Tooth loss Prosthetic Status and Treatment Needs Among Urban And Rural Adult Population of Gurgaon District.

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Abstract

Background: This study was conducted to assess the tooth loss and prosthetic treatment needs of urban and ruralpopulation.

Material and methods: The subjects having age above 18 years were enrolled. The study group belonged to both urban and rural areas. Study subjects who were below 18 years of age and were excluded from thestudy.Third molars were not included in the study.

Results: Studypopulation consisted of 1100, of which 700 urban population, among them 350 were men,350 were women and 400 rural population, among them 200 were men and 200 werewomen.Age groups were divided into 4 groups 1= 18-36 years , 2 = 37-56 years, 3= 57-74 years and 4= 74 above. Out of 1100, in the age group of 18-36 yrs. The Urban population was 270 (38.5%) , Rural was 142 (35.5%) and total was 412 (37.4%). Inage group of 37-56 years the Urban population was 264 (37.7%) , Rural was 138 (34.5%)and total was 402 (36.5%) . In age group of 57-74 years the Urban population was 129(18.4%) , Rural was 109 (27.25%) and total was 238 (21.6%) . Among 74 above age group, Urban population was 37(5.28%) , Rural population was 11(2.75%) and total was 48 (4.36%).

Conclusion: The findings of this study clearly demonstrate ahigh unmet need for prosthetic care among the population surveyed. These results mayserve as a baseline reference for the future evaluation of prosthetic status and prostheticneed among the population at large scale. The present study made an attempt to assess therelation between gender, socio economic status and prosthetic status as well as prostheticneed. The study found a significant relationship between gender with prosthetic need.Highly significant relation was also seen between socioeconomic status of studypopulation and prosthetic need.

Keywords: tooth loss, prosthetic, rural, urban.

Introduction

Oral health is an imperative aspect of quality of life, but it is still the most neglected as oral diseases are not considered life threatening. Good oral health entails the retention of deciduous as well as permanent teeth as long as possible, because teeth are essential to perform masticatory functions and for good esthetics and phonetics likewise tooth loss will adversely affect the quality of life at biological, psychological and social levels.[1] Health is a common theme in most cultures and is a fundamental human right without distinction of race, religion, political belief, economic and social condition. It was recognized both in developed and developing countries, that the standard of health services, the public expected was not being provided. There was a drastic difference in the health status of the people between developed and developing countries, between the rural and urban population, as well as between the rich and poor. This was termed as social injustice. Against this background, the members of world health organization in 1981, pledged themselves to an ambitious target of “Health for all by the year 2000”. Health for all, meaning a level of health that will enable every individual to lead a socially and economically productive life. [2]

Prosthetic treatment of oral cavity is carried in order to improve aesthetics and reinstate lost mastication functions. All these premises are to improve quality of patient’s life.

Increasing loss of dentition is causing a necessity of mastication organ's rehabilitation by using dentures.[3] Epidemiological measures of tooth loss suggest that while complete tooth loss is on the decline, more people will maintain teeth as they age and partial tooth loss will continue to require management by the dental professionals. The two major oral diseases, dental caries and periodontal disease are both microbial-mediated processes involving bacteria indigenous to the mouth and impact individuals worldwide. Missing teeth have a considerable impact on mastication, digestion, phonation and aesthetics and have been associated with increased predisposition to geriatric diseases.[4]

Much like the fact that decline in activities of daily living is a final common pathway for a broad range of decrements in general health, tooth loss constitutes a final common pathway for most dental diseases and conditions. This tooth loss can lead to substantial impacts on quality of life. Naturally, in an effort to prevent or ameliorate some of these decrements in oral health-related quality of life, dentists frequently recommend removable or fixed prosthetic treatment for tooth loss.[5] Furthermore, tooth loss is considered a worldwide public health issue, primarily in relation to the impact of this absence on quality of life. The distribution and prevalence of complete and partial edentulism between developed and less-developed countries may be associated with a complex interrelationship between cultural, individual access to care and socioeconomic factors. World Health Organization databanks indicate that caries is still prevalent in the majority of countries internationally, severe periodontal disease is estimated to affect 5–20 % of the population, and the incidence of complete edentulism has been estimated between 7 and 69 % internationally. In India, prevalence of edentulism varies from 60 to 69 % of 25 years and above age group.[6]

