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Research Article

**THE ETIOLOGY OF TOOTH LOSS AND RISK FACTORS
CAUSING PERIODONTAL DISEASE**¹Dr. Bilal Ahmad, ²Dr. Owais Ahmad, ³Dr. Maria Afzal¹BHU Noor Jamal Tehsil Kharian, Gujrat²MO RHC Qadirabad DG Khan³Women Medical Officer, Government Maternity Hospital Pathi Ground Lahore**Abstract:**

Objective: The aim of this study was to determine the risk indicators for periodontitis using cross-sectional data obtained from a group of Pakistani adults.

Study design: A cross-sectional study

Location and duration: In the Dental department of Services Hospital, Lahore for 6 months period from January 2018 to June 2018.

Methods: The study group consisted of 426 people aged 18-75 years. All extractions were performed in two dental hospitals over a 6 months period. The age and sex of the patient in the documentation, the findings in the medical history, the history of visits to the dentist, the frequency of tooth brushing, the number and number of teeth removed, the reasons for the date of menopause and removal were evaluated.

Results: A total of 426 patients were selected with removal of 486 teeth due to periodontal disease, other causes per patient of tooth lost due to other causes. Logistic regression analysis significantly correlated with tooth loss due to periodontal causes like age > 35 years (OR 6.36, 95% confidence interval [CI] 1.63-1.72), smokers (OR 1.09, 94% CI 2.08 to 2.25), anterior tooth type (OR 4.01, 94% CI 1.82 to 1.89) and the presence of any of the following medical conditions: diabetes mellitus (OR 2.65 95% CI 1.85 to 1.91), hypertension (OR 10.32, 95% CI 1.88 to 1.93), cardiovascular disease (OR 14.7 95% CI 1.94 to 1.98) or rheumatoid arthritis (OR 10.22; 95% CI: 1.96 to 1.99) and menopause (OR 5.2 P <0.001).

Conclusion: Our data suggest that tooth loss due to periodontal disease is related to age, smoking, dental care visits, frequency of tooth brushing, diabetes mellitus, hypertension and arthritis risk indicators. In this study group rheumatoid, menopause and anterior teeth type.

Keywords: Tooth loss, Diabetes mellitus, risk indicators, periodontal disease, smoking, menopause.

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INTRODUCTION:

Periodontal disease is the leading reason of tooth loss Globally. Understanding the risk factors for periodontal disease is limited in various populations. Most of the studies were done in Europe and America and periodontal disease, age, gender, socioeconomic status, poor oral hygiene, obesity, smoking and diabetes were determined. The contribution of these factors to periodontal diseases may vary geographically or racially. The associated factors identification with high risk of tooth loss due to periodontal disease can help strengthen the evidence of risk factors that are determinants of the severity of disease. The understanding of the association between systemic health and periodontal disease in the last decade and the study of susceptibility to periodontal disease has gained a broader meaning.

The purpose of this analysis was to investigate the relationship between some of the reasons for periodontal disease and the risk of periodontal disease. The reasons can be explained as a view or feature associated with an increase in the rate of disease that occurs later. Risk factors can be divided such as smoking, diabetes, periodontal disease, socioeconomic status, psychological factors, psychological factors, and genetic factors such as host response, osteoporosis and aging and so on. risk factors such as unchanged.

MATERIALS AND METHODS:

This is a cross-sectional study determining the etiology of tooth loss due to periodontal causes was held in the Dental department of Services Hospital, Lahore for 6 months period from January 2018 to June 2018. This study inclusion criteria were all adult patients (19 years and above). The ethics review committee of the relevant hospitals presented the study protocol for review and informed consent of all study participants was obtained. The study included

age, gender, medical history, history of dental examination, frequency of tooth brushing, smoking history, overweight, extracted teeth and extraction. Participant physicians were asked to consider the extraction from periodontal causes. There were two or more of the removed teeth: bone loss and "radiography, probe depth, and the remaining 50% of the bone support as evidenced by mobility, support, or participation of 7 mm, grade 2-3" for III. Class furcation. Other options were extremely decayed teeth, root fractures, endodontic treatment failure, poorly located teeth. Individuals with fewer than six teeth were not selected for analysis. Multiple teeth removed for more than one reason for the same patient were not included. Data were analyzed with SPSS version 18. Using this data, two different people entered the same data into two different data files; these were verified among themselves to guarantee the high quality of the data and to eliminate human error. Averages and frequency distribution were calculated for all variables of the precursor and result study. The Pearson chi-square test was applied to determine the relationship between the different periodontal disease severity and each independent variable. A $p < 0.001$ value was used to determine the statistical significance. Odds ratios (OR) and 65% confidence intervals (CI) were evaluated for each significant variable. The differences between the age groups and the mean number of teeth extracted between the 2 groups (extraction with periodontal or other causes) were compared with the Student's t test.

