

A CROSS-SECTIONAL STUDY ON AWARENESS OF PERIODONTAL SYSTEMIC HEALTH INTERRELATIONSHIP AND ORAL HYGIENE PRACTICES AMONG THE LOCAL POPULATION

DR. AYUSHI JINDAL¹, DR. ANKIT AGOEL²

Desh Bhagat Dental College & Hospital, Mandi Gobindgarh, Punjab, India

ABSTRACT

Objective: This cross-sectional study was carried out to know the oral hygiene practices and the awareness of periodontal systemic health inter-relationship amongst the general population.

Materials and Methods: A cross-sectional epidemiological survey was conducted 800 subjects and a self-constructed questionnaire was used to collect the information. OHI-S index was used to assess the oral hygiene status and patient's awareness for periodontal-systemic health inter-relationship was also assessed by questionnaire.

Results: It was observed that majority (66%) of studied subjects had fair oral hygiene status and many of them were not much aware about association of periodontal and systemic conditions which was statistically significant.

Conclusion: There is an imperative call for ample educational programs to promote good oral hygiene awareness and its impact on systemic health amongst the general population

Keywords: Awareness, Oral hygiene, Periodontitis, Systemic health, gingival health, oral health

INTRODUCTION

Oral health and general health are intrinsically linked to each other. Oral health-related diseases frequently share familiar risk factors to many of the major chronic diseases. [1] Oral health is not only the absence of disease but also the optimal functioning of the mouth and its tissues in a manner, which preserves the well-being of the oral cavity and the individual's highest level of self-esteem. [2] Oral diseases qualify as major public health problems owing to their towering prevalence and incidence in all regions of the world. A poor oral hygiene practice which causes plaque and debris are an important etiological factor behind various periodontal disorders. [2, 3] Ignorance regarding oral diseases and oral health can be a major basis for an elevated prevalence of oral diseases and reduced the oral health-related quality of life. [4] Even it has been seen through various studies that there is strapping interrelationship between periodontal and systemic health such as diabetes, cardiovascular disorders, maternal health during pregnancy, chronic respiratory diseases, rheumatoid arthritis, etc [5, 6]. So in order to adopt the healthy practices for shielding the own oral health the accurate information, knowledge, attitude and practice regarding oral health can serve as a gadget for the population. [7] Henceforth patients should have basic education while visiting the dental clinics or hospitals regarding the venomous association of periodontal health with systemic diseases. [8, 9] But literature reported that oral hygiene practices are typically remained an

ignored habits among Indian population and became the unrealized foremost social crisis among them as preponderance portion of the Indian population are unacquainted about the association between oral hygiene and systemic diseases. Many of the systemic conditions or diseases illustrate their initial manifestation via oral signs and symptoms but unfortunately they remain undiagnosed or left untreated as of mislaid or deficient knowledge [1, 9].

Preserving, restoring and promoting the public health are the goals of health care providers and WHO said that oral health promotion is a cost-effective approach towards maintenance of oral health as well as quality of life. [10] Therefore it's mandatory to find out about their current status regarding knowledge towards interrelationship of oral health and systemic health and various followed practices for maintaining the oral health. Very few studies have been conducted correlating the oral hygiene practices and the awareness regarding inter-relationship between periodontal and systemic diseases in Northeastern part of India. Thus scarcity of literature impelled us to conduct this epidemiological study in order to find out about oral hygiene practices of the general population of Jharkhand region along with the assessment of awareness for the periodontal-systemic health inter-relationship.

METHODOLOGY

Study design: Questionnaire based cross-sectional study.

Study Population: A cross-sectional survey was carried out

among 800 subjects who gave their consent for participating in the study between the age group of 18 to 70 years. This age group was chosen for better comprehension and understanding for the study along the basis of convenient judgment sampling.

Ethical clearance: Ethical approval was received from the institutional review board and informed consent was obtained from all the study participants. Participation in the study was voluntary and Confidentiality of data was maintained.

Questionnaire: A self-constructed questionnaire was formulated by two step approach both in English and in Hindi version containing questions regarding oral hygiene practices and periodontal systemic health inter-relationship along with demographic details.

Questionnaire validation : The questionnaire was pretested by conducting a pilot study on 73 patients who comprised 20% of the study sample. Reliability of the questionnaire was assessed using Test-Retest and the values of measured Kappa (k) were 0.86 and Weighted Kappa (k) was 0.9. Internal consistency of the questionnaire was assessed by applying Chronbachs-Alpha (α) and the value of $\alpha = 0.78$ were obtained.

