Cognizance and Perception of Periodontal Disease among the Rural Population of Chennai – A Cross Sectional Study

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Abstract:-

➢ *Objectives:*
The aim of this study was to evaluate knowledge and awareness of periodontal disease among the rural population in and around Chennai.

➢ **Methods:**
151 participants were recruited into this cross sectional study. Astructured questionnaire was distributed as Google forms.

➢ *Results:*
Only half the population were aware of oral hygiene measures, periodontal disease signs and symptoms and its risk factors including Diabetes and smoking.

➢ *Conclusions:*
Levels of periodontal awareness was low among the rural Chennai population and initiation of more awareness camps and health programs are suggested in attempt to improve awareness levels.

Keywords:- Periodontal Infection, Smoking, Bad Breath.

I. INTRODUCTION:

Oral health and general health are inseparable. As rightly said, oral cavity is considered as mirror, reflecting the status of general health condition. Periodontal disease initiated by the subgingival predominantly gram negative leads to an immunoinflammatory reaction eventually causing bone and tooth loss.(1)Periodontitis is always preceded by gingivitis followed by inflammation and bleeding. Periodontal disease can be easily prevented by removing the etiological factor causing periodontal disease. (2)

Individuals of any age group can be affected by periodontal disease. Besides this, gender and ethnic background and a pleothora of factors play a contributing role. Some of the initial signs and symptoms are bleeding of gums, gingival recession, bad breath(oral mal-odour). Since the beginning stages are innocuous, many do not approach the dentist till they are pain free. Similarly, poor oral health leads to many health problems so prevention should be taken by each individual throughout the country. William Hunter in 1900, suggested that teeth are prone to septic infection. There is a always a co-relation between and periodontal infection which was termed as" Periodontal Medicine" by Offenbacher in 1996(3). The importance of maintaining oral health is always ignored by most of the people as they are not unaware of co-relation between systemic disease and periodontal infection. The motto of present study was to assess the awareness of oral hygiene, periodontal disease and its impact on general health among the rural population in and around Chennai.

II. METHODS

The study was undertaken as a cross sectional survey across rural areas in and around Chennai. Totally 151 responses were collected by distribution of Google forms. As this study was undertaken during the Covid lockdown period, the process was explained to all the participants and those interested were asked to fill up the forms. The questions included demographic details, socio economic status of the participants and substantive questions exploring the participants on oral hygiene methods etc. The questionnaire had both combination of selected response to few questions and some with close ended questions(Yes / No). On completion, their responses were collected and subjected to statistical analysis.

III. STATISTICS

Nonprobability, convenient sampling technique was employed that yielded information from 151 random samples grouped as 49 male and 103 female participants were taken into this observational study having a cross-sectional design. The questionnaire was prepared; responses were noted among the selected population group under the study and evaluated for statistical analysis by SPSS software Version 20.0.On statistical evaluation it was observed all 152samples were valid for the study with Cronbach's alpha reliability score being 0.722.

IV. RESULTS

The demographic data showed 68.2% of female preponderance with 31.8% males. The mean age of the study population was found to be 26.3815years with S.D of 6.775 (Years). 93 out of 152 belong to 15-25 years category, 44 were from 26-35 years, 13 from 36-45years and 2 from 46-55 years of age group ranging from maximum age of 51years and minimum of 17years in the study. 35.5% were homemakers followed by 21.7% as technicians and 17.8% were working as senior officials and 5.1% as skilled workers. The remaining were distributed among craft and related trade, clerks, machine operators and agriculturists etc. when the education qualification of the head of the family was considered, 53.3% were at the graduate level, 15.8% had completed a diploma course, 10.5% had finished school education and only 6.6 belonged to the illiterate category.

When quizzed about their oral hygiene practices, half of them (50.7%) responded that they brush twice a day and 44.1% practice brushing once daily. 32.2% used a horizontal stroke for brushing, 28.2% round strokes while 25.5% practices vertical strokes and 14.1% were not aware of the method used. 62.2% answered to changing their toothy brush once in 3 months, and six months was answered by 31.3% and 6.7 % changed it annually. Uses of interdental aids received a positive response by 58% and 42% did not use any. Of the interdental aids, mouth rinses was used by half the responders and tongue cleaners by 27.5% and only 22% used dental floss. Bad breath was considered to be the cause of poor oral hygiene and gum disease by 60.4% of the participants. Use of salt in preventing gum disease was considered to be effective by 62.9% while 11.9% did not. 43.6% were able to identify poor oral hygiene as the commonest cause for bleeding gums, while 28.9% believed it to be the lack of Vitamin C. 18.8 % considered injury to gums and 8.7% were unsure. However, more than half (56.6%) felt that a dentist should be consulted for bleeding gums, while 23.5% replied negative. Sensitivity to hot and cold was also considered as a periodontal problem by 55.7% of the responders.

The commonest cause for tooth loss was attributed to old age by 32.9%, poor oral hygiene by 27.5%, diabetes by 24.8% and 14.8% related it to trauma and 56% believed that missing teeth does have a impact on oral health. On quizzing specifically whether gum disease can lead to tooth loss, 66.2% gave a positive response and 15.5% did not.

On the effect of smoking on oral health, 76.5% responded positively and 14.8% were unsure and only 8.7% believed that it did not. On probing the link between systemic health and oral health, diabetes was considered to be involved by 59.1% of the responders and 29.5% were not sure. Less than half of the participants (40.9%) answered that gum infection did complicate pregnancy and answered in affirmative(47.3%) that they can undergo dental treatment while 32% believed they should not.

One-way ANOVA was performed to evaluate the interrelationship between the demographic data obtained within and between the study groups. The ANOVA test showed f-ratio value of 0.93432. The p-value is < .44082. The result is not significant at $p < .05$(Table 1)

ONE WAY ANOVA FOR INDEPENDENT VARIABLES					
SUMMARY	EDUCATION	OCCUPATION	EDUCATION OF HEAD	INCOME RANGE	TOTAL
N	5	9	5	7	26
∑X	152	152	152	152	608
Mean	30.4	16.8889	30.4	21.7143	23.385
∑X2	5266	4994	8312	3534	22106
Std.Dev	12.7004	17.4173	30.3776	6.2374	17.763
Source	SS	Df	MS	F = 0.93432	
Between-variables	891.4364	3	297.1455		
Within-variables	6996.7175	22	318.0326		
Total	7888.1538	25			
The f-ratio value is 0.93432. The p-value is .44082.					

The result is not significant at p < .05.

Table 1

Chi Square test was performed to evaluate the interrelationship between the questionnaires data obtained within and between the study groups. The p-value is < .00001. The result is highly significant at p < .05 (Table 2)

QUESTIONS	Chi square value	p value	significance level	Significance
1	28.658	<0.00001	p<0.05	Yes
2	53.555	<0.00001	p<0.05	Yes
3	8.211	0.04186	p<0.05	Yes
4	63.782	<0.00001	p<0.05	Yes
5	3.184	0.07435	p<0.05	No
6	28.579	<0.00001	p<0.05	Yes
7	32.667	<0.00001	p<0.05	Yes
8	35.21	<0.00001	p<0.05	Yes
9	60.495	<0.00001	p<0.05	Yes
10	45.755	<0.00001	p<0.05	Yes
11	32.416	<0.00001	p<0.05	Yes
12	7.895	0.04824	p<0.05	Yes
13	65.188	<0.00001	p<0.05	Yes
14	117.523	<0.00001	p<0.05	Yes
15	32.667	0.00551	p<0.05	Yes
16	13.8	0.00101	p<0.05	Yes
17	2.995	0.22374	p<0.05	No
18	75.318	<0.00001	p<0.05	Yes
19	46.406	<0.00001	p<0.05	Yes
20	74.863	<0.00001	p<0.05	Yes
21	30.902	<0.00001	p<0.05	Yes
22	10.919	0.00426	p<0.05	Yes
23	10.753	0.00462	p<0.05	Yes
24	23.136	<0.00001	p<0.05	Yes
25	9.705	0.00781	p<0.05	Yes

Table 2

*p-value significance is set at <0.05

V. DISCUSSION:

Periodontal disease is one of the most prevalent oral diseases affecting the individual irrespective of their age. The main cause of periodontal disease is bacterial biofilm. Hormonal changes, diabetes, poor nutrition, stress and smoking are some of the risk factors associated with periodontal disease(4). The purpose of this cross sectional study was to assess the perception of rural population in and around Chennai on periodontal disease, oral hygiene practices and the effect of oral health on systemic health.

Around half the subjects (50.7%) responded that they brush twice a day,44.1% practice brushing once daily and 62.2% answered to changing their tooth brush once in 3 months. Also when we asked about the brushing technique 32.2% have chosen horizontal motion ,28.2% for round{circular} , 25.5% for vertical motion and 14.1% of them were not aware of the method they adapted for brushing and these results were similar to that of a study conducted in Maharashtra in the year 2018(5). In a study conducted on patients from North Malabar Region by AnuChandran et al 52% subjects revealed that they used to brush once a day whereas in our present study 44.1% revealed that they brush teeth once daily(6). Our results are in par with the above study but a greater percentage brushing twicw daily.

On comparing with study conducted by AnuChandran et al, the present study has less percentage of subject who brush their teeth once daily (6).

Use of interdental aids received a positive response by 58%.Of the interdental aids, mouth rinses was used by half the responders and tongue cleaners by 27.5% and only 22% used dental floss. In the study conducted among Saudi population by Maha A Bahammam, 26.4% recruits used floss, similar to the results obtained from this survey(7). Bad breath was considered to be the cause of poor oral hygiene and gum disease by 60.4% of the participants. 43.6% were able to identify poor oral hygiene as the commonest cause for bleeding gums.In a study conducted about awareness and motivation on periodontal health in Maharashtra by PriyankaGangadharkapse et al(5), 49% of participants accepted that bad breath or halitosis is due to gum disease whereas the results obtained in present study were better {67.8%} when compared to it.

In present study 25.8% recruits agreed that one should visit dentist 2-3months whereas in study conducted by Gautami S Penmetsa et al revealed that 34.6% agreed that they would visit dentist for every 3months.On comparing present study with study conducted by GautamiS.Penmetsa et al the percentage of recruits who agreed that one should visit dentist for 2-3 months is less(8).

Our study revealed that only a proportion of population (50.7%), in rural areas in and around Chennai are aware of prevalent periodontal problems, its association with systemic diseases like Diabetes and interplay of environmental factors like smoking on periodontal health. Knowledge and awareness dispersal through newspapers, brochures, media and more dental/periodontal camps in the rural areas will improve their perception and increase the number of people seeking dental and periodontal treatment.

VI.   CONCLUSION

There is increased dental awareness among the general population in cities, but in rural areas awareness about periodontal diseases and its systemic impact is less and those seeking periodontal treatment even lesser. The need of the hour is to increase their perception. Oral screening and referral may benefit their patients by improving access to periodontal care.

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