RESULTS:

In the six month study period, a total of 426 patients were increased to 500 teeth and an average of 1.14 teeth tooth loss per patient was achieved. Demographic data and the smoking status of the patients were 42.9 years (range = 18-75 years) in all patients.

TABLE 1: PATIENT DEMOGRAPHICS & SMOKING HISTORY

Variable	Periodontal Disease	Other Reasons*	Total
Mean age	51.71	37.90	42.87
Number of patients (%)	146(34.3)	280(65.7)	426
Number of extracted teeth (%)	192(40.0)	294(60.0)	486
Teeth lost Per Patient	1.32	1.05	1.14
Gender Male%	74(30.83)	166(69.17)	240(56.34)
Female%	72(38.7)	114(61.3)	186(43.66)
Smoking status			
Smoker(%)	28(35.89)	50(64.10)	78(18.3)
Nonsmoker(%)	118(33.90)	230(66.09)	348(81.7)

The results were summarized in Table 1 and the subjects due to periodontal reasons who lost their teeth were found to be significantly higher. ; $P < 0.001$. due to less teeth due to more teeth per patient, the other causes of periodontal

cause (respectively 1.32) were lost due to other reasons (34.3 versus 65.7, respectively), periodontal disease disappeared; $P < 0.001$. Odds ratios and the corresponding 95% confidence interval are given in Table 6.

Medical History Findings	Frequency	Percentage %
No Disease	294	69
Diabetes Mellitus	52	12.2
Hypertension	40	9.4
Hepatic	14	3.3
Cardiovascular	12	2.8
Asthma	8	1.9
Renal	4	0.9
Rheumatoid Arthritis	2	0.5
Total	426	100

TABLE 2: MEDICAL HISTORY FINDINGS

TABLE 6: LOGISTIC REGRESSION ANALYSIS OF FACTORS ASSOCIATED WITH TOOTH LOSS FOR PERIODONTAL REASONS*

Variables	OR	95% CI
Age >35	6.36	1.63 to 1.72
Diabetes mellitus	2.65	1.85 to 1.91
Hypertension	10.32	1.88 to 1.93
Cardiovascular	14.7	1.94 to 1.98
Rheumatoid arthritis	10.22	1.96 to 1.99
Menopause	5.2	3.55 to 3.69
Smoker	1.09	1.78 to 1.85
Anterior tooth type	3.71	1.82 to 1.89

Although women accounted for 43.6% of the sample, they lost their teeth compared to men due to the highest rate of female periodontal reasons (38.2 to 30.8, respectively). $P < 0.05$. Smokers accounted for 18.3% of all patients. The most common medical history was diabetes mellitus (12.2%), followed by hypertension (9.4%) and hepatitis (3.3%). Other medical problems occurred at a smaller rate. A significant percentage of 69% reported that only 7% of all patients encountered 24% of reports of dental care, once a year, while 6% of all patients did not exceed. Similarly, the percentage of patient brushing was minimum. While brushing teeth only twice a day, 16%, 49% once a day, 34% do not brush their teeth or occasionally brush their teeth. The maxillary and mandibular molars were the most frequently exulted teeth in all subjects and were removed more frequently than for periodontal disease ($P < 0.001$) (Table 3).

TABLE 3: REASONS FOR EXTRACTION OF DIFFERENT TOOTH TYPES

Tooth Type	Periodontal disease n %	Other reasons* n %	P value†	Total n %
Maxillary Molar	33(28.7)	82(71.3)	<0.001	115(23.7)
Maxillary Premolar	24(40.7)	35(59.3)	NS	59(12.1)
Maxillary Incisor	13(68.4)	6(31.6)	<0.001	19(3.9)
Maxillary Canine	4(23.5)	13(76.5)	<0.001	17(3.5)
Mandibular Molar	34(26.7)	116(73.3)	<0.001	150(30.9)
Mandibular Premolar	22(55.0)	18(45)	NS	40(8.2)
Mandibular Incisor	14(77.7)	4(22.3)	<0.001	18(3.7)
Mandibular Canine	2(25.0)	6(75.0)	<0.001	89(1.6)

On the other hand, for the periodontal reasons of toothed teeth, only the extracted teeth were analyzed while the maxillary and mandibular molars were the usually frequently removed teeth.

The relationship between past study variables and periodontal rates is presented in Table 4.