In India, the average life expectancy at birth increased from 50.5 years for males and 49.0

years for females in 1970-1975 to 61.8 years for the males and 64.1 years for females in 1999-2001; it is expected to reach 69.8 years for males and 72.3 years for females by 2021-2025. As a result of the increasing life expectancy, the proportion of the elderly in the total population is projected to be around 20% in India and 32% in the developed nations by 2050.[7] Aging is a normal biological phenomenon of life and the changes seen in the mouth as age advances are partly the consequences of age itself, partly the result of wear and tear on the tissues and partly the consequences of the fact that certain diseases become common as age advances. 8 Although edentulism is not a life threatening condition, it has an important impact on the individual and the community regarding functional and social limitations as well as the use of public services.

Material and methods

Subjects who were willing to participate in the study, those above 18 were included.

Study subjects who were below 18 years of age were excluded from the study.Third molars were not included in the study. Teeth indicated for extraction were considered as missing teeth.

SAMPLE SIZE ESTIMATION – It was calculated using the formula n=4pq/l 2

where p= population proportion of positive character, q=1-p & L= Allowable error. For this study L was presumed to be 10 % of p giving a power of (1-L) i.e. 90% to study. For the purpose of estimating the sample size, the prevalence is taken from the National Oral Health Survey Fluoride Mapping 2002-2003, 78 in which the prevalence of edentulousness came to be 33.1% . The sample size thus calculated by formula was 812. To remove the possible errors, a sample of 1100 will be taken into the subject.Hence, total of 1100 subjects in the age of 18 and above will bestudied during the main survey.

Before the data collection and clinical examination, the purpose and the methodology of the survey was explained to each of the subject and informed consent was obtained.

The data obtained was analysed using SPSS (Statistical Package for the Social Sciences), version 11.5 for windows. All the data collected is subjected to appropriate statistical analysis like Chi-square test for correlation would be used and compilation of result will be done. The data collected is appropriately represented by tables and graphs form. Significance for all statistical tests was predetermined at a probability (p) value of 0.05 or less.

Results

TABLE 1: DISTRIBUTION OF STUDY POPULATION BY GENDER AND LOCATION

GENDER	LOCATION		**TOTAL**
	1= URBAN	2= RURAL	
MALE	350	200	550
FEMALE	350	200	550
TOTAL	**700**	**400**	**1100**

Study population consists of 1100, of which 700 urban population, among them 350 were men, 350 were women and 400 rural population, among them 200 were men and 200 were women.

TABLE 2: Shows distribution of study population by age and location.

AGE	LOCATION	TOTAL

	1= URBAN	2= RURAL	
18-36YEARS	270(38.5%)	142(35.5%)	412(37.5%)
37-56YEARS	264(37.7%)	138(34.5%)	402(36.5%)
57-74YEARS	129(18.4%)	109(27.2%)	238(21.6%)
74 ABOVE	37(5.3%)	11(2.75%)	48(4.36%)
TOTAL	**700**	**400**	**1100**

Study populationconsist of 1100, of which Age groups are divided into 4 groups 1= 18-36 years , 2 = 37-56 years, 3= 57-74 years and 4= 74 above. Out of 1100, in the age group of 18-36 yrsthe Urban population is 270 (38.5%) , Rural is 142 (35.5%) and total is 412 (37.4%). Inage group of 37-56 years the Urban population is 264 (37.7%) , Rural is 138 (34.5%) and total is 402 (36.5%) . In age group of 57-74 years the Urban population is 129 (18.4%) , Rural is 109 (27.25%) and total is 238 (21.6%) . Among 74 above age group Urban population is 37(5.28%) , Rural population is 11(2.75%) and total is 48 (4.36%).

TABLE 3 : Shows distribution of study population by socioeconomic status and location.

