Khalij-Libya Journal of Dental and Medical Research
http://journal.khalijedental.com.ly/ eISSN:2708-888X

Original article

Tooth Loss and Prosthesis Replacement at El-Koms City

Hussein Abuzgyaia

Department of Removable Prosthodontics, Faculty of Dentistry, Al Marqab University, Libya.
Corresponding Email: h.abuzgyaia@gmail.com

ABSTRACT

Background and objective. Loss of at least one tooth disturbs the structural balance of the remaining natural teeth and may result in widening of proximal contacts, and other deformities. The proportion of full and partial edentulous people, as well as their prosthetic therapy, were investigated El-Koms city **Methods**. Patient demographics, the percentage of partial and completely edentulous patients, and their prosthetic treatment were collected at four dental clinics. Health services. Ministry of Health in El-Koms city. The study was approved by the prosthodontics department, Faculty of Dentistry, University of Al Marqab. In 2020, a total of 1000 people were assessed in four dental clinics, with 472 individuals being chosen as part of the sample study group. Patients were chosen based on their age, which ranged from 25 to 75 years old, and their dental records. **Results** The majority of the study participants (n = 472) had missing teeth as follows: 27 patients are completely edentulous, 36 patients having a single edentulous arch, 348 patients being partially edentulous, and 61patients having no missing teeth. Edentulous jaws were correlated statistically significantly with age, being more common in older age (*p* value 0.03). Males had a higher percentage of missing teeth than females, and as people got older, edentulous persons grew increasingly common. In both jaws, Class III partial edentulous people were the most common. **Conclusion**. There is a high demand for prosthodontic treatment. The incidence of edentulous patients in Libya, as well as predisposing factors, are both unknown.

Keywords: Partial Edentulous, Kennedy's Classification, Tooth Loss.

Citation: Abuzgyaia H. Tooth Loss and Prosthesis Replacement at El-Koms City. Khalij-Libya J Dent Med Res. 2022;6(1):17–23. https://doi.org/10.47705/kjdmr.216104
Received: 20/09/21; **accepted**: 27/12/21; **published**: 31/12/21

INTRODUCTION

Tooth loss has long been assumed to be caused by teeth caries and their supporting tissues disease [1,2]. Individual contentment is largely influenced by oral health [3]. Loss of at least one tooth disturbs the structural balance of the remaining natural teeth and may result in widening of proximal contacts, teeth migration, food impaction, bone resorption, occlusal impedances, loss of facial vertical dimension, altered mastication, interior overloading temporomandibular disorder with para-functional activities, adjusted phonetics, aesthetics, style and mental issues like

influenced confidence and confidence [4]. Patients who are mostly edentulous exhibit a wide range of actual variety and health conditions, that lead to poor esthetics, which can affect personal pleasure [5]. Several investigations of partially edentulous individuals treated with removable prosthesis revealed that the number of complete dentures is decreasing while the number of partial dentures is increasing. This advancement revolutionized the dental treatments available, allowing for the preservation of natural teeth and a reduction in the number of cases requiring complete dentures [6]. Edentulous arches (partial or complete) are an essential indicator of dental health in a community [7]. Missing one tooth or more usually produce an edentulous area in the dental arch [8]. Edentulous arches also reflected the preventive dental treatment supported in populations. The partial denture replacement of missing teeth needs to reestablish the function [9]. The percentage of patients who are partially edentulous is a challenging indicator of the frequency of dental defects and the success or failure of dental treatment. This structures a foundation for the assessment of treatment needs [10]. When lost teeth are replaced by a new prosthesis, the classification of partially edentulous patients is essential in order to communicate about the oral cavity's health, as well as partial denture design [11,12]. There are many classifications of the partial edentulous arches. Kennedy's category is currently the most widely utilized and accepted since it allows for immediate visualization and separation [13]. The number of missing teeth varied based on the kind of arch, according to a review of the literature the maxilla had more missing teeth than the mandible, and posterior teeth loss frequently occurred before anterior teeth loss [14,15]. According to McDarment the incidence of edentulous partial arches is higher prevalence in men than in women [16]. Teeth loss has a major negative influence on patient's quality of life [17]. Speech, aesthetics, and mastication, as well as social dysfunction, are all affected [18]. It also has a negative impact on the patient's mental health. Due to the loss of an important portion of the body and a damaged self-image, it may cause sadness and low self-esteem [18].

