

Original Research Article

An Assessment of Risk Factors for Tooth Loss among Patients Attending OPD of Farooqia Dental College & Hospital, Mysore, Karnataka

Gurudath G¹, Vijay Kumar K.V², Sindhura A³

¹Reader, Department Of Public Health Dentistry, Farooqia Dental College & Hospital, Mysore.

²Reader, Dept of Public Health Dentistry, Adhiparasakthi Dental, College & Hospital, Melmeruvathur, Tamilnadu.

³PG Student, Dept of Conservative Dentistry & Endodontics, R V Dental College & Hospital, Bangalore.

Corresponding Author: Vijay Kumar K.V

Received: 04/01/2016

Revised: 19/01/2016

Accepted: 20/01/2016

ABSTRACT

Aims and objectives: To evaluate the risk factors for tooth loss and to establish base line data about missing teeth, among patients attending OPD of Farooqia Dental College & Hospital, Bangalore.

Materials and methods: A sample of 150 patients, age group of 18 years and above with non-disease as factors for tooth loss, are considered. The subjects were interviewed with a structured questionnaire regarding age, sex, marital status, demographics, socioeconomic status, smoking habits, dental visiting patterns, and oral hygiene practices, and then clinically examined by a single examiner for number of missing teeth.

Univariate analysis is carried out and those variables which show statistical significance are further examined for risk factors for tooth loss using Multiple Regression Analysis.

Results: Of the 150 patients, 55 (36.7 %) were males and 95 (63.4%) were females and mean age was 35.5 years with an average of 10.7% of teeth missing per person. Subjects with no schooling had more than 2 missing teeth, current smokeless tobacco users and non regular dental visiting pattern had more than 2 missing teeth. Smoking had no association with the missing teeth. Women than men, Education and the family income were also significantly associated with the number of missing teeth.

Conclusion: Modification of non-disease independent factors and awareness towards oral health could reduce tooth loss and improve oral health in the patients attending OPD of Farooqia Dental College & Hospital, Bangalore.

Key words: Risk factors, Tooth loss, Socio-demographic and economic status, gender, age, oral hygiene practices.

INTRODUCTION

Indicators of tooth loss reflect oral impairment and indicators of tooth retention reflect oral health and well-being. Dental status is related to a number of social and socioeconomic factors. A higher proportion of edentulous individuals and a lower number of remaining teeth in dentulous subjects have been found in low socio economic classes

and in groups with poor educational background.^[1]

Loss of teeth is mainly attributed to dental caries and periodontal diseases. Factors relating to tooth extractions are not, however, always dental in origin. Edentulousness and small number of remaining teeth are associated with low educational level, low family income and rural domicile. Dental caries and periodontitis are caused by

microorganisms, but age, gender, socioeconomic status, oral hygiene habits, tobacco usage and regular dental visiting patterns may modify the progression of these diseases.

Other reported factors associated with missing teeth include level of education, income, oral hygiene practices, marital status, gender and smoking.^[2]

In research dealing with major chronic diseases, i.e....cardiovascular disorders and cancer, more emphasis has been directed towards the combined influence of lifestyle, psychological factors and social conditions, instead of standard risk factors. In recent years, this idea has spread to dentistry as well,^[3] so purpose of this study was to evaluate the risk factors for tooth loss and to establish baseline data about missing teeth among patients attending OPD of Farooqia Dental College & Hospital, Bangalore.

MATERIALS AND METHODS

Sample selection: study is a cross sectional observational study, where all adult patients aged 18 years and above attending OPD of Farooqia Dental College & Hospital were screened for tooth loss. A sample size of 150 patients was determined on assuming that on an average 6 to 7 patients were observed with tooth loss, which sums up to 150 for one month study period. Prior informed consent was taken from the study population.

Inclusion criteria

- Age group of 18 years and above with tooth loss. .