Data collection: Among the 800 selected subjects, healthy sound teeth were only considered to be functional to record the dental status of the patient. Mobile teeth (grade II and grade III), grossly carious teeth, root stumps and impacted

teeth were excluded from the counting. OHI-S index were recorded with the help of mouth mirror and explorer. [11]

Statistical analysis : The collected data were analyzed using statistical package for social sciences (SPSS) 22.0 and descriptive tests as well as analytical tests including Mean, Standard Deviation and chi square tests were used.

RESULTS

The present cross sectional study was carried out on 800 subjects and study included 472 (59%) male and 328 (41%) female patients. The number of subjects in 18-35 yrs age group was maximum i.e. 507 (63.3%). Only 3.2 % of the study population was illiterate and about 22.5% were having postgraduate degree (Table 1, 2, 3) It was also observed that majority (66%) had fair oral hygiene status, oral hygiene status was poor in 13.7% while good in only 20.3% patients with mean OHI-S score was 2.03 ± 0.67 whereas majority of the population was using toothbrush (87.2%) and 51% used to brush once a day (Fig. 1, 2, 3) It was also seen that only 16.9% population brushed more than 2 min and 58.5% of the subjects used to clean their tongue daily but majority (62%) among them never used interdental aid. (Fig 4, 5, 6) Table 4 explains the response of various questions regarding interrelationship of periodontal and systemic health related conditions and it was observed that majority of the population were not much aware about association of periodontal and systemic conditions which was statistically significant.

Table 1: Frequency distribution of study subjects acc to gender

Gender	Frequency	Percent
Male	472	59
Female	328	41

Table 2: Frequency distribution of study subjects acc to age

Age group	Frequency	Percent
18-35 years	507	63.3
35-55 years	113	14.2
56-70 years	180	22.5

Table 3: Frequency distribution of study subjects acc to education

Education	Frequency	Percent
Illiterate	26	3.2
Primary	78	9.8
Middle	190	23.8
Higher	171	21.3
Graduate	155	19.4
Postgraduate and above	180	22.5

