PROSTHODONTIC STATUS AMONG PATIENTS VISITING PERAMERD SPECIALIST DENTAL CENTRE IN SULAIMANI CITY

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ABSTRACT

Background

Tooth loss is a significant problem related to general health and the quality of life. The prevalence of edentulism and number of remaining teeth per capita are commonly used as main indicators of dental health status in national surveys.

Objectives

The aim of the present study was to evaluate the correlation between socioeconomic and educational level of the patient, smoking, and the general health status with the tooth loss among a sample of Sulaimani city residents.

Patients and Methods

Two hundred fifty patients attending Peramerd Dental Centre / Prosthetic Clinic for treatment were included in the study. A formal case sheet was used to record the required information. The patients were informed that the recorded information was required for a research purpose and it will be used in a survey and their consents and agreements were taken verbally. The relationship between the variables were investigated then evaluated.

Results

The study results showed that; 158 of the patients were females (63.2%), 92 were male (36.8%). The age range of the patients was 30-60 years. Upper complete denture was (4.5) times more than lower complete denture, 222 (88.8%) of patients required removable partial denture in one or both arches. Insignificant difference was found in the construction of the complete denture in both arches when compared to one arch and related to age group. very highly significant difference were found in the number of patients wearing partial and or complete denture as related to socioeconomic/occupational status; (78.05%) of the complete denture patients were unemployed, (21.95%) were self employed and no one of the civil servant group required complete denture, while (44.14%) of the civil servant group demand removable partial denture. Patients with diabetes mellitus had the highest number of complete denture construction; 14 (34.1%), while the smokers had the highest number of missing teeth compared to the other health problems variables.

Conclusion

Socioeconomic level, smoking, and health problems as diabetes mellitus and hypertension, has a high influence upon the dental health and the number of the missing teeth in the mouth.

Keywords: *Tooth loss*, *Prosthodontic status*, *Socioeconomic level*, *Smoking*, *Sulaimani*.

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INTRODUCTION

The loss of many teeth often reduces the quality of life [1], and because of chewing problems and decreased masticatory function, a limitation in food selection may occur, resulting in nutritionally poor diets, poor nutrition might contribute to an increased risk of several systemic diseases such as cardiovascular diseases [2] and hypertension [3].

Most tooth loss is due to dental caries and periodontal disease, although other causes include orthodontic or prosthetic treatment needs and traumatic injuries. Moreover, tooth loss is associated with smoking, inadequate oral hygiene, diabetes, hypertension, rheumatoid arthritis, depression, anxiety, obesity, anterior tooth type, and other risk factors including nutrition, alcohol consumption, socioeconomic status, lack of water fluoridation, and stress [4, 5, 6].

The aim of the present study was to evaluate the relation between tooth loss and predisposing factors such as; socioeconomic/educational level, health problems, and smoking among the residents in Sulaimani city.

PATIENTS AND METHODS

Two hundred fifty patients attending Peramerd Specialist Dental Centre for Prosthodontic Treatment with their records were included in this study. The patients were classified into four age groups; (30-39) year, (40-49) year, (50-59) year and (60 year and over). The case sheet information included information on the individual gender, age, career and occupational status, type of prosthesis which was required, number of missing teeth, medical history, and smoking status. Prosthodontic status was classified into; complete denture and removable partial denture. The complete denture data was classified into; patients with complete denture in both arches, upper complete denture only and lower complete denture only. Socioeconomic level and occupation status was classified into; unemployed, and employed, which was subdivided into self-employed and civil servant groups / public sector employees (professional employees). The health problem was classified into; healthy with no systemic disease or health problem, patients with diabetes mellitus, patients with high blood pressure, and patients with both diabetes mellitus and high blood pressure.

Smoking status was classified into smokers and non smokers. The number of the missing teeth was classified into two groups; those with less than 10 missing teeth, and those with more than 10 missing teeth. The information was obtained from the patients directly during their attendance at the hospital. The results of the present study were analyzed, descriptive and inferential statistical methods were employed; tables, graphical presentation, numbers, percentages, and Chi- Square test were also used to show the comparative significance between the groups at a significant level 5%.

