Prevalence of Periodontal diseases in North Gujarat

[1]Dr Rachana M. Gandhi, Senior Resident, Department of Dentistry, GMERS Medical College, Himatnagar.

[2]Dr Haritma Nigam, Assistant Professor, Department of Oral Medicine & Radiology, Pacific Dental College & Research Centre, Udaipur.

[3]Dr Mital Gandhi, Dental Surgeon, Class 1, GMERS General Hospital, Himatnagar.

[4]Dr Takshil D. Shah, Consultant Prosthodontist, Chandan Multi-Speciality Dental Clinic, Ahmedabad, Gujarat.

[5]Dr Pravin Parmar, Assistant Professor, Department of Dentistry, SMIMER Medical College, Surat.

Corresponding author: Dr Takshil D. Shah, Consultant Prosthodontist, Chandan Multi-Speciality Dental Clinic, Ahmedabad, Gujarat.

Type of Publication: Original Research Article

Conflicts of Interest: Nil

Abstract

Background & Objective: Periodontitis is one of the most commonly found oral problems, with its prevalence worldwide. It often leads to poor oral hygiene eventually causing number of oral disorders like halitosis, bleeding gums ultimately resulting in tooth loss. The rationale of the study was to verify the periodontal status in the population.

Methods: A cross sectional study was done with total of 238 patients of age group ≥10 years was examined. The target population constituted randomized sample of population of northern Gujarat. Oral hygiene prominence was evaluated according to Green and Vermilion Simplified Oral Hygiene Index (OHI- S). Chi square test was done and was calculated by using software sociostatistics which was found to be statistically significant (*P value* = < 0.00001 at p<0.05).

Results: Good oral hygiene was maintained by males under age group 20-29 years, they used toothbrush as most common mode of oral hygiene maintenance with the highest frequency under age > 2 times and duration > 2 minutes. Males under age 30-39 years were well aware regarding the importance of regular dental visit.

Conclusion: In this present study we concluded that there is lack of awareness in this population along with poor oral hygiene status in most of the population. Regular dental check-ups, oral prophylaxis and education about importance of maintain good oral hygiene and adverse effects of poor oral hygiene need to be done for changing the present scenario.

Keywords: OHI-S, Periodontal disease, Prevalence.

Introduction

Oral diseases are important as they can cause tooth loss and affect the general health and wellbeing of an

individual by influencing their diet, speech and deteriorating already present chronic diseases such as diabetes and heart disease.[1]Furthermore, oral problems and tooth loss may lead to low positive self-image, self-confidence and consequently, low quality of life.[2]Tooth decay has been recognized as the most persistent and frequent childhood dental problem, many children and adults worldwide have symptoms of periodontal diseases.[3] Most of the periodontal diseases can be reversed in the early stages; but, if they are not treated and progress, they can become painful, irreversible and their complications usually remain for a lifetime.[4] Therefore, gingival and periodontal diseases may eventually cause tooth loss.[5]

Periodontal disease is a chronic inflammatory disease resulting in destruction of tissues and structures surrounding the teeth. The presence of calculus indicates poor gingival and periodontal health.

Effective plaque removal in terms of adequate brushing time, effective brushing technique, or both factors rather than frequency of tooth brushing may be responsible for the fair and good oral hygiene status.

Oral hygiene status may be influenced by sweets consumption, which could make the oral cavity a suitable environment for microbial growth bacteria plaque, thereby influencing oral hygiene status. Plaque has been an important causative factor in the development of oral diseases such as dental caries and periodontal diseases and the reduction in its accumulation promotes oral health status. Oral hygiene is considered to be the most important factor in the prevention of oral diseases.

Oral hygiene status was evaluated according to Green and Vermilion Simplified Oral Hygiene Index (OHI- S). Present study was undertaken to determine the prevalence of periodontal disease in a population and to further characterize the extent and severity of the disease.

The main aim of the study was to collect a baseline data for the evaluation of periodontal health among various age groups and to determine the effectiveness of the oral hygiene practices. Also, the population was evaluated for awareness about benefits of maintaining good oral hygiene and the attitudes of the population towards various dental treatment procedures were recorded.

Materials and Methods

The study population consisted of 238 randomly selected individuals of varied age groups in northern Gujarat. Demographic details of the all the subjects were recorded and a thorough clinical examination was performed. In order to evaluate the periodontal status of subjects, Oral hygiene status, cleaning aids used, frequency and duration of cleaning along with patients attitude towards oral care was recorded. The oral hygiene was classified as good, fair or poor based on calculus and debris measurements. A disposable dental blunt-ended explorer and mirror were used for each examination. The obtained information was recorded in the information form designed according to the WHO standard chart.[6]

Ethical approval was taken from the institutional ethical committee prior to the research.