SOCIOECONOMIC STATUS	LOCATION		**TOTAL**
	1= URBAN	2= RURAL	
UPPER	22(3.1%)	4(1%)	26(2.36%)
UPPER MIDDLE	134(19.1%)	30(7.5%)	164(14.9%)
LOWER MIDDLE	436(62.3%)	180(45%)	616(56%)
UPPER LOWER	108(15.4%)	156(39%)	264(24%)
LOWER	0	30(7.5%)	30(2.7%)
TOTAL	**700**	**400**	**1100**

out of 1100 study population, majority of participant are of lower middle class , out of 700 in urban 436 (32.3%) and out of 400 in rural 180 (45%). This is also noticed that

upper middle class participants are very less in both urban 134 (19.1%) and in rural 30 (7.5%). In upper class also very less participants were their 22 (3.1%) from urban and 4 (1%) from rural. Total of study population from upper class is 26 (2.36%) , upper middle is 164 (14.9%) , 616 (56%) , 264 (24%) and 30 (2.7%).

TABLE 4 : DISTRIBUTION OF LOCATION, GENDER , AGE AND SOCIOECONOMIC STATUS WITH TOTAL NUMBER OF TEETH LOST IN STUDY POPULATION

NUMBER OF TEETH MISSING									
	0	**1**	**2**	**3**	**4**	**< 5**	**TOTAL**	**X^2**	**P value**
1. LOCATION									
URBAN	237 (33.9%)	148 (20.7%)	55 (7.8%)	54 (7.7%)	86 (12.3%)	120 (17.5%)	700		
RURAL	127 (31.8%)	67 (16.8%)	51 (12.8%)	24 (6%)	42 (10.5%)	89 (22.3%)	400		
TOTAL	**364 (33.09%)**	**215 (19.5%)**	**106 (9.6%)**	**78 (7.09%)**	**128 (11.6%)**	**209 (19%)**	**1100**	**14.425**	**0.013***
2. GENDER									
MALE	180 (32.7%)	114 (20.7%)	49 (8.9%)	36 (6.5%)	60 (10.9%)	111 (20.9%)	550		
FEMALE	184 (33.4%)	101 (18.7%)	57 (10.7%)	42 (7.6%)	68 (12.4%)	98 (17.9%)	550		
TOTAL	**364 (33%)**	**215 (19.5%)**	**106 (9.6%)**	**78 (7.09%)**	**128 (11.6%)**	**209 (19%)**	**1100**	**3.204**	**0.666**
3. AGE									
18-36 YEARS	175 (42.4%)	73 (17.7%)	33 (7.9%)	29 (7.02%)	42 (10.2%)	61 (14.8%)	413		
37-56 YEARS	115 (28.8%)	82 (20.5%)	48 (12%)	36 (9%)	47 (11.8%)	72 (18%)	400		
57-74 YEARS	65 (27.19%)	50 (20.9%)	20 (8.7%)	13 (5.4%)	33 (13.8%)	58 (24.7%)	239		

74 ABOVE	9 (18.8%)	10 (20.03%)	5 (10.5%)	0	6 (12.5%)	18 (37.5%)	48		
TOTAL	**364 (33.09%)**	**215 (19.5%)**	**106 (9.6%**	**78 (7.09%)**	**128 (11.6%)**	**209 (19%)**	**1100**	**48.015**	**0.00***
4.SOCIOECONOMIC STATUS									
UPPER	8 (30.8%)	8 (30.8%)	5 (19.3%)	2 (7.7%)	3 (11.5%)	0	26		
UPPER MIDDLE	53 (32.3%)	33 (20.1%)	13 (7.9%)	12 (7.3%)	19 (11.6%)	34 (20.7%)	164		
LOWER MIDDLE	221 (35.9%)	116 (18.9%)	50 (8.1%)	44 (7.14%)	75 (12.8%)	110 (17.9%)	616		
UPPER MIDDLE	73 (27.7%)	56 21.3%)	34 (12.9%)	18 (6.9%)	27 (10.2%)	56 (21.2%)	264		
LOWER	9 (30%)	2 (6.6%)	4 (13.3%)	2 (6.6%)	4 (13.3%)	9 (30%)	30		
TOTAL	**364 (33.09%)**	**215 (19.5%)**	**106 (9.6%)**	**78 (7.09%)**	**128 (11.6%)**	**209 (19%)**	**1100**	**25.466**	**0.184**

