



## Evaluation of Risk Factors for Tooth Loss - Cross Sectional Study

<sup>1</sup>Dr.G. Jesudas\*, <sup>2</sup>Dr.R. Vijay Kumar, <sup>3</sup>Dr.p. Sindhu Chandrika, <sup>4</sup>Dr.V. Vara Prasad,  
<sup>5</sup>Dr. B. Supraja, <sup>6</sup>Dr. K.V.Chakrapani

<sup>1</sup>Professor & HOD, <sup>2,3</sup>Assistant Professor, <sup>4</sup>Professor, <sup>5</sup>Assistant Professor, <sup>6</sup>Tutor

<sup>1</sup>Department of Pedodontics and Preventive Dentistry,

<sup>2</sup>Department of Dental Surgery, Government Medical College, Anantapur, Andhra Pradesh

<sup>3</sup>Department of Orthodontics & Dentofacial Orthopedics

<sup>5,6</sup>Department of Oral Pathology & Microbiology

<sup>1,3,5,6</sup>Government Dental College & Hospital, Kadapa, Andhra Pradesh

### \*Corresponding Author:

**Dr. B. Supraja**

Assistant Professor, Department of Oral Pathology & Microbiology, Government Dental College & Hospital,  
Kadapa, Andhra Pradesh

Type of Publication: Original Research Paper

Conflicts of Interest: Nil

### 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 Govt. Medical College &, Hospital, Anantapur

**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.

Univariant 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 Govt. Medical College & Hospital, Anantapur.

**Keywords:** Risk factors, Tooth loss, 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 back ground. 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.<sup>2</sup>

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.<sup>3</sup>

**Methodology:** Sample selection: study is a cross sectional observational study , where all adult patients aged 18 years and above attending OPD of Govt. Medical College & Hospital, Anantapur 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.

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. Data were recorded in one sheet and entered into computer file using the SPSS for windows program.

**Results:**

**Table- 1**Distribution of study subjects by age group

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%)
<b>Total</b>	<b>55 (36.7%)</b>	<b>95 (63.4%)</b>	<b>150 (100%)</b>

**Table- 2**Distribution of study subjects by education

Education	Male	Female	Total

	N	%	N	%	
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

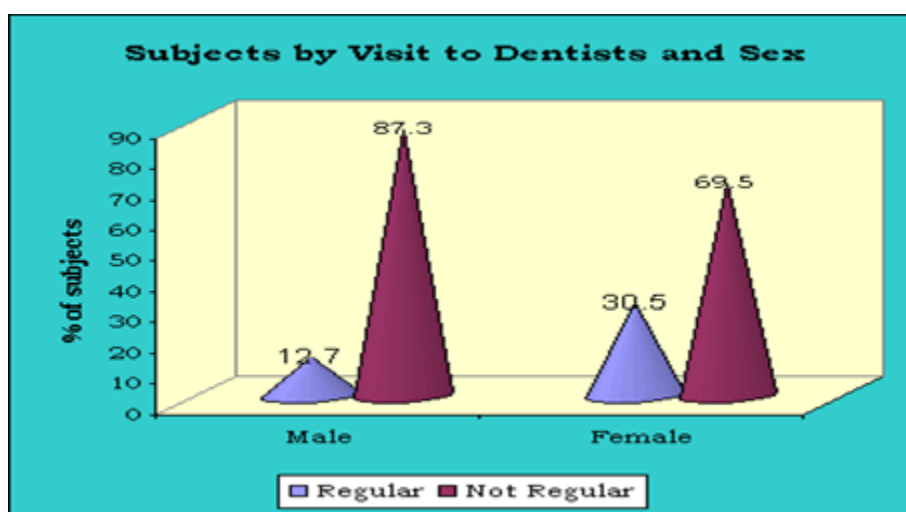


Table-3. Distribution of study subjects by number of teeth missing

No. of Teeth missing	Male		Female		Total

	N	%	N	%	N
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
<b>Total</b>	<b>55</b>		<b>95</b>		<b>150</b>

## 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<sup>4</sup>. 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<sup>5</sup>. 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.<sup>6</sup>

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.<sup>7</sup> Other reported factors associated with missing teeth include education, income, oral hygiene practices, marital status, gender and smoking.<sup>8</sup> Subject's attitudes and beliefs, education and income are among the factors that influence a decision to extract teeth.<sup>9</sup>

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.<sup>10</sup>

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

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.

#### **Bibliography:**

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, 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