The oral hygiene status was determined via the Simplified Oral Hygiene Index (OHI-S) developed by Greene and Vermillion. It is a simplified index consisting of two components of debris and calculus, each with a possible score ranges of zero to three.[7]The total score was obtained by calculating the sum total of both the individual indices i.e. OHI-S = DI-S + CI-S, so the possible score ranges from zero to six. The amounts of calculus and debris were determined by examining the facial surfaces of teeth numbers 11, 16, 26 and 31, as well as the lingual surfaces of 36 and 46. OHI-S scores may be interpreted as; good (0–1.2), fair (1.3–3.0) and poor (3.1–6.0). Chi square test was done was calculated by using software sociostatistics,

which was found to be statistically significant (*P value =* < 0.00001 at p<0.05).

Results

A total of 238 participants, 125 males and 113 females of various age groups were included in this cross-sectional study.

This study was conducted for the evaluation of periodontal health by:

a) Oral hygiene status

b) Frequency, duration and mode of oral hygiene maintenance

c) Awareness towards regular dental check-up.

On comparing the results obtained the inference was; Good oral hygiene was maintained by males under age group 20-29 years, fair oral hygiene was observed in females under age 30-39 years and poor oral hygiene was observed in females under age 40-49 years (Table1).

Under mode of oral hygiene maintenance, the observation was males uses toothbrush as most common mode of oral hygiene maintenance with the highest frequency > 2 times under age 20-29 years and duration > 2 minutes (Table2). Males under age 30-39 years were well aware regarding the importance of regular dental visit (Table3).

Table1: Depicting the Maintenance of Oral Hygiene amongst Genders in A Population

	Good		Fair		Poor	
Age Groups (In Years)	Male N (%)	Female N (%)	Male N (%)	Female N (%)	Male N (%)	Female N (%)
10-19	1 (5.55%)	1 (5.2%)	2 (11.11%)	2 (10.4%)	7 (26.92%)	8 (27.5%)
20-29	3 (20%)	2 (12.5%)	9 (20%)	8 (50%)	7 (63.63%)	9 (81.81%)
30-39	1 (9.09%)	1 (9.09%)	18(69.23%)	19 (65.5%)	3 (60%)	6 (37.5%)
40-49	1 (3.84%)	2 (6.8%)	3 (27.27%)	1 (9.09%)	15 (83.33%)	16 (84.20%)
>50	5 (9.09%)	6 (15.78%)	45(81.81%)	24 (63.1%)	5 (9.09%)	8 (21.05%)

Table 2: Depicting the Frequency, Duration and Mode of Oral Hygiene Maintenance

	Frequency Of Brushing				Duration Of Brushing				Tooth Brushing Aid			
	1 TIME		≥2 TIMES		≤1 MIN		≥2 MIN		TOOTH BRUSH		CHEWING STICK	
Age Groups	M	F	M	F	M	F	M	F	M	F	M	F
10-19 yrs	15	17	3	2	16	16	2	3	18	19	0	0
20-29 yrs	5	8	50	30	8	8	47	33	25	13	0	0
30-39 yrs	13	10	18	27	12	12	3	3	22	20	5	3
40-49 yrs	10	9	8	2	25	28	1	1	12	10	6	7
>50 yrs	2	5	1	2	3	3	8	5	11	11	30	25

Table3: Depicting the Awareness Of Dental Visit

	Previous Dental Visits			
	Present		Absent	
Age Groups	M	F	M	F
10-19 yrs	4	3	14	16
20-29 yrs	6	5	8	9
30-39 yrs	9	8	9	10
40-49 yrs	3	4	23	25
>50 yrs	2	2	46	30

Discussion

Oral hygiene status may be influenced by a variety of factors including inability to maintain a healthy oral hygiene, sweets consumption and habits like smoking etc., which could make the oral cavity a suitable environment for microbial growth, bacteria & plaque, thereby affecting the oral hygiene status. Plaque is an important causative factor in the development of oral diseases such as dental caries and periodontal diseases and its reduced accumulation enhances oral health status of an individual. Oral hygiene is considered to be the most important factor in the prevention of oral diseases and can be easily achieved by inculcating certain habits like regular brushing and flossing of teeth to remove plaque and tartar from the teeth.

The poor oral hygiene may result from accumulation of deposits (plaque and calculus) due to neglect of personal oral health and lack of regular dental care. This study showed that most of this population needs periodontal treatment TN2, professional cleaning, and instructing them about methods of maintaining personal oral hygiene. This epidemiological survey was conducted to assess the oral hygiene status, oral hygiene practices and previous dental visits of people in northern Gujarat. The collected data will help us in the planning and implementation of oral health promotion program along with prevention for the same.

The study population comprised of individuals representing all sections of society there in individuals were from different income group, different educational qualification and religion. This ensured that the present study results are not only applicable on a certain population group but represents the generalized population.

There is a mutual relationship between disease and quality of life. Physical disorders and symptoms directly affect all aspects of the quality of life including oral health.

In our study, 67.2% of males and 68.14% of females used toothbrushes and toothpaste to clean their teeth. This may be because of the increased availability and affordability of toothpaste and toothbrush, as well as acceptability of toothbrush and toothpaste as teeth cleaning aid. But on the contrary 84.8% males and females brushed only once a day and 94.4% males and 85.8% females brushed for ≥1min which clearly denotes lack of awareness about different methods to improve oral hygiene and aids that can be used for a good oral hygiene status.