Figure 1: Oral Hygiene status of the studied population

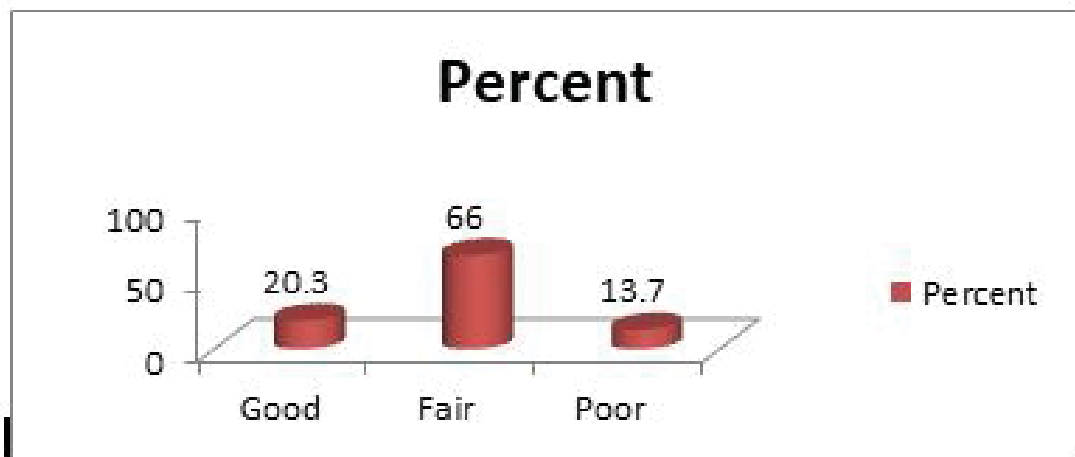


Fig 2: Distribution of study subjects according to mode of cleaning

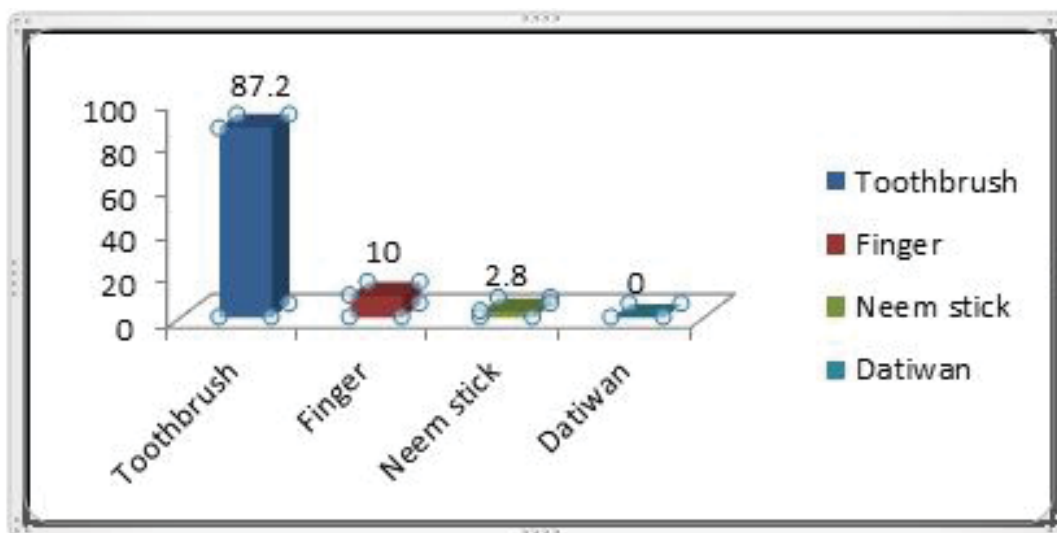


Figure 3: Frequency of tooth brushing

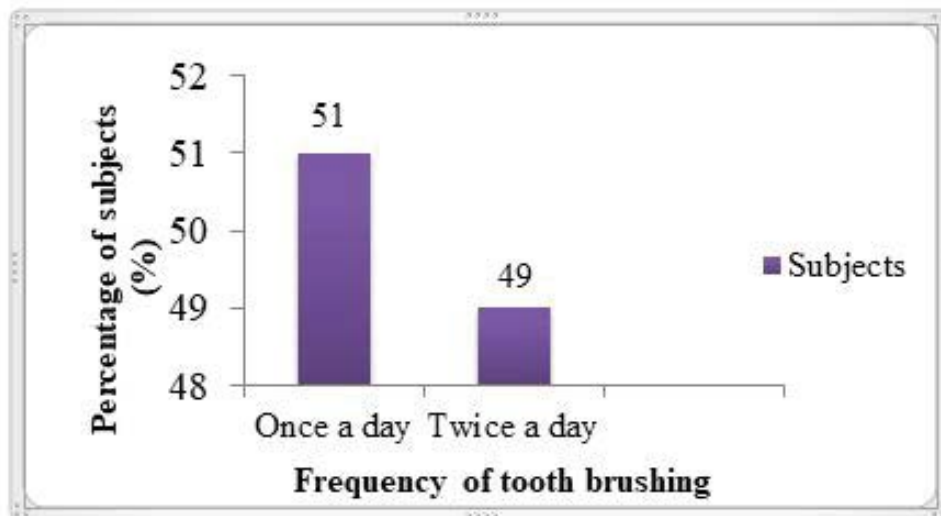


Figure 4: Duration of tooth brushing

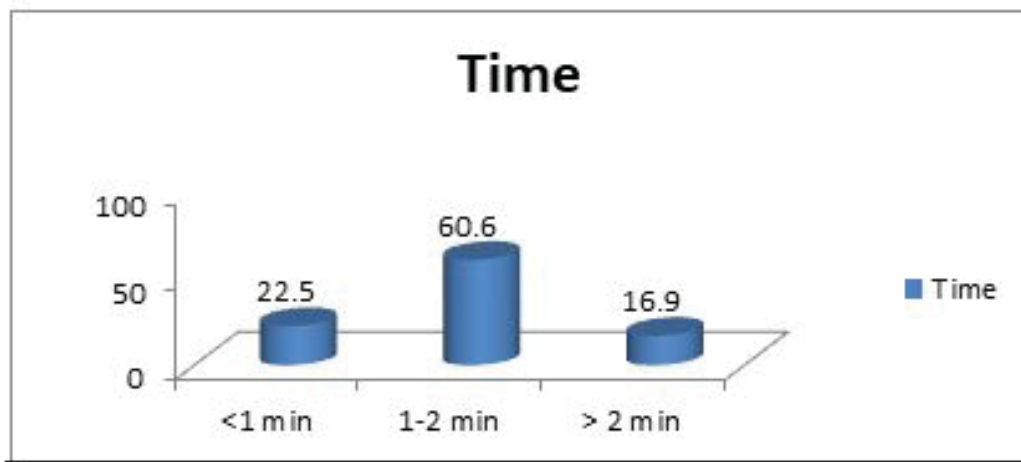


Figure 5: Frequency of tongue cleaning

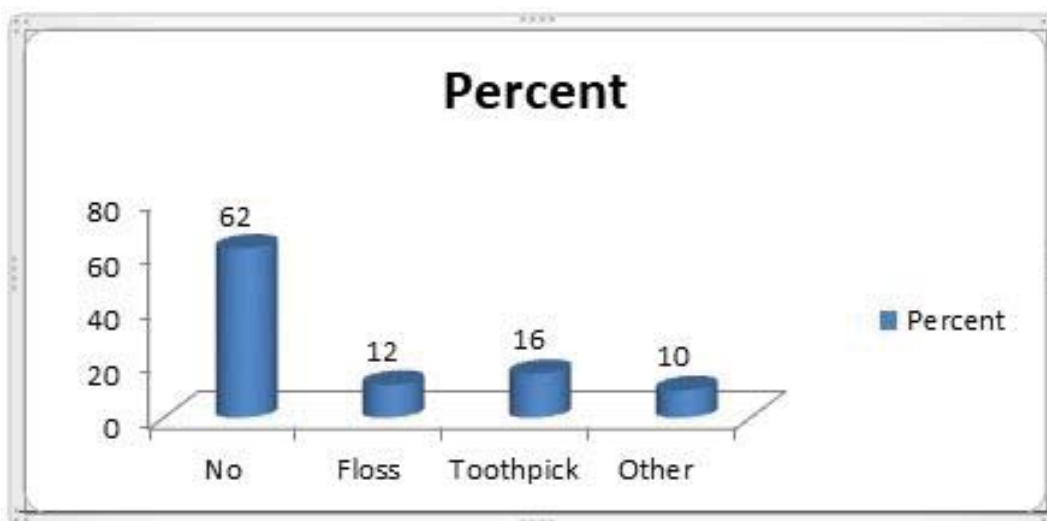


Table 4:Response of various questions regarding periodontal systemic health interrelationship among studied subjects

Question	No	Yes	Mean	Std. Deviation	Chi square	P value
Oral health related to general health	(76.7%)	(23.3%)	.77	.430	8.533	0.003*
Aware of gum problems (gingivitis/periodontitis)	(90%)	(10%)	.90	.305	19.200	0.000*
Periodontitis related to heart problem	(56.7%)	(43.3%)	.43	.504	.533	0.002*
Gingivitis with pregnancy	(86.7%)	(13.3%)	.13	.346	16.133	0.000*
Poor oral health with diabetes	(45%)	(55%)	.80	.407	10.800	0.004*
Medications with gums health	(60%)	(40%)	.23	.430	8.533	0.003*
Association with blood sugar level	(76.7%)	(23.3%)	.87	.346	16.133	0.000*

*statistically significant

** statistically significant

DISCUSSION

Although oral health is an essential part of general health and a precious asset for any individual, still it remains an abandoned entity. Majority of the population have underrated the consequences of awful oral health that further causes more serious problems and becomes difficult to treat. Mostly people are oblivious about the association between oral hygiene and systemic diseases and they remain undiagnosed or untreated as of lack of awareness because their first appearance is usually through oral signs and symptoms [6,4]. Even though several studies have been carried out to assess the awareness and attitude of people about oral health, but