Exclusion criteria

- Biologic factors (caries and periodontal diseases)
- Systemic diseases
- 3rd molars (missing)

A sample size of 150 patients, attending OPD of Farooqia Dental College & Hospital, older than 18 years of age with tooth loss on oral examination are considered in this study. An attempt was made to select the patients with non-

biologic factors (socio-demographic& economic characteristics, marital status, smoking habits, oral hygiene practices& methods, etc...) as indicators for tooth loss. Three age groups were classified, i.e. 25-34 yrs, 35-44 yrs and >44 yrs (since the subjects in the study sample found were above 25 years)

Interview and clinical examination: Baseline data were collected using structured questionnaire with personal interviews and that followed by clinical examination. Baseline interview was extensive and included questions regarding, name, age, gender, socio-demographic & socio-economic characteristics, marital status, smoking habits, dental visiting patterns, use of dental services and methods, self perceived oral health status and dental care.

Clinical examination was carried out in the OPD of Oral medicine department; to identify the missing teeth using DMFT index. The patient was placed on the dental chair and with help of artificial illumination, sterilized mouth mirrors, probes, cotton rolls, mouth masks and examination gloves, the findings were self entered into a pretested questionnaire. Single examiner performed all examinations and interviews. Data were recorded in one sheet and entered into computer file using the SPSS for windows program.

Statistical methods

- Univariate analysis is carried out.
- Further two-way analysis to study the association is carried out using Non-parametric test (Chi square test).
- P-value less than 0.005 ($P < 0.005$) is considered as statistically significant, at corresponding Degrees of freedom (df).

Data analysis

- Data processing and analysis were carried using statistical packages, namely SPSS 11.0 and Statistical 8.0. Microsoft word and excel have been used to generate graphs and tables.

- Univariate frequency tables were generated using SPSS.
- Association between loss of teeth and selected variables are studied using Chi square test.
- Age groups were grouped into 25-34yrs, 35-44yrs and >44yrs.
- Loss of teeth was categorized into, <2 & >2.

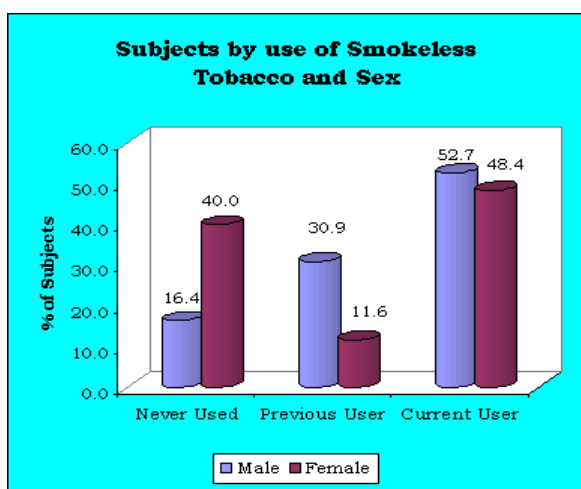
RESULTS

Table 1 Demonstrates distribution of subjects by age and gender. The study population consisted of 150 subjects, of whom males were 55 (36.7%) and females were 95(63.4%).

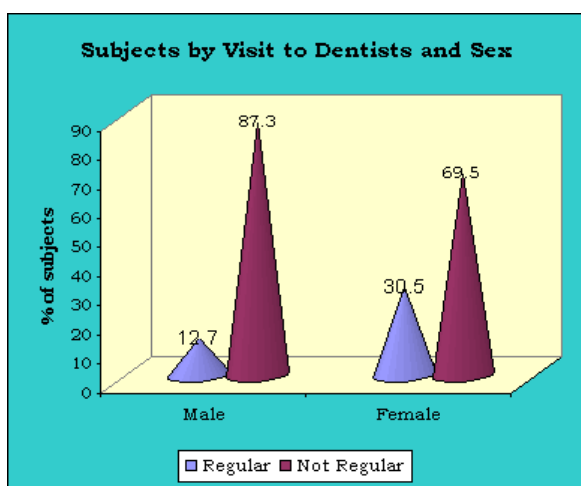
Age in years	Males	Females	overall
25-34 Yrs	13(8.6%)	29 (19.3%)	42(28%)
35-44 Yrs	31 (20.6%)	54(36%)	85 (54.7%)
>44 Yrs	11 (7.3%)	12 (8%)	23(15.3%)
Total	55 (36.7%)	95 (63.4%)	150(100%)

Table 2 Demonstrates distribution of subjects by level of education

Education	Male		Female		Total
	Number	%	Number	%	
No Schooling	3	5.45	42	44.21	45
Primary	20	36.36	20	21.05	40
High School	6	10.91	10	10.53	16
Graduate	26	47.27	23	24.21	49
Total	55	100	95	100	150



Graph 1 Depicts distribution of subjects by usage of smokeless tobacco



Graph 2 Depicts distributions of subjects by dentist visiting pattern

Subjects earning 200-5000 Rs monthly were: male 1, females 28(29.5%), 5001-10000 Rs monthly males were

17(30.9%), females were 49(51.8%) and more than 10,000 Rs monthly males were 37(67.2%) and females were 18(18.9%).