RESULTS

The results in table 1 show that, the majority of the patients were in age group of (40-49), 121 (48.4%), while the age group of (30-39) was 98 (39.2%). 158 (63.2%) of the attending patients were female and 92 (36.8%) were male. Table 2 presents that; 195 (78%) of the patients were non-smoker, 152 (60.8%) of them were female, 43 (17.2%) were male, while 55 (22%) of the patients were smokers, the majority were male 52 (20.8%).

Ninety six (38.4%) of the patients were unemployed, 89 (35.6%) of them were female, most of whom were housewives, 163 (65.2%) of the total number of the patients had no health problem, 106 (42.4%) of whom were female.

Fifty one (20.4%) of the patients were diabetics, 33 (13.2%) female, with a very close result with high blood pressure in both genders. 41 (16.4%) of patients were completely edentulous, 32 (12.8%) female, while 222 (88.8%) were partially edentulous, 145 (58%) of them were female, as shown in table 2.

Table 1. Distribution of patients according to age group and gender.

Age group	Male No. (%)	Female No. (%)	Total No. (%)
30-39 years	32 (12.8)	66 (26.4)	98 (39.2)
40-49 years	47 (18.8)	74 (29.6)	121 (48.4)
50-51 years	13 (5.2)	17 (6.8)	30 (12)
60 and over	Zero	1 (0.4)	1 (0.4)
Total No. (%)	92 (36.8)	158 (63.2)	250 (100)

Table 2. Distribution of patients according to gender, smoking status, socioeconomic/occupational status, health problems, and prosthodontic status.

The variables		Male No. (%)	Female No. (%)	Total No. (%)
Smoking status	**a. Smokers**	52 (20.8)	3 (1.2)	55 (22)
	b. Non smokers	43 (17.2)	152 (60.8)	195 (78)
Socioeconomic/ Occupational Status	**a. Employed**	85 (34)	69 (27.6)	154 (61.6)
	b. Unemployed	7 (2.8)	89 (35.6)	96 (38.4)
Health status/ problems	**a. Healthy/ No health problems**	57 (22.8)	106 (42.4)	163 (65.2)
	b. Diabetics	18 (7.2)	33 (13.2)	51 (20.4)
	c. High blood pressure	18 (7.2)	31 (12.4)	49 (19.6)
Prosthodontic Status	**a. Partial edentulous**	77 (30.8)	145 (58)	222 (88.8)
	b. Complete edentulous	9 (3.6)	32 (12.8)	41 (16.4)

Insignificant difference was found in the construction of the complete denture in both arches when compared to one arch and related to age group, ($P > 0.05$). Also insignificant difference was found in the construction or of either upper or lower arch when related to the age groups as depicted in table 3. Construction of upper complete denture was 4.5 times more than lower complete denture, 41 (16.4%) of the patient needed complete denture in both or either arch, with the highest number within the age group of (40-49 year), 24 (58.5%), followed by the age group of (50-59 year), 15 (36.5%), as shown in table 3.

Concerning socioeconomic/occupational status there was very highly significant difference in the number of patients wearing partial and or complete denture ($P < 0.001$) as shown in table 4; 98 (44.14%) of the civil servant group, 76 (34.2%) of the unemployed group, and 48 (21.6%) in the self employed group required removable partial denture construction. While 32 (78.05%) of the complete denture patients were unemployed, 9 (21.95%) were self employed , and no one of the civil servant group required complete denture, and 98 (44.14%) of the civil servant group required removable partial denture,

Regarding the health problem variable, patients with diabetes mellitus had the highest number of complete denture construction 14 (34.1%), followed by patients with both diabetes mellitus and high blood pressure 9 (21.9%), then the smokers with 8 (19.9%) as shown in figure 1.

