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Pattern of Missing Tooth with Prosthetic Status among Patients Attending To Dental School

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Abstract:
Objectives: *To investigate the prevalence, pattern of tooth loss and different prosthetic rehabilitations among Sulaimani adults population.*
Methods: *This cross-sectional prospective community-based study conducted among patients attending to Dental School, Faculty of Medical Sciences/University of Sulaimani from January 2015 to May 2015, a sample of 891 patients, age group of 18 years and above is considered. The subjects were interviewed with a structured questionnaire regarding age, sex and dental visiting patterns and then clinically examined by a single examiner for number and type of missing teeth with presence or absence of any prosthesis. Data were collected through specialized proforma and analysis is carried out and those variables which show statistical significance association between loss of teeth and selected variables are studied using Chi square test.*
Results: *Out of total patients, 408 (45.8 %) were males and 483(54.2 %) were females. First molarwas the most commonly missing tooth forming %36.16 of missing teeth of both arches while caninebeing the least one with %3.98. In the present study among patients attending to dental school, 80.9% for upper jaw and 86.1% for lower jaw, there is no any prosthetic replacement of missing tooth or teeth.*
Conclusion: *The current study shows the base line data to depict the frequency and pattern of missing teeth with prosthetic demand.*
Keywords: *Missing teeth, Oral health, Prosthodontics.*

I. Introduction

Although some studies reported that edentulism has declined but a considerable proportion of adults are still suffering from loosing teeth, teeth play an important role in the maintenance of a more esthetic appearance, tooth loss has various harmful effects on an individual resulting in a significant disabilities, which can profoundly disrupt social activities e.g. impairment of masticatory function, unpleasant aesthetics, bad phonetics, temporomandibular dysfunctions, psychological issues, social withdrawal and decrease in confidence level [(1&2).]

To minimizing the need of wearing denture, adults should have at least 21 functional teeth to be enabled to experience a good dietary intake according to the World Health Organization (WHO) which shown that edentulism considerably reduces the quality of life [(3).]

Replacement of missing teeth has become one of the most important needs for patients attending clinics to restore esthetics and/or function. Many treatment options are available for replacing a missing tooth; removable partial denture, fixed partial denture or dental implant. Each modality is a possible treatment option and has its own advantages and disadvantages [(4).]

Documenting the prevalence and pattern of partial tooth loss is very important for identifying the prosthetic needs of the studied community as well as aiding the provision of educational and preventive materials suitable for this population [(5).]

II. Methodology

Study design:

This cross-sectional oral health survey was conducted between January 2015 and May 2015, the study participants were recruited from among that attending outpatient dental school, Faculty of Medical Sciences/University of Sulaimani. A sample size of 891 patients where all adult patients aged 18 years and above and distributed into five age groups as follow (18-29)(30-39)(40-49)(50-59) and (60 and over). Dental chair examination was performed by dental students under supervision of faculty members with sterilized mouth

mirrors in appropriate light. Data collection was done through specialized case sheet form designed for this study which composed of demographic details, age, and sex, missing tooth/teeth with involved arch and quadrant and type of prosthetic rehabilitation.

Inclusion criteria:

- Age group of 18 years and above.
- Partially dentulous arch (either upper/ lower or both) and pattern of tooth loss distributed according to five groups (1-8) (9-14) (15-20) (21-24) and (25-28).
- Type of prosthetic rehabilitation among the patients were distributed to seven type of prosthesis as (no prosthesis) (one bridge) (more than one bridge) (partial denture) (both partial denture and bridge) (one implant) and (more than one implant).

Exclusion criteria:

- 3rd molar missing.
- Full edentulous patient.
- Patients having full permanent dentition were also included in the present study.

Statistical Analysis:

Data processing and analysis were carried using statistical packages, namely SPSS version 19.0.P-value less than 0.05 ($P<0.05$) is considered as statistically significant, at corresponding Degrees of freedom (df). The quantitative variables i.e. gender, age, number, type and pattern of tooth loss with different type of prosthesis and comparison between these variable factors were calculated as frequency and percentage.

III. Results

The sample comprised of 891 patients with 408 males (45.8 %) and 483(45.2 %) females as shown in fig. (1). Regarding tooth loss, more cases of partial dentulous were observed in the age group (40-49) missing (1-8)teeth while teeth loss between (25-28) at the age group of 60 and over represent less among patients attending to dental school. Statistically there is a highly significant relations between the numbers of tooth loss and the age groups (p=0.0000) as shown in table (1).

Females reported more tooth loss than males but with no statistical significant (p-value=0.7696) as shown in table (2).