It was pragmatic that there was a gender disparity in oral cleanliness with males exhibiting better hygiene status than females. This was in contrast with the study of Popoola et al and Bamgboye O et al.[14,15] However, in line

with the study of Ojahanon PI et al where poor oral hygiene was found in males.[16]

Only 20% of males and 19.46% of females had ever visited the dentist routinely. This is in agreement with other studies,[17-19] in which meagre clinic turnouts was reported. The reasons for this little rehearsal of habitual dental visits and oral health employment in this cluster could be due to lack of dental care knowledge, poor accessibility to oral health care services and high cost efficiency of dental services.

This is indicative of lack of awareness regarding good oral hygiene and benefits of maintaining the same. Furthermore, when the relationship of age and periodontal disease was assessed it was observed that, the severity of periodontal disease increases with the advancing age.[8-13] These findings could be attributed to the general deterioration in immune function and tissue integrity in the older age that increases the vulnerability to the periodontal disease.

Conclusion

Present study provides with evidence of high prevalence of periodontal disease amongst the population. This study also unveils the lack of awareness for dental health amidst the population.

Results of present study firmly state that the study population requires motivation for maintenance of oral hygiene as majority of the population were ignorant towards their oral health status.

The present need of this population is to educate the people about benefits of maintaining good oral hygiene and ill effects of not maintaining it. They should be instructed about proper method of brushing and flossing. The use of interdental aids must be promoted. The importance of periodic dental check-ups and the need for oral prophylaxis every 6 months must be thoroughly explained.

References

1. Heilmann A, Tsakos G, Watt RG. Oral health over the life course. A Life Course Perspective on Health Trajectories and Transitions. 2015; 4:39–59.

2. Dean JA, Avery DR, McDonald RE. McDonald and Avery Dentistry for the Child and Adolescent-EBook: Elsevier Health Sciences; 2010.

3. Jin L, Lamster I, Greenspan J, Pitts N, Scully C, Warnakulasuriya S. Global burden of oral diseases: emerging concepts, management and interplay with systemic health. Oral diseases. 2016; 22(7):609–6019. https://doi.org/10.1111/odi.12428 PMID: 26704694

4. Jurgensen N, Petersen P. Promoting oral health of children through schools–Results from a WHO global survey 2012. Community Dent Health. 2013; 30(4):204–18. PMID: 24575523.

5. Health NIo. Periodontal (Gum) Disease: Causes, Symptoms, and Treatments. 2008.

6. Organization WH. Oral health surveys: basic methods: World Health Organization; 2013.

7. Greene JG, Vermillion JR. The simplified oral hygiene index. The Journal of the American Dental Association. 1964; 68(1):7–13.

8. Doifode VV, Ambadekar NN, Lanewar AG. Assessment of oral health status and its association with some epidemiological factors in population of Nagpur, India. Indian J Med Sci. 2000;54:261–69.

9. Kundu D, Mehta R, Rozra S. Periodontal status of a given population of West Bengal: An epidemiological study. J Indian SocPeriodontol. 2011;15(2):126–29

10. Singh A, Agarwal V, Tuli A, Khattak BP. Prevalence of chronic periodontitis in Meerut: A crosssectional survey. J Indian Soc Periodontol. 2012;16:529–32.

11. Nanaiah KP, Nagarathna DV , Manjunath N. Prevalence of periodontitis among the adolescents

aged 15-18 years in Mangalore City: an epidemiological and microbiological study. J Indian SocPeriodontol. 2013;17(6):784–89.

12. Goswami D. Periodontal treatment needs of a rural population of North East India. The Clarion. 2014;3(1):8–12.

13. Sekhon TS, Grewal S, Gambhir RS. Periodontal health status and treatment needs of the rural population of India: a cross-sectional study. J Nat SciBiol Med. 2015;6(1):111–15.

14. Bamgboye O, Akande TM. Oral hygiene status of students in selected secondary schools in Osogbo, Nigeria. Nig Med Pract 2007;51:71-5

15. Popoola BO, Dosumu EB, Ifesanya JU. Periodontal status and treatment need among adolescents in Ibadan, Southwestern Nigeria. Braz J Oral Sci 2015;14:117-21.

16. . Ojahanon PI, Akionbare O, Umoh AO. The oral hygiene status of institution dwelling orphans in Benin City, Nigeria. Niger J Clin Pract 2013;16:41-4.

17. Bashiru BO, Omotunde SM. Burden of oral diseases and dental treatment needs of an urban population in Port Harcourt, Rivers State, Nigeria. Eur J Gen Dent 2014;3:125-8.

18. . Ogunrinde TJ, Oyewole OE, Dosumu OO. Dental care knowledge and practices among secondary school adolescents in Ibadan North Local Government Areas of Oyo State, Nigeria. Eur J Gen Dent 2015;4:68-73

19. Adekoya-Sofowora CA, Nasir WO, Oginni AO, Taiwo M. Dental caries in 12-year-old suburban Nigerian school children. Afr Health Sci 2006;6:145-50.