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Figure 1 also demonstrates that 54 (24.32%) of the smokers had removable partial denture construction followed by diabetes mellitus group 23 (10.36%), and the high blood Pressure group with 16 (7.2%) construction of removable partial denture.

The number of the missing teeth was classified into two groups; those with less than 10 missing teeth and a group of more than 10 missing teeth. There was significant difference in male groups of missing more than and less than 10 teeth ($P< 0.05$), while very highly significant difference was found when comparing female groups of missing more than and less than 10 teeth ($P< 0.001$), as shown in Table 5.

Table 5 also demonstrates that 179 (71.6%) of the total number of the patients had less than 10 missing teeth, and 71 (28.4%) patients had more than 10 missing teeth with the highest level among age group (40-49 year), in both genders and groups**.** It is clear in the socioeconomic/ occupational variable that the civil servant group had the highest number of less than 10 missing teeth 97 (54.18%), and the lowest number of more than 10 missing teeth 3 (4.22%). While in the health problem variable; the smokers had the highest number of missing less than and more than 10 teeth 24 (13.4%), and 7 (9.85%) respectively**.**

Table 3. Edentulousness in relation to age groups.

Age group	Both arch	Single arch	X^2	Only UCD	Only LCD	X^2	Total
30-39 years	1	0	**X^2 =3.13** P =0.372	0	0	**X^2=0.87** P=0.8327	1
140-49 years	9	14		12	2		24
50-59 years	9	7		5	2		15
60 & over	0	1		1	0		1
Total	19	22		18	4		41

Table 4. Prosthodontic status in relation to socioeconomic and occupational status.

Occupational status	Complete Denture No. (%)	Removable Partial Denture No. (%)	X^2
Unemployed	32 (78.5)	76 (34.2)	X^2=34.28
Self-Employed	9 (21.95)	48 (21.6)	P = <0.0001
Civil servant	Zero	98 (44.14)	

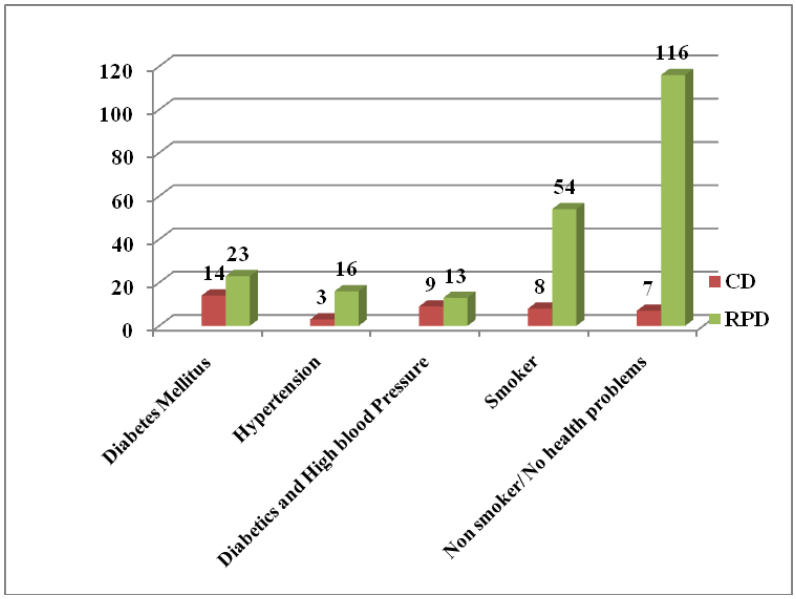

Figure 1. Prosthodontic status in relation to health problems and smoking status.

Table 5. Missing teeth according to gender and age group.