A total of 1100 individuals were examined, having 700urban population and 400 rural population. The study population was divided into twogroups viz. 0-5 missing teeth and a group with < 5 missing teeth. Out of these 364(33.09%) showing no tooth loss , 215 (19.54%) had one tooth loss , 106 (9.63%) had 2teeth lost and 209 (19%) had more than 5 teeth lost in their oral cavity. It was also foundto be statistically significant (P = 0.013).

Among these groups , 120 from urban and 89 from rural had more than five missing teeth. Whereas, 148 in urban and 67 in rural had only one tooth missing . When observed in relation to gender, males had more tooth loss than females. In case of gender , 111 males and 98 females had more than 5 tooth missing. It was also seen that 184 females and 180 males had no missing tooth.

Out of 1100 study population , 61 in 18-36 years age group, 72 in the 37-56 years age

group , 58 in 57-74 years age group and 18 in 74 above age group had more than 5 missing teeth. This was a highly significant difference among different age groups in relation to number of missing teeth (p = 0.00).

Among the groups of number of teeth missing , the socioeconomic status of study population maximum tooth loss was seen in lower middle class i.e. 616 out of 1100. From 1100 study population in upper middle class 73 had no tooth loss, 56 had one tooth missing, 34 had two teeth missing and 56 had more than five teeth missing. Similarly in lower middle class 221 had no tooth loss was seen , 116 had one tooth missing and 110 had more than five teeth missing. The result was found to be non significant in case of socioeconomic status and number of tooth missing.

Discussion

A total of 10 villages of rural area and 12 wards of urban area of Gurgaon block were included in the present study comprising a total population of 1100 including 550 males and 550 females. Urban and rural representations of the subjects were 700 & 400 respectively.

Table 1 shows that male and female ratio taken was same from both urban and rural population. It was also observed from table 3 that more than five teeth missing was maximum in males (20.18%) than females (17.81%) and the result was non - significant . Similar results were seen in the study done in 2003 23 that no significant difference was obtained between genders with respect to the tooth number. These results are in contrast with many studies that females had significantly higher tooth loss than males which is supported by Manu narayan et al[8] , Patil v et al[9] , Nadia khalifa et al.[10] According to Esan et al.[11] this has been attributed to the fact that males are more active than females and do not pay much attention to oral care but we observed in Haryana that females are

more active in paying attention to oral care than males.

It is observed from (Table 2), that 37.5% study population is of 18-36 years, 36.5% of 37-56 years, 21.6% of 57-74 years and 4.36% of 74 above age group. The results of this study showed that maximum study population is 18-36 years of age group and minimum population is of 74 above. There were fewer patients in above seventy years age groups because geriatric patients give a lower priority to dental health. Older people make extensive use of medical facilities, but they seem to underuse dental facilities.[12] Mobility problems, lack of information, and misconceptions about the value of dental visits have been mentioned as contributing to this apparent disinterest in dental care among geriatric patients.[13] Mean age was 42.4 years whereas in the study by Wang et al[14] and by Esan et al[11] reported that the mean age group was of 38.8 years and 41.8 years. The results of this study showed that there was an increase in tooth loss with age as shown in table 3. Among study population 14.76% in the 18-36 years age group, 18% in the 37-56 years age group, 24.26% in the 57-74 years age group and 37.5% in the 74 above age group had more than five missing teeth. Highly significant difference among different age groups in relation to number of missing teeth ($p = 0.00$). Similar results were reported by

Patil V et al[9] study which is conducted on industrial workers , almost similar age groups were taken as in this study and highly significant difference was also seen. The results of our study in agreement with the results obtained by Khalifa N et al[15] ,Sveikata K et al[4] and Kalyanpur R et al.[1] Tooth loss in elderly population, was reported by several studies in the past, showing a strong association with mortality. This signifies that the aging factors affecting the tooth loss. Hence, there is a need to ensure special care for the elderly population to prevent tooth mortality and to preserve optimal oral health. 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.[16] 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.[17] At a slightly lower level , mood level is also affected , possibly in relation to dissatisfaction with personal appearance and eventually, self esteem , such as relationship has been outlined is other studies as well.[18]