TABLE 4: ASSOCIATIONS OF DEMOGRAPHIC, MEDICAL, AND DENTAL VARIABLES WITH REASONS FOR TOOTH LOSS

Variables	Periodontal Disease	Other Reasons*	P Value†	Total
Age				
≤ 35 years	16(9.5)	123(88.5)		139
> 35 years	130(45.3)	157(54.7)	<0.001	287
Gender				
Male	90(34.3)	172(65.7)		262
Female	102(45.5)	122(54.5)	0.162	224
Medical History Problem				
Diabetes Mellitus	28(54.9)	23(45.1)	<0.001	51
Hypertension	34(80.9)	8(19.1)	<0.001	42
Cardiovascular	14(87.5)	2(12.5)	<0.001	16
Rheumatoid Arthritis	10(83.3)	2(16.7)	<0.001	12
Asthma	6(60.0)	4(40.0)	0.084	10
Renal	2(50.0)	2(50.0)	0.424	4
Hepatic	2(16.7)	10(83.3)	0.109	12
Osteoporosis	2(50.0)	2(50.0)	0.424	4
Smoking Status				
Smoker	28(35.9)	50(64.1)		78
Nonsmoker	118(33.9)	230(66.1)	0.416	348
Dental care Visits				
Yes	34(23.8)	109(76.2)		143
Never	112(39.6)	171(60.4)	<0.001	283
Tooth brush use				
Once daily	52(24.8)	158(75.2)		210
Twice daily	14(20.0)	56(80.0)		70
Occasionally	80(54.8)	66(45.2)	<0.001	146
Weight				
Normal	124(33.0)	252(67.0)		376
Overweight	22(44.0)	28(66.0)	0.085	50
Tooth Types §				
Posterior	135(33.8)	264(66.16)		399
Anterior	57(65.5)	30(34.48)	<0.001	87

The relationship between tooth loss and menopause due to periodontal cause was significant (57.8% vs. 42.3%) P <0.001 (Table 5).

TABLE 5: ASSOCIATION OF HORMONAL DISTURBANCES WITH TOOTH LOSS

Variables	Periodontal Disease n %	Other Reasons* n %	P Value†	Total n %
Puberty	0	20	NS	20
Pregnancy	2((33.3)	4(66.6)	<0.001	6(3.2)
Menopause	52(57.8)	38(42.2)	<0.001	90(48.4)

*caries, failed endodontic, broken roots, tooth malposition

†chi square test

NS not statistically significant

DISCUSSION:

Today, the most important component of modern dental treatment is risk assessment. For individuals who can benefit the most from such measures, it is mandatory to identify individuals with a higher risk of periodontal disease severity and progression for appropriate preventive and therapeutic measures. Periodontal disease is mainly found in a particular group of patients presenting the highest rates of tooth loss and insertion.

The study was carried out to investigate the relationship between the reported risk indicators related to the severity of periodontal disease and tooth loss due to periodontal disease. Dental loss due to periodontal reasons was significantly associated with age (OR = 6.36) in patients older than 35 years. Many researchers confirm the relationship between age loss and loss of tooth decay with age and periodontal reasons. Although only 34.3% of the patients had lost their teeth due to periodontal disease, these patients lost more teeth per patient than other patients who lost their teeth due to other reasons (1.32 vs. 1.05). Although this confirms previous findings, it is responsible for more tooth loss than other causes, although it is responsible for periodontal disease and less patient teeth loss.

Unlike the other studies, the odd ratio for male gender was 1.36-1.42 and 0.70. This may be due to more female patients participating in this study sample. Smokers were also more likely to have tooth loss due to gum loss than in non-smokers (OR = 1.09). The effect of cigarette smoking on periodontal disease and tooth loss is well documented. It is worth noting that in the study (OR = 2.65) the probability ratio of tooth loss in diabetic patients is also very close to that reported by the knee and KHALA et al. Other problems associated with medical history tooth loss due to periodontal disease were hypertension (OR = 10.32), rheumatoid arthritis (OR = 10.22) and cardiovascular disease (OR = 7.14). There was a strong relationship between hypertension, rheumatoid arthritis and cardiovascular disease and periodontal reasons that confirmed other studies. In our study, asthma, kidney disease, liver problems and osteoporosis did not show a significant relationship with tooth loss due to periodontal reasons. Other studies showed a significant relationship with these diseases. This may be due to the small sample size of our study. The history of visits to dental care and the use of a toothbrush were significantly associated with the risk of tooth loss due to periodontal reasons. In tooth types, anterior teeth have been more clarified

than posterior teeth due to periodontal reasons (OR = 3.71). This finding was previously reported.

CONCLUSION:

In our study, we found that age, lack of dental visit, frequency of tooth brushing, hypertension, diabetes mellitus, rheumatoid arthritis, cardiovascular disease, anterior tooth and menopause are important risk factors for periodontitis. working group. In our study, smoking was not significantly associated with periodontitis, perhaps due to the large number of non-smoker women in Pakistan. Overweight was not significantly associated with periodontitis.

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