there is still a drought of literature for oral hygiene practices and awareness for periodontal-systemic health relationship region wise. Therefore the present study was conducted with the aim to assess the oral hygiene practices and awareness for periodontal-systemic link on patients.

The results of the present showed that majority (66%) had fair oral hygiene status and 13.7% of the subjects were having poor oral hygiene status while good in only 20.3% patients mean OHI-S score of 2.03 ± 0.67 which was in agreement with the study conducted by Vandana KL et al [12] where it was seen that 73.9 % were having fair and 14.4

% of the subjects with good oral hygiene. It was also observed through present study that majority of the population was using toothbrush (87.2%) and 51% of subjects used to brush once a day. The results are in agreement with study conducted by Hind Al-Johan [13] where 95.4 % patients used tooth brush and paste for cleaning their teeth. Even Ali et al [14] also reported through their study that 88.0% patients preferred using toothbrush and paste. Whereas Agiapal Singh et al [15] said that 69.0% people brushed only once a day. But American Dental Association recommends to brush twice daily in order to maintain good oral health. Brushing twice daily was reported by 49 % of the subjects in the present study which was comparable to the study conducted by Al-Johani (38.5 %) [13]. If we talk about duration of tooth brushing 60.6% of subjects brushed their in-between 1-2 minutes and only 16.9% population brushed more than 2 min and results are in agreement with study conducted by Ganss et al [16]. But for good oral hygiene maintenance professionals recommend tooth brushing for 2-3 min. It was observed in various studies that the patients who brushed their teeth in this recommended time period had better mean OHI score.

