absolutely dominates over the mandible which has 29% of cases.



Graph2. Patients with one prosthetic appliance by jaws

Concerning the type of partial prosthetic appliance, the results of graph 3 shows that patients with one prosthetic appliance in 61% of cases have fixed bridges, followed by removable partial dentures in 21% of cases and fixed crowns in only 18% of cases.



Graph3. Patients with one prosthetic appliance by tipe

Discussion

As we saw from the results of graph 1, the presence of one prosthetic appliance is in the highest number in females with 224 cases, while in the lowest number in males with 196 cases. Regarding the results according to the jaws for patients with one partial prosthetic appliance, in graph 2 we saw that the maxilla with 299 cases absolutely dominates over the mandible which participates with 121 cases. Author Lee et al.,²³ out of 1187 studied subjects have found in 6.1% of cases the existence of one prosthetic appliance of any kind. Similarly, Akar et al.,²⁴ in their study on the assessment of oral health status and dental plaque in the Turkish student population of Ege University-excluding students enrolled in the Faculty of Dentistry, out of a total of 308 students examined, by 3.57% of them found any fixed prosthetic appliance on one of the jaws.

In the Primary Health Centers of the three regions of Kosova, Selmani Bukleta et al,²⁵ have found that during the years 2002-2013, 9,478 patients received 16,056 removable prostheses, of which 2,306 (24.3%) patients received only acrylic removable partial denture. Authors J Chamoko and S Khan²⁶ in their study entitled “Outcomes of mandibular Kennedy Class I and II prosthetic rehabilitation - An observational study”, found that during the period January 2011 to June 2017, 335 partial mobile prostheses were made for the lower jaw. Of these, 160 were partial acrylic resin prostheses and 175 were partially skeletal (*cobalt-chrome*) prostheses.

Andreza Maria de Oliveira Filgueiras et al,²⁷ in their study entitled “Prevalence of oral lesions caused by removable prosthetics”, regarding the type of removable prostheses emphasize that the partial upper prosthesis was present in 15 patients (8%) and 2 patients(1%) used both upper and lower partial prosthesis, while 26 patients (12%) used only partial lower prosthesis.

Regarding the type of partial prosthetic appliance, the results of Graph 3 showed that patients with one prosthetic appliance in 254 cases had fixed bridges, followed by removable prostheses with 89 cases and fixed crowns with only 77 cases.

Out of a total of 3.57% of patients with fixed prosthetic appliances from the study of the author Akar et al.,²⁴ in 72.7% have encountered metal-ceramic crowns, in 18.2% metal-resin crowns and in 9.1% fiber-reinforced crowns. Similarly, Abud et al.,²⁸ from their study derive results for patients with one prosthetic appliance according to the following type: fixed bridge 1.8%, partial removable dentures 3.5%. Authors Fayyad and Al-Rafee,²⁹ also point out that partial fixed metal-ceramic prostheses are the most commonly used form of appliance by patients. Selmani Bukleta et al,²⁵ in their study entitled “The frequency of prosthetic treatment with full and partial removable prostheses in primary health centers in three different regions of Kosova during the years 2002 – 2013” have found that: 9,478 patients received 16,056 mobile dentures, of which 2,306 (24.3%) patients received only partial acrylic

resin dentures, and 1,042 (11.0%) patients received both full and partial acrylic dentures.¹⁸

Enabulele JE, Omo J, in their study entitled “Socio-Demographic Distribution of Patients with Fixed Dental Prosthesis in a Developing Economy”, emphasize that the majority (66.8%) of patients were equipped with fixed prosthetic appliance with single units, while 33.2% were equipped with fixed prosthetic appliances with multiple units. The majority (80.5%) of patients were treated with crowns, while 19.5% were provided with partial fixed prostheses.³⁰

Conclusion

Based on the clinical data obtained from our study on prosthetic problems in patients with permanent dentition in the Tetova population and its surroundings, as well as on the basis of their analysis, processing and presentation we have come to the following conclusions:

1. The difference in per cent by results of different authors concerning the existing of one partial prosthetic appliance by our treated patients can be explained with different standards which exist in different countries from which came authors and studies

2. Proper assessment of dental condition, tooth position, preparation of retention teeth, adaptive structures within the partial removable denture, patient education, timely check-ups and maintenance are just some of the steps required for success.

3. Treatment with partial removable dentures should ideally result in improved overall oral health, patient satisfaction, and compliance.

4. The choice of prosthetic treatment modality is mainly determined by the patient's expectations, needs, social aspects, economic consequences and educational level, as well as general health condition, oral functions, aesthetic benefits, prognosis of remaining teeth, risks related to periodontal diseases, caries progression, and patient motivation to maintain oral hygiene.

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