Dental caries and teeth support tissues diseases, which are the most prevalent causes of tooth loss, can produce edentulous [19]. Other elements, such as the quality of the food are also significant. Dental health services, socioeconomic class, educational level, smoking, geographic location, and oral health services are all linked to edentulousness and play a role in its prevalence [11,17,20].

Edentulousness has been reported to grow with age [17,20], presumably due to physical limitations that arise as people age. Furthermore, the frequency of general and dental illnesses increases with age, contributing to edentulous [20]. Several studies have looked into the prevalence of edentulous in relation to gender. Females have been observed to have a greater edentulous rate than males [20, 23]. Increased rates of tooth decay and soft tissue illness, as well as other social and economic variables, are most likely to blame [23]. Males, on the contrary, have been demonstrated in earlier studies to have a higher rate of edentulous [21,22]. Edentulous prevalence has been used to evaluate the effectiveness of oral health treatments and to reflect the oral health of a population [25]. It has been examined in a number of nations for decades [20, 25].

As a result of improved oral health care, the patient's account who are edentulous has decreased, particularly in Western countries [25]. However, it is still prevalent in several other nations [25,26]. As the global population ages, more people are expected to be edentulous [18]. Many patients still prefer traditional removable dentures for medical and/or financial reasons, despite the rising use of dental implants to support dental prostheses. The availability of dental treatments, as well as patients' educational, financial, and social standing, influence their desire to replace lost teeth [27, 28].

Prosthodontics care is in high demand. There is a limited of information on the prevalence of edentulous in Arabic countries, as well as the

variables that contribute to it. The percentage of totally and partially edentulous patients at El-Koms, which included patients from four clinics at the University of Al Marqab, Faculty of Dentistry, was studied, as well as their prosthetic treatment. In Libya, the incidence of edentulous persons and predisposing factors are unclear. The findings resulted the percentage of totally and partially edentulous people, as well as their prosthetic therapy at the Department of Prosthodontics, Faculty of Dentistry, and university of Al Marqab. The association between lost teeth and age, as well as gender, was investigated in this study. A considerable portion of the study group would be edentulous, according to the current study's hypothesis.

METHODS

Patient demographics, the percentage of partial and completely edentulous patients, and their prosthetic treatment were collected at four dental clinics. Health services. Ministry of Health in El-Koms city. The study was ethically approved by the prosthodontics department, Faculty of Dentistry, University of Al Marqab.

In 2020, a total of 1000 people were assessed in four dental clinics, with 472 individuals being chosen as part of the sample study group. Patients were chosen based on their age, which ranged from 25 to 75 years old, and their dental records Patients with only one missing last molar, teeth that had not erupted or were congenitally missing, or missing teeth that required extraction were excluded from the study. Men were involved in 309 of the instances, whereas women were involved in 163. They were 25 to 75 years old on average, with a median age of 46.3. The number of participants who had a single edentulous arch, as well as their edentulous status, were counted (maxillary or mandibular). The Kennedy classification system was used to divide the number and position of edentulous areas [15]. The patients' dental records were examined, and their gender and age were documented. Partial dentures (PD), fixed bridges (FB), or both were considered for the partially edentulous patients' final prosthetic therapy. The percentage of subjects who were edentulous arches had one edentulous arch, or were partially tooth loss was assessed in the study group. The lost teeth were also investigated using SPSS to see if there was a link between the gender or age of the patient and the number of lost teeth. The statistical significance of prosthodontics treatments administered to patients with distinct Kennedy classes of missing teeth was determined using chi-square test; each jaw was discovered to have its relevance.

RESULTS

The majority of the study participants (n = 472) had missing teeth as follows: 27 patients are completely edentulous, 36 patients having a single edentulous arch, 348 patients being partially edentulous, and 61patients having no missing teeth (Figure 1).