Among subjects who never smoked, males were 2(3.6%). Females were 84(88.4%), previous smokers males were 10(18.2%), females were 6(6.3%) and current smokers males were 43(78.2%) and females were 5(5.3%).

Subjects visiting dentist for the first time were, males 15(27.2%), females were 49(51.6%), visit within the last year were, males 13(23.6%), females 23 (24.2%) and subjects visiting dentist more than a year ago, males 27(49.1%) and females were 23(24.2%).

Oral hygiene practices; subjects oral hygiene practice with fingers, males were 1(1.8%), females were 30(31.6%); using tooth brush, males 54(98.1%), females were 59(62.1%) and indigenous practices females were 6(6.3%).

Subjects with other oral hygiene practices; subjects using floss were, females 2(2.1%), tongue cleaning devices were, males 13(23.6%), females were 22(23.2%) and subjects using tooth picks were males 4(7.2%) and females 9(9.8%).

Distribution of subjects by self rated oral health: subjects those who rated their own oral health status as good were, males 21(38.2%), females 48(50.5%), as fair were males 32(58.2%), females were

43(45.3%) and those who rated poor were, males 2(3.6%) and females were 4 (4.2%). Distribution of subjects by self perception need for dental care: subjects those who

felt the need for dental care were, males 55(100%) and females 91(95.8%) and those who didn't feel the need for dental care were females 4(4.2%).

Table 3 Demonstrates distribution of subjects with number of missing teeth

No. of Teeth missing	Male		Female		Total Number
	Number	%	Number	%	
1	12	21.82	12	12.63	24
2	8	14.55	32	33.68	40
3	31	56.36	41	43.16	72
4	3	5.45	8	8.42	11
5	1	1.82	2	2.11	3
Total	55		95		150

DISCUSSION

Dental status is multidimensional, and several studies have investigated the risk indicators of missing teeth in different parts of the world. Indicators of tooth loss reflect oral impairment and indicators of tooth retention reflect oral health and well-being and dental status is related to a number of social and socioeconomic factors. [4] A higher proportion of edentulous individuals and a lower number of remaining teeth in dentulous subjects have been found in low socio economic classes and in groups with poor educational back ground. [5] With age being the most commonly reported factor associated with missing teeth, and older people exhibit a higher number of missing teeth and a lower number of natural teeth remaining. [6]

Caries variables and periodontal disease variables seem to be important predictors of occurrence of tooth loss, but at the tooth level, caries would seem to be predominant cause of tooth loss in all age group. [7] Other reported factors associated with missing teeth include education, income, oral hygiene practices, marital status, gender and smoking. [8] Subject's attitudes and beliefs, education and income are among the factors that influence a decision to extract teeth. [9]

The present observational study includes a sample size of 150 adult population, 18 years and above, with males 55 (36.7%) and females 95 (63.4%) with tooth loss, who attended the OPD of Farooqia Dental College & Hospital,

Mysore, during one month study period. Association between tooth loss and individual risk factors was observed taking six factors into consideration, such as education, use of smokeless tobacco, dental visiting patterns, last dental visit, oral hygiene practices, and self rated oral health care.

Distribution of subjects in the age group of 18-34 years were 42 subjects, in the age group of 35-44 years were 85 subjects and >44 years were 23 subjects. The incidence of >2 tooth loss was seen in the age of 35 years. In the present study females had >2 tooth loss, this can be explained by the fact that 74 (77.8%) of them were rural residents, 42(42.2%) of them had not attended the school, 46(48.4%) were current users of smokeless form of tobacco, 66(69.4%) of them were not regular visitors to the dentist, 49 (51.5%) were first time visitors to the dentist, 23(24.2%) had visited the dentist in the last year and 30 (31.5%) used fingers to brush their teeth.