Out of 891 patients, 4596 teeth were missing. In regard to gender, 2541 teeth (55.29%) missing were in female group, while 2055 teeth (44.71%) were found in male group.Regarding the tooth type missing, first molar was the most commonly missing tooth with 1662 teeth missing (36.16%) encountered in both arches with most frequent missing %11.5 for tooth 36. Canine was the least frequent missing tooth with 183 teeth missing (3.98%) in both arches and lower canine tooth 43 was the least common with least frequent missing %0.46 for (Fig. 2). Among 891 patients attending to dental school who respond to prosthetic rehabilitation and wearing both bridge and RPD (0.0% for upper and1 % for lower jaw) reported less frequency among all types of prosthesis while cases with no prosthetic treatment represent more among all patients (80.9 % for maxillary and 86.1 % for mandibular arch) (table 3).

IV. Discussion

High level of tooth loss associated with poor oral health in elderly people which influence general health in terms of weight loss, eating problems social handicaps related to appearance, drifting and tilting of adjacent teeth, supra eruption of opposite teeth, altered speech and psychological dissatisfaction and communication [(6)].

The present study shows the tendency of missing teeth is more common in females than males and this study is harmonious to the research done by (Natto et al , 2014) [(7)] and (Shinawi 2012) [(5)] showing significantly higher number of female suffering from edntulism and seeking for prosthetic replacement compared to their male and this contradicts to (Thomas and Eyad Al-Maqdassy 2010) [(8)] whose reported that males are more attending to tooth extraction with less concerning to maintain oral hygiene and restorative procedures than females .

Associations between tooth loss and mortality have been reported, though issues related to important confounding factors such as age, gender, and smoking status, which may be related to oral health and there is closed relationship between aging and tooth loss [(9)].

In this study, most patients whose teeth were missed were 40–49 years old 27.27%, while missing in elderly patients (over 60) accounted for only 10.1% of all tooth loss and these result agree with study done by (Jafarian&Etebarian) [(10)] and this may be due to that the continuing high frequency of extraction for caries or periodontal disease or any other reasons may reflect an increase in restorations prior to extraction rather than high incidence of caries in older people.

Concerning pattern of tooth loss, first molars is the most frequently missing tooth while canine being the least one. This is consistent with other studies conducted in Jordan [(11)], Italy [(12)] and Pakistan [(13),] the findings of the present study might be due to the early eruption of molars which are more prone to decay especially upper molars, more extractions of molars because of esthetic insignificance; and long root of canine as well as its position being the reason for its long term preservation. In contrast, study done in Scotland observed that proportionately more premolars and fewer molars were extracted from under-21-year-olds and this observation can be explained by an increase in orthodontic extractions or a decline in extractions for caries in this age group [(14)].

The level of prosthodontic rehabilitation in adults was low, and access to prosthodontic treatment appeared restricted; this issue needs to be explored further. In this study very few subjects (10.2 % and 4 %) respectively wearing either upper or lower bridge and persons having more than one bridge among patients attending to dental school nearly (2.5 % and 2.4%) for upper and lower jaws. Prosthetic needs was 80.9% for upper jaw and 86.1% for lower jaw and the result of the present study agree with other cross sectional study done by (Khalifa et al, 2012) [(15)] who reported that only prosthetic replacement of missing teeth was evident in 3% whereas a need for prosthetic replacement was evident in 57% and study by (Teofilo and Leles, 2007) [(16)] who observed that only 8.1% of patients that returned for replacement the extracted teeth among 72.5% patients who expressed intention of immediate replacement of edentulous spaces which was mainly associated to anterior teeth and large edentulous spaces and treatment demand was low, frequently due to financial restriction.

Present cross sectional study only provides the basic information regarding pattern and frequency of tooth loss and prosthetic replacement among patient attending to dental school lacking etiological factors and the limited dental awareness and poor socioeconomic status of our population may be attributed to highly encountered tooth loss in the present study. There is need to improve public awareness about the importance of oral health which leads to an increase in perceived needs and effective demands for dental care including prosthetic services in Sulaimani adult population.