Edentulous jaws had a statistically significant relationship with age, with older people having more of them (p value 0.03). All of the totally edentulous patients, as well as the majority of those with a single edentulous jaw, were between the ages of 45 and 75. (Table 1). The patients who were entirely edentulous were on average 61.2 years old, while the others (n = 445) were 45.1 years old. There was no link between entire edentulous arches and the gender of the patients.

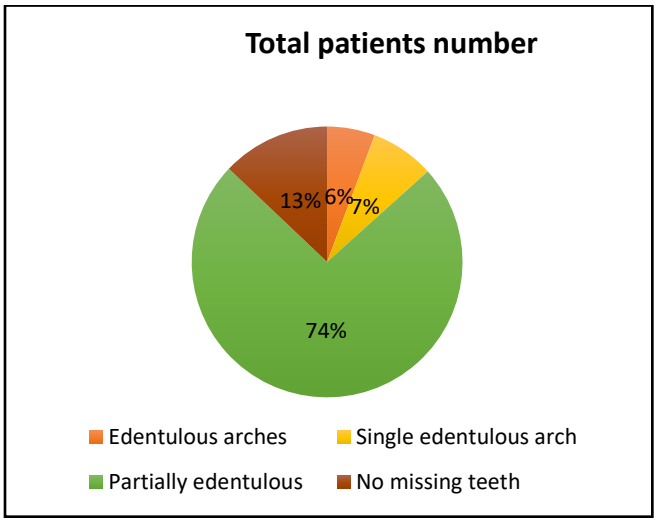

Figure 1: Patients distribution (Four groups).

Complete edentulous in a single jaw was shown to be substantially greater (p value 0.025) in the maxilla (5%) than in the (1%), and higher in males (68.3%) than females (29.75 percent). Men had a higher rate of edentulous status than women (Figure 2).

Table 1: Number of missing teeth by age groups in partially edentulous patients (n = 348)

Missing teeth	Age					Total
	25 – 35	36 - 45	46 - 55	56 - 65	66 - 75	
1–5	69	52	46	19	7	193
6–10	15	16	25	19	5	80
11–15	4	13	15	10	6	48
16–20	3	3	5	4	5	20
21–25	1	0	2	2	0	5
26–30	0	0	2	0	0	2
Total	92	84	95	54	23	348

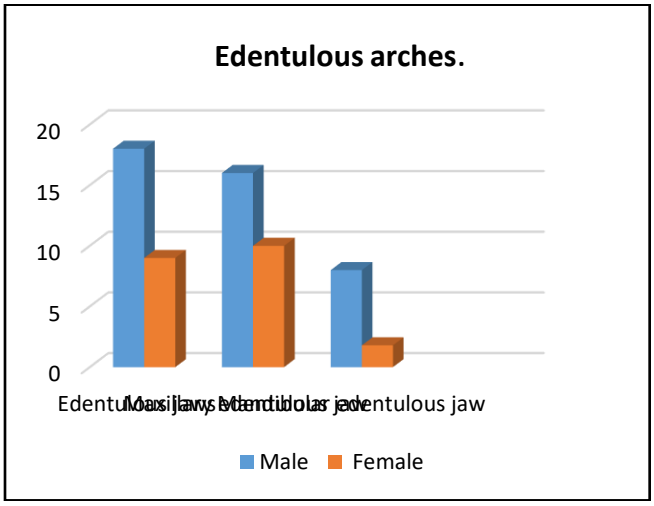

Figure 2: Edentulous arches in relation to patients' gender.

The total number of lost teeth was significantly higher among males ($p < 0.03$) than among females (Table 2). Partial edentulous arches, Kennedy class III, was most usual in single and/or both jaws (p value 0.000) (Figure 3).