Age group	Male less than 10 MT	Male more than 10 MT	X^2	Female less than 10 MT	Female more than 10 MT	X^2
30-39 years	28	2	X^2 =10.31 P= 0.0161	62	2	X^2=45.24 P= 0.0001
40-49 years	31	17		47	28	
50-59 years	7	6		4	13	
60 years & over	0	0		0	1	
Total	66	27		113	44	

DISCUSSION

Access to dental care is closely associated with income, people who are disadvantaged by socioeconomic status experience greater levels of oral disease than those more affluent, wealthy groups, they report more tooth loss, and more problems with their teeth, mouth and dentures[7] . Individuals who have attained higher levels of education have greater financial opportunity and place a higher priority on dental health [8]. A study carried out by Mack *et al*. [9], showed similar

results to the present study in that; smoking, low education level, low income, and old age were significant predictors of wearing complete dentures.

In the present study there was very highly significant difference in patients wearing partial and/or complete dentures, the unemployed patients had more complete denture construction than the employed of both groups, the ratio was 3.5:1, and they had highest level of missing teeth than the employed patients of both groups, studies using different statistical methods showed results similar to the present study; "Edentulism was negatively related to both education level and annual income" [10]. Examining the relationship between oral health behavior and general health habits revealed that; males with general habit high scores tended to have positive oral hygiene behavior. In the present study there was significant and very high significant difference in the number of loosing teeth within male and female groups respectively. The result of the present study might explain the bad condition of dental health of the females comparing to that of the males, on the other hand the increasing number of unemployed females, most of which were housewives might explain the same relation between dental health and gender in the present study result, this result was similar to a Chileans study who stated that ; gender differences in tooth loss among young Chileans was related to socio-economic position; and selected oral-health-related behaviors [11] .

The authors couldn't find any local/ Iraqi study with similar variables, however, Al-Nakkash and Al-Hadithi [12] in their study of the prosthodontic needs for geriatric patients, recorded that; housewives had the highest number among the other occupational groups 34.4%, and caries was the most cause of tooth loss 77.7%, which both could be related to low socioeconomic and educational level of the patients.

It is reported that by age of 34 years teeth are mostly lost due to caries, and after age 34 years the cause is in most cases periodontal disease [13], the consequence of which is tooth loss, which is influenced by diabetes, and it had been suggested that the periodontitis among the diabetic patients was modified and did not have the same characteristic features of the periodontal disease among the non-diabetic patients, therefore, the periodontitis associated with systemic disease such as diabetes mellitus have high risk of attachment loss and the tooth become mobile because of inflammation and low resistance to the infection, thus considering diabetes mellitus as a definite risk factor for tooth loss regardless to the duration of the disease [14, 15]. It is often assumed that there is little or no sex bias within either type of diabetes mellitus, but the lowest risk populations studied, mostly of non-European origin, characteristically show a female bias [16], as it was shown in the present study.

In the present study, patients with diabetes mellitus had the highest rate of complete denture construction among all the patients, similar result was found in another study where; there was a high significant difference in mean number of the teeth loss between diabetics and non-diabetic [17], this result came in agreement with other studies as they found that the number of extracted teeth are significantly greater in the group of diabetics than in the non-diabetics/ control group [18].

Cigarette smoking is a major risk factor for periodontitis, which affects the support structures of the tooth and is an important cause of tooth loss. The result of many studies showed that; "current and former smokers had significantly higher odds of experiencing edentulism compared with non smokers, and that; among former smokers, the risk declined significantly with increasing time since smoking cessation; however, the risk remained elevated even in those who ceased smoking 30 or more years previously compared with that in never smokers [19]. The number of male smokers in the present study was higher than female smokers, a similar study in Kuwait [20] showed the same result where, the prevalence of smoking was (34.4%) among men, and (1.9%) among women. An association between cigarette smoking and tooth loss was evident among young adults throughout Japan, the overall prevalence of tooth loss was (31.4%), tooth loss occurred more frequently among current smokers (40.6%) than former smokers, a significant positive exposure-related relationship between cigarette smoking status and tooth loss was observed [21].

In the present study, the smoker has a high rate of missing teeth in both groups of less than and more than 10 missing teeth. Another study showed that; a causal association between smoking and tooth loss is highly likely present [22].

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