Our study depicts that majority (62%) among them never used interdental aid which is similar to a study conducted by

Hana M. Jamjoom [17] in Saudi Arabia and Jain et al [6]. This emphasizes the imperative need for educating and motivating the public to use this efficient method for oral health care. Tongue cleaning is the vital part of maintaining good quality oral hygiene and in the current study 58.5% of the subjects used to clean their tongue daily[6]. This emphasizes the urgent need for educating and motivating the public to use this efficient method for oral health care. The present study explains the response of various questions regarding interrelationship of periodontal and systemic health related conditions such as heart, diabetes, pregnancy etc and it was observed that majority of the population were not much aware about association of periodontal and systemic conditions which was statistically significant.

The first question was a general one asking about the relationship between oral health and general health for which only 23 % of the subjects were aware about this association and only 10% of subjects were having awareness about specific periodontal-systemic health inter-relation association. It was also seen that 43.3% of the subjects knew the association of periodontitis and heart disease and 13.3 % of subjects were aware about the gingival health with pregnancy. Regarding association of blood sugar levels and for the effect of medication on gingival health, awareness was found to be merely 23.3 % and 40 % respectively. The results of present study are in agreement with studies done by Kapoor D et al [18] and Bhatia A et al [19] and concluded that preponderance of the people were unaware about the affiliation between oral hygiene and systemic health or related conditions. The study shows that there is a need to improve the knowledge and oral hygiene practices to prevent the occurrence of oral diseases in order to improve the standards of awareness amongst the general people.

CONCLUSION

Within the limitations of this current study it can be concluded that the majority of the study subjects were having poor knowledge and awareness about the association of periodontal health with systemic conditions. Hence there is scope of improvement regarding the awareness of oral health, oral hygiene and self care principles. Hence, this study gives the baseline information about the knowledge and attitude on the oral health as well as periodontal systemic health

interrelationship that could further form a base for planning oral health promotive, preventive, and curative and awareness programs for the local population.

REFERENCES

1. Petersen PE, Razanmihaja N. Oral Health status of children and adults in Madagascar. *Int Dent J* 1996; 46: 41–47.
2. Linden GJ, Lyons A, Scannapieco FA. Periodontal systemic associations: review of the evidence. *J Clin Periodontol*. 2013;40(14):8–19.
3. Petersen PE. Challenges to improvement of oral health in the 21st century – the approach of the WHO Global Oral Health Programme. *Int Dent J*. 2004; 54(6):329–343
4. Cronin A. Periodontal disease is a risk marker for coronary heart disease? *Evid Based Dent*. 2009;10(1):22.
5. Carramolino-Cuellar E, Tomas I, Jimenez-Soriano Y. Relationship between the oral cavity and cardiovascular diseases and metabolic syndrome. *Med Oral Patol Oral Cir Bucal*. 2014;19(3):289–294.
6. Jain N, Mitra D, Ashok KP, Dundappa J, Soni S, Ahmed S. Oral hygiene awareness and practice among patients attending OPD at Vyas Dental College and Hospital, Jodhpur. *J Indian Soc Periodontol*. 2012; 16:524–528.
7. Gur A, Majra J. Awareness regarding the systemic effects of periodontal disease among medical interns in India. *J Glob Infect Dis*. 2011;3(2):123–127.
8. Ali NS, Khan M, Butt M, Riaz S. Implications of practices and perception on oral hygiene in patients attending a tertiary care hospital. *J Pak Dent Assoc*. 2012; 1:20–23.
9. Singh A, Gambhir RS, Singh S, Kapoor V, Singh J. Oral health: How much do you know? – A study on knowledge, attitude and practices of patients visiting a North Indian dental school. *European Journal of Dentistry* 2014;8(1):63–67.
10. Khader YS, Dauod AS, El-Qaderi SS, Alkafajei A, Batayha WQ. Periodontal status of diabetics compared with nondiabetics: a meta-analysis. *J Diabetes Complicat*. 2006;20(1):59–68
11. Green JC, Vermillion JR. The simplified oral hygiene index. *J Am Dent Assoc* 1964;68:7–13
12. Vandana KL, Reddy MS. Assessment of periodontal status in dental fluorosis subjects using community periodontal index of treatment needs. *Indian J Dent Res*. 2007;18(2):67–71.
13. Johani HA. Oral hygiene practice among Saudi patients in Jeddah. *Cairo Dent J*. 2008; 24:395–401.
14. Ali NS, Khan M, Butt M, Riaz S. Implications of practices and perception on oral hygiene in patients attending a tertiary care