Table 2: Partially edentulous patients (n = 348) treated to gender,

Gender	Missing teeth						Total
	1–5	6–10	11–15	16–20	21–25	26–30	
Male	137	41	25	15	4	0	222
Female	57	39	21	7	1	1	126
Total	194	80	46	22	5	1	348

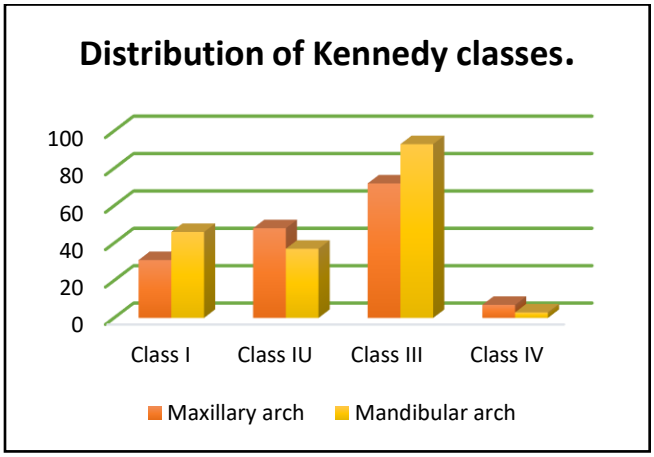

Figure 3: Distribution of Kennedy classes in maxillary and mandibular jaws in patients (n = 348):

DISCUSSION

In the study group, the proportion of edentulous patients was 6%, which is significantly lower than earlier studies [20]. Patients treated in a faculty hospital or dental clinic have a higher rate of edentulous arches, ranging from 13 to 17 percent [22]. In Europe, patients who are edentulous has reduced significantly [17,20]. However, only a few research in the Arabic region have looked at the incidence of edentulous patients and related characteristics [22,27].

The fact that the study's age range (20–95 years) included patients of all ages, as opposed to earlier studies that predominantly included middle-aged and elderly patients, could explain the lower number of edentulous patients in the study group. It's possible

that it's due to the smaller sample size compared to survey research. Despite changes in sample size and selection, the results are similar to those of other population-based investigations [30]. In Mexico, 6.3 percent of people over the age of 18 are edentulous [31]. Similar to the findings of this study [32], it was also shown that 5% of persons in the UK aged 55 to 64 are edentulous, and 15% of those aged 65 to 74 are entirely edentulous. Furthermore, between 2009 and 2012, the prevalence of edentulous people among US adults aged 15 and up increased to 4.9 percent [30].

In certain African countries, the proportion of people who are edentulous is substantially lower [33]. The study found that the frequency of people who are edentulous rises as they get older [34]. Tooth loss has been connected to the aging process [35]. This can be caused by a variety of circumstances, including a loss of ability to maintain oral hygiene owing to systemic disorders or functional limits [36]. This paper showed, men had a higher percentage of edentulous arches than women. This result is a similar result to a recent investigation [36]. When it came to partially edentulous individuals, men had significantly more missing teeth than women. Despite evidence that women had a larger proportion of edentulous arches, men were more likely than women to lose teeth, according to a study done in South America [23].

Kennedy's class III was discovered to be the most common class in the maxilla and mandible, as well as both jaws combined, in the current study. Previous research has found similar results [34,37]. This study discovers the percentage of partial and totally edentulous jaws, in addition to the prosthetic treatment of partially edentulous patients at dental clinics, and the association between tooth loss, age, and gender, to the best of the author's knowledge. The current study's sample, however, does not represent the population of all El-Koms districts because it included patients seeking treatment at four clinics run by the Faculty of Dentistry at the University of Al Marqab.

Nonetheless, it could serve as a springboard for further investigation. It also contains information on the most often used partial denture prosthetic therapy, which is beneficial to educational institutions. In addition, a number of prior research looked at the rate of edentulous patients and their characteristics among those who were treated [22,24]. The sample size in this study was 472 patients, which is similar to prior studies [24]. Patients varied in age from 25 to 75 years old, which is substantially younger than most previous research that focused on the prevalence of edentulous people.

However, because the sample only comprises individuals treated at four clinics, it is not representative of the overall population. A larger sample of the entire population of all El-Koms regions will be required in the future.