Among the groups of number of teeth missing , the socioeconomic status of study population the maximum tooth loss was seen in lower middle class i.e. 616 out of 1100. From table 3 , in upper middle class 73 (27.7%) had no tooth loss, 56 (21.3%) had one tooth missing, 34 (12.9%) had two teeth missing and 56 (21.2%) had more than five teeth missing. Similarly, in lower middle class 221 (35.9%) had no tooth loss , 116 (18.9%) had one tooth missing and 110 (17.9%) had more than five teeth missing. In this study, the number of missing teeth was not associated with socioeconomic status , which is similar with the study conducted by Patil V et al.[9] This similarity between results is might be because most of the study population had a low socioeconomic status. Personal oral hygiene has an important influence on oral health. For this reason in our questionare we asked about personal teeth brushing habits like oral hygiene practice, frequency, oral hygiene aids and harmful habits.[4]

Table 4 describes distribution of studypopulation by oral hygiene practice and location. Many subjects in study populationprefer toothbrush (79%) as oral hygiene practice , in urban 605

(55%) and in rural 264 (66%) uses toothbrush. This was also found that in rural population still 115 (28.7%)study population use finger as oral hygiene practice.

When the study population were asked about the frequency of using toothbrush maximum subjects 944 (85.9%) replied once in a day. It was also found that majority participant 112 (16%) in urban population brushes twice in a day . Similar results were observed in the study conducted in Sudanese adults (> 16 years old) attending outpatient clinics in Khartoum state.[15] We also noticed that younger patients paid more attention for oral health than older, by more frequently tooth brushing. Only 14.27% of all respondents brushed their teeth twice a day . In comparison women cared for their teeth better than men but no statistical difference was seen. Whereas the similar study when conducted in middle aged and elderly population in Vilnius found statistically significant decrease in teeth brushing with the age for both genders (p < 0.001) and statistically difference in frequency of toothbrushing between men and women (p>0.001).[4]

Out of total study population, no tooth loss was seen in 48(26.9%) subject using finger , 295 (33.9%) using toothbrush and 21 (39.6%) use other materials. Only one tooth lost was seen in 28 (15.7%) using finger, 177 (20.7%) using toothbrush and 10(18.9%) using other materials. More than 5 teeth lost was seen in 44 (24.7%) using finger,155 (17.8%) using toothbrush and 10 (18.9%) using other materials. Results were found to be non significant.

When study population was asked about frequency of cleaning teeth, maximum replied once in a day i.e. 943 out of 1100 and 157 replied twice in a day . No tooth loss was seen in 297 (31.5%) people those who cleans their teeth once in a day and 67 (42.7%) who clean twice in a day. More than 5 teeth are missing in 188 (19.9%) those who cleans once in a day and 21 (13.4%) people those who cleans twice in a day. This result is also found

to be significant P = 0.032.

Out of 1100, 876 use toothpaste, 151 use toothpowder and 27 uses other materials. When observed with total number of teeth missing, no tooth loss was seen in 299 (34.1%) who were using toothpaste , 38 (25.2%) using toothpowder and 27 (36.9%) using othermaterials. More than 5 teeth missing was seen in 153 (17.5%) people using toothpaste, 40 (26.5%) using toothpowder and 16 (21.9%) using other materials. Results were found to be non-significant .

Conclusion

The findings of this study clearly demonstrate a high unmet need for prosthetic care among the population surveyed. These results may serve as a baseline reference for the future evaluation of prosthetic status and prosthetic need among the population at large scale. The present study made an attempt to assess the relation between gender, socio economic status and prosthetic status as well as prosthetic need. The study found a significant relationship between gender with prosthetic need. Highly significant relation was also seen between socioeconomic status of study population and prosthetic need.

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