The results of the present study was consistent to that of the study of Hamasha A.H et al in their paper "Risk indicators associated with tooth loss in Jordanian adults" in the year 2000, showed that females had more missing teeth compared to males and the mean number of missing teeth increased significantly with age, 46% were from rural domicile, 18% were illiterates with no previous schooling, 46% brushed their teeth irregularly, 33.8% smoked and 29% had visited dentist in the last year. [10]

Amarasena N, et al in 2003 found that the mean number of teeth lost in the sample was 5.17 +/- 5.43. Tooth loss increased significantly with age. [11]

Susin C et al in 2006 observed that subjects with gender, marital status, self-rating of oral health status, regular dental visiting pattern had less number of missing teeth. [12]

Lopez R et al in their study showed that tooth loss was related to low socioeconomic status and the present study also revealed the same. [13]

Wennström A et al in 2013 observed that, there is a significant relationship between fewer teeth and a lower social group, and among the 50-year-old women, this was irrespective of examination year. However, multivariate analyses showed that the risk to be edentulous or not, or to have fewer remaining teeth was significantly higher for women of lower social group, or living alone. [14]

Hanioka T et al in 2007 found association of tooth loss was non-significant in former smokers but significant in current smokers: adjusted odds ratios (95% confidence intervals) relative to nonsmokers in males and females were 1.29 (0.92-1.80) and 0.86 (0.46, 1.60) for former smokers and 2.22 (1.61-3.06) and 2.14 (1.45-3.15) for current smokers, respectively. A dose-response relationship between lifetime exposure and tooth loss was seen (P for trend <0.0001). [15]

But, interestingly there was no association found between smoking and tooth loss in the present study.

From an epidemiological perspective, further research is needed with larger sample size, which includes dental caries and periodontal disease as risk factors for tooth loss

SUMMARY AND CONCLUSION

The study sample consisted of 150 patients, aged 18 years and above, attending OPD of Farooqia Dental College

and hospital. The sample size consisted of 36.7% (55) males and 63.4% (95) females. More number of subjects represented in the age group of 35 - 44 yrs, with 31 males and 54 females.

The above cross sectional observational study reveals six significant risk factors for tooth loss; namely education, usage of smokeless tobacco, dental visiting pattern, last dental visit, oral hygiene practices and self rated oral care. In this study several risk indicators of tooth loss were considered and very few had significant impact. In addition, subjects with rural domicile and females had more number of missing teeth, of these 74 (77.9%) female subjects with rural domicile had >2 teeth loss and 46(83.6%) males had >2 teeth loss, 3(5.4%) males and 42(44.2%) female subjects who did not attend school had >2 teeth loss. 29(52.7%) males and 46(48.4%) females with current smokeless tobacco usage had >2 teeth loss. 48(87.3%) males and 66(69.8%) females with non regular dental visiting pattern had >2 teeth loss. 15(27.7%) males and 49(51.9%) subjects who were first time dental visitors had >2 teeth loss, and 31 subjects who use finger to clean their teeth had >2 teeth loss.

Though most of the individual risk factors do lead to periodontal disease and loss of teeth, the present study has a drawback where smoking and tooth loss did not show any association. On the basis of the evidence presented it would seem that the loss of one's natural teeth is a complex social and environmental phenomenon and is not merely a result of dental disease. Further investigations can be carried out regarding this study.

Research into dentist's belief and practice philosophies with respect to tooth extractions is also needed, to furnish a comprehensive understanding of why teeth are lost. Identifying people at high risk for tooth loss is important in terms of clinical interventions to preserve the natural dentition and ensures that it remains adequately functional and socially

acceptable for the duration of natural life span.

This study demonstrates that modifications in the non-disease factors (education, income, smoking, attitude and beliefs) could reduce the number of missing teeth and improve oral health status and function.