CONCLUSIONS

Phonetics, mastication, and esthetics are all affected by missing teeth. To regain these abilities, removable partial denture replacement is frequently required. Males had a higher percentage of missing teeth than females, and as people got older, edentulous persons grew increasingly common. Class III partial edentulous persons were the most common in both jaws. The most removable partial dentures were found in patients with upper and lower jaw classes I and/or II, whereas the fewest were found in patients with classes III and IV.

Disclaimer

The article has not been previously presented or published, and is not part of a thesis project.

Conflict of Interest

There are no financial, personal, or professional conflicts of interest to declare.

REFERENCES

1. Kida IA, Astrøm AN, Strand GV, Masalu JR. Clinical and socio-behavioral correlates of tooth loss: a study of older adults in Tanzania. BMC Oral Health. 2006 Mar 15;6:5. doi: 10.1186/1472-6831-6-5.
2. Savage K, Ayanbadejo P. Pattern of Exodontia Treatment Need Adults Attending the Lagos University Teaching Hospital Dental Clinic. Nig Ot J Hosp Med. 2005;15(2):106-109.
3. Shah N, Parkash H, Sunderam KR. Edentulousness, denture wear and denture need of Indian elderly – a community-based study. J Oral Rehabilitation. 2004; 31(5): 467-76.
4. Owall B, Kayser AF, Carlsson GE. Prosthodontics Principles and Management Strategies 2nd ed. 2004
5. McGarry TJ, Nimmo A, Skiba JF, Ahlstrom RH, Smith CR, Koumjian JH, Arbree NS. Classification system for partial edentulism. J Prosthodont 2002;11(3):181-193.
6. Harvey WL, Hoffman W Jr. Ten-year study of trends in removable prosthodontic service. J Prosthet Dent 1989;62(6):644-646
7. Jeyapalan V, Krishnan CS. Partial Edentulism and its Correlation to Age, Gender, Socio-economic Status and Incidence of Various Kennedy's Classes-A Literature Review. J Clin Diagn Res. 2015 Jun;9(6):ZE14-7.
8. Ehikhamenor E, Oboro H, Onuora O, Umanah A, Chukwumah N, Aivboraye I. Types of removable prostheses requested by patients who were presented to the University of Benin Teaching Hospital Dental Clinic. Journal of Dentistry and Oral Hygiene. 2010;2(2);15-18.
9. Abdel-Rahman H, Tahir C, Saleh M. Incidence of partial edentulism and its relation with age and gender. Zanco J Med Sci. 2013; 17: 463-70
10. Prabhu N, Kumar S, Sauza M. Partial edentulousness in a rural population based on Kennedy's classification: an epidemiological study. J Indian Prosthet Soc. 2009;9:18-23
11. Miller EL. Systems for classifying dentulous arches. J ProsthetDent 1970;24(1):25-40".
12. Stratton R, Wiebelt F. An atlas of removable partial denture design. Chicago, Illinois: Quintessence Publishing Co. Inc; 1988.
13. Rasoul A, Ahmedian L, Sharifi E. A simplified classification system for partial edentulism: A theoretical explanation. J Indian Prosthodontic Soc 2007; 7: 85-87.
14. Carr A, McGivney G, Brown D. McCracken's removable partial Prosthodontics. 11 ed. Elsevier Mosby. 2005: p 20.
15. Nallaswamy D. Textbook of Prosthodontic. Glossary of Prost-hodontic Terms. 1st ed Jaypee, India. 2007, p 745-829.
16. Hoover JN, McDermott RE. Edentulousness in patients attending a university dental clinic. J Can Dent Assoc 1989; 55(2): 139-40.
17. Polzer I, Schimmel M, Müller F, Biffar R. Edentulism as part of the general health problems of elderly adults. Int Dent J. 2010 Jun;60(3):143-55.
18. Øzhayat EB, Åkerman S, Lundegren N, Öwall B. Patients' experience of partial tooth loss and expectations to treatment: a qualitative study in Danish and Swedish patients. J Oral Rehabil. 2016 Mar;43(3):180-9.
19. Bouma J, Uitenbroek D, Westert G, Schaub RM, van de Poel F. Pathways to full mouth extraction. Community Dent Oral Epidemiol. 1987 Dec;15(6):301-5.
20. Haikola B, Oikarinen K, Söderholm AL, Remes-Lyly T, Sipilä K. Prevalence of edentulousness and related factors among elderly Finns. J Oral Rehabil. 2008 Nov;35(11):827-35.
21. Eustaquio-Raga MV, Montiel-Company JM, Almerich-Silla JM. Factors associated with edentulousness in an elderly population in Valencia (Spain). Gac Sanit. 2013 Mar-Apr;27(2):123-7.
22. Hoover JN, McDermott RE. Edentulousness in patients attending a university dental clinic. J Can Dent Assoc. 1989 Feb;55(2):139-40.
23. Russell SL, Gordon S, Lukacs JR, Kaste LM. Sex/Gender differences in tooth loss and edentulism: historical perspectives, biological factors, and sociologic reasons. Dent Clin North Am. 2013 Apr;57(2):317-37.
24. Al-Ghannam N, Khan N, Al-Shammery A, Wyne A. Trends in dental caries and missing teeth in adult patients in Al-Ahsa, Saudi Arabia. Saudi Dental Journal. 2205;17;57–62.
25. Thomson WM. Monitoring Edentulism in Older New Zealand Adults over Two Decades: A Review and Commentary. Int J Dent. 2012;2012:375407.