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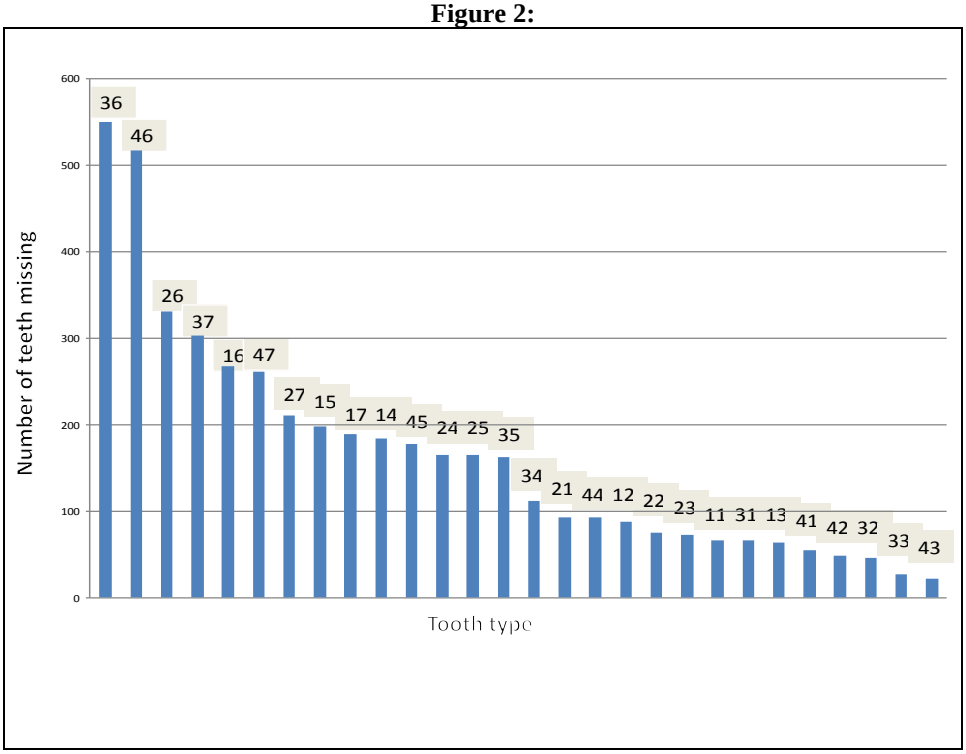
Figures & Table:

Figure 1:

Figure 2:



Tables:

Table 1:

Age group	Number of teeth missing					Total	Chi-square / P-value
	1-8	9-14	15-20	21-24	25-28		
18-29	164 (18.4%)	4 (0.449%)	0 (0%)	0 (0%)	0 (0%)	168 (18.855%)	
30-39	197 (22.222%)	18 (2.02%)	1 (0.112%)	0 (0%)	0 (0%)	216 (24.242%)	
40-49	199 (22.33%)	15 (1.684%)	24 (2.694%)	3 (0.337%)	2 (0.224%)	243 (27.272%)	χ^2 = 174.608 P= 0.0000 H.S*
50-59	117 (13.131%)	38 (4.26%)	18 (2.202%)	1 (0.112%)	0 (0%)	174 (19.529%)	
≥ 60	38 (4.26%)	32 (3.59%)	15 (1.684%)	4 (0.449%)	1 (0.112%)	90 (10.101%)	
Total	715 (80.247%)	107 (12.01%)	58 (6.51%)	8 (0.898%)	3 (0.337%)	891 (100%)	

Table 2:

Gender	Number of teeth missing					Total	Chi-square / P-value
	1-8	9-14	15-20	21-24	25-28		
Male	324 (36.364%)	55 (6.17 %)	26 (2.918%)	2 (0.224%)	1 (0.112%)	408 (45.79%)	χ^2 = 1.816 P= 0.7696 N.S*
Female	393 (44.107%)	53 (5.95 %)	31 (3.479%)	4 (0.449%)	2 (0.224%)	483 (54.21%)	
Total	717 (80.471%)	108 (12.12%)	57 (6.397%)	6 (0.67%)	3 (0.337%)	891 (100%)	

Table 3:

Prosthetic status	**Dental arch**	
	Maxillary	**Mandibular**
No prosthesis	721 (80.9%)	767 (86.1%)
One bridge	91 (10.2%)	35 (4%)
More than one bridge	22 (2.5%)	21 (2.4%)
Partial denture	21 (2.4%)	27 (3%)
Both bridge and partial denture	0 (0%)	3(1%)
One implant	8 (0.9%)	14 (1.6%)
More than one implant	28 (3.4%)	24 (2.7%)
Total (%)	891 (100%)	891 (100%)

Legends:
Figure 1: Gender distribution of the sample population.
Figure 2: Frequency of tooth loss according to tooth type.
Table 1: Distribution by age and number of teeth missing of the Sample population
Table 2: Distribution by sex and number of teeth missing of the sample population.
Table 3: Prosthetic status distubution by dental arch.