REFERENCES

1. Ahlqwist M, Bengtsson C, Grondahl H-G, Lapidus L: Social factors and tooth loss in a 12 year follow up study of women in Gothenburg, Sweden, CDOE 1991; 19: 141-6
2. Casanova-Rosado JF Medina-Solis CE Lifestyle and psychosocial factors associated with tooth loss in Mexican adolescents and young adults. J Contemp Dent Pract. 2005 Aug 15; 6(3):70-7
3. Sakki TK, Knuuttilla MLE, Anttilla SS; Lifestyle, gender and occupational status as determinants of dental health behavior. J Clin Periodontol 1998; 25: 566- 570
4. Barbato PR, Muller Nagano HC, Zanchet FN, Boing AF, Peres MA, Tooth loss and associated socioeconomic, demographic, and dental-care factors in Brazilian adults: an analysis of the Brazilian Oral Health Survey, 2002-2003] Cad Saude Publica, 2007 Aug;23(8):1803-14.
5. Xie Q, Ainamo A: Association of edentulousness with systemic factors in elderly people living at home, CDOE 1999; 27:202-9
6. D.Locker, j. Ford, and J.L Leake; Incidence of and risk factors for tooth loss in a population of older Canadians, J Dent Res 75(2):783-789, Feb 1996.
7. Eklund SA, Burt BA: Risk factors for total tooth loss in the United States; longitudinal analysis of national data J Public Health Dent. 1994 winter; 54(1):5-14.
8. Ahlqwist m, Bengtsson C, Hollender L, Osterberg T: Smoking habits and tooth loss in Swedish women. CDOE 1989; 17: 144-7
9. Susin C, Oppermann RV, Haugejorden O, and Albandar JM: Tooth loss and associated risk indicators in an adult urban population from south Brazil. Acta Odontol Scand., 2005 Apr; 63(2):85-93.
10. Hamasha AH., Sasa I, Al Quadah M: Risk indicators associated with tooth loss in Jordanian adults, CDOE 2000; 28:67-72
11. Amarasena N, Ekanayaka AN, Herath L et al,: Socio-demographic risk indicators for tooth mortality in rural Sri Lankans. . Asia Pac J Public Health, 2003; 15(2):105-10.
12. Susin C, Haas AN, Opermann RV, Albandar JM: Tooth loss in a young population from south Brazil. J Public Health Dent. 2006 spring; 66(2):110-5.
13. López R, Baelum V: Gender differences in tooth loss among Chilean adolescents: socio-economic and behavioral correlates. Acta Odontol Scand.2006 Jun; 64(3):169-76.
14. Wennström A, Ahlqwist M, Stenman U et al, : Trend in tooth loss in relation to socio-economic status among Swedish women, aged 38 and 50 years: repeated cross-sectional surveys 1968—2004. BMC Oral Health. 2013 Nov 6; 13(1):63
15. Hanioka T, Ojima M, Tanaka K, Aoyama H: Relationship between smoking status and tooth loss: findings from national databases in Japan. J Epidemiol, 2007 Jul; 17(4):125-3.

ANNEXURE

AN ASSESSMENT OF RISK FACTORS FOR TOOTH LOSS AMONG PATIENTS ATTENDING OPD OF FAROOQIA DENTAL COLLEGE & HOSPITAL, MYSORE, KARNATAKA

OP NO; -----

NAME:

AGE:

SEX: Male / Female

ADDRESS:

MARITAL STATUS: Single / married

EDUCATION: No schooling/ Primary school / high school/ Graduate

INCOME: Rs 2000-5000/ Rs 5000-10000/ Rs100000 & more (monthly)

SMOKING HABITS: Never smoked/ Previous smoker/ Current smoker

USAGE OF SMOKELESS TOBACCO: never used/ previous user/ current User

DENTAL VISITING PATTERN; Regular/ not regular

LAST DENTAL VISIT: 1ST time/ within last year/ more than a year

ORAL HYGIENE PRACTICES: Cleaning teeth with – Finger
Tooth Brush
Indigenous (.....)

OTHER ORAL HYGIENE MATERIALS USED: Flossing
Tongue cleaning
Tooth pick
None

SELF RATED ORAL HEALTH CARE: Good/ Fair / Poor

SELF PERCEIVED NEED FOR DENTAL CARE: Yes / No

INTRA ORAL EXAMNTION:

Number of teeth missing:

17	16	15	14	13	12	11	21	22	23	24	25	26	27	
47	46	45	44	43	42	41	31	32	33	34	35	36	37	

How to cite this article: Gurudath G, Vijay Kumar KV, Sindhura A. An assessment of risk factors for tooth loss among patients attending OPD of Farooqia dental college & hospital, Mysore, Karnataka. Int J Health Sci Res. 2016; 6(2):218-224.