26. Petersen P. The World Oral Health Report 2003: continuous improvement of oral health in the 21st century—the approach of the WHO Global Oral Health Programme," Community Dentistry and Oral Epidemiology, vol. 31, supplement s1, pp. 3–24, 2003.
27. Al-Dwairi ZN. Complete edentulism and socioeconomic factors in a Jordanian population. Int J Prosthodont. 2010 Nov-Dec;23(6):541-3. PMID: 21209990.
28. Hamdan E, Fahmy M. Socioeconomic factors and complete edentulism for female patients at King Saud University, Riyadh, Saudi Arabia. Tanta Dental Journal. 2014;11(3):169–173.
29. Carr A, Brown D. Mccracken's Removable Partial Prosthodontics, Elsevier Health sciences, 2015.
30. Slade GD, Akinkugbe AA, Sanders AE. Projections of U.S. Edentulism prevalence following 5 decades of decline. J Dent Res. 2014 Oct;93(10):959-65. doi: 10.1177/0022034514546165.
31. Medina-Solís CE, Pérez-Núñez R, Maupomé G, Avila-Burgos L, Pontigo-Loyola AP, Patiño-Marín N, Villalobos-Rodelo JJ. National survey on edentulism and its geographic distribution, among Mexicans 18 years of age and older (with emphasis in WHO age groups). J Oral Rehabil. 2008 Apr;35(4):237-44.
32. Steele JG, Treasure ET, O'Sullivan I, Morris J, Murray JJ. Adult Dental Health Survey 2009: transformations in British oral health 1968-2009. Br Dent J. 2012 Nov;213(10):523-7.
33. Khalifa N, Allen P, Abu-bakr N, Abdel- Rahman M. Factors associated with tooth loss and prosthodontic status among Sudanese adults. J oral sci. 2015;54(4):303–312.
34. Charyeva OO, Altynbekov KD, Nysanova BZ. Kennedy classification and treatment options: a study of partially edentulous patients being treated in a specialized prosthetic clinic. J Prosthodont. 2012 Apr;21(3):177-80.
35. De Marchi RJ, Hilgert JB, Hugo FN, Santos CM, Martins AB, Padilha DM. Four-year incidence and predictors of tooth loss among older adults in a southern Brazilian city. Community Dent Oral Epidemiol. 2012 Oct;40(5):396-405.
36. Avlund K, Holm-Pedersen P, Schroll M. Functional ability and oral health among older people: a longitudinal study from age 75 to 80. J Am Geriatr Soc. 2001 Jul;49(7):954-62.
37. Fayad MI, Baig MN, Alrawaili AM. Prevalence and pattern of partial edentulism among dental patients attending College of Dentistry, Aljouf University, Saudi Arabia. J Int Soc Prev Community Dent. 2016 Dec;6(Suppl 3):S187-S191.