



Research Article

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Assessment of Knowledge, Awareness and Practices about Periodontal Disease among Secondary School Teachers

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ABSTRACT

Periodontal disease if left untreated, results in loss of teeth and contributes to systemic inflammation. Prompt realization and treatment of gingivitis and improving the oral hygiene measures will prevent its spread to the underlying periodontium. School teachers play an important role as a positive stimulus on the overall development of the students. The current questionnaire-based cross-sectional study was conducted to assess knowledge, awareness, and practice (KAP) about the periodontal disease among 300 secondary school teachers. The structured questionnaire containing twenty questions was divided into three parts KAP. The teachers completed the questionnaire under the supervision of a research assistant through one-to-one interviews. Data analysis was performed using statistical software and descriptive statistics were calculated with a p-value of 0.05. The Chi-square test was used to analyze responses in relation to three domains KAP of the study population. The total of 300 subjects who participated in the study, included 178 males (59%) and 122 females (41%). The majority of teachers had sufficient knowledge of the causes and prevention of gingivitis but poor awareness and practices. It was concluded that the oral health knowledge was found satisfactory among the secondary school teachers with poor awareness and practices. The school curriculum subjects should incorporate topics related to oral health and diseases. The teachers should be made aware of oral health maintenance measures, which they can inculcate among the students. This will improve the overall oral and general health among the students, who are the future generations of the nation.

Key words: Awareness, Knowledge, Periodontal disease, Practices, School teachers

INTRODUCTION

Periodontal diseases are disease processes involving the periodontium i.e. tooth supporting structures, which include the gingiva, alveolar bone, cementum, and periodontal ligament [1-3]. Periodontal disease starts as a mild form, gingivitis is a reversible condition seen in 90% of the population. If gingivitis is left untreated, it progresses to periodontitis a chronic, destructive, irreversible condition that contributes to systemic inflammation. Dental plaque (microorganisms) initiate the gingivitis and the immune response leads to inflammatory reaction and periodontal disease, which causes tissue destruction [4]. The untreated periodontitis leads to the destruction of periodontium leading to tooth loss and hampers the quality of life of the individual [5-7]. Prompt realization and treatment of Gingivitis and improving the oral hygiene measures will prevent its spread to the underlying periodontium [8] A study conducted by Janakiram *et al.* found a prevalence of 51% of periodontitis and 47% of gingivitis in Indian adults [9].

School teachers play a major role in molding the students' knowledge, attitude, and practices about everyday activities for the well-being of the individuals. The knowledge and awareness of the teacher about periodontal diseases pave the way for the maintenance of gingival and periodontal health. The school teacher must have a general idea about the maintenance of oral health through meticulous oral hygiene measures, which they can disseminate to the students. There is a dire need for periodontal health maintenance education among the Indian population. It is appropriate if the school teachers educate the students regarding oral health maintenance. With this background, the present study was conducted to assess the knowledge, awareness, and practice of periodontal disease among secondary school teachers.

MATERIAL AND METHODS

Study design

The current cross-sectional study was carried out among secondary school teachers of Karad city, Maharashtra, India using a close-ended self-administered structured questionnaire. The Ethical clearance for the study was obtained from the Institutional Ethical Committee of Krishna Institute of Medical Sciences Deemed to be University (KIMSDU), Karad, (Ref. No. KIMSDU/IEC//08/2018 dated 17/11/2018) before commencing the study. The participant teachers were explained about the objectives of the study and written informed consent was obtained from each participant. The study was conducted during the period April 2019 to December 2019.

Sample size

The sample size was calculated using the formula: $N = Z^2 pq/d^2$ where 'p' is the knowledge of periodontal diseases which was calculated from a pilot study. The final sample size was estimated to be 300 considering a 5% allowable error.

Inclusion and exclusion criteria

The teachers who are ready to be involved and provided written informed consent were included in the study. Teachers having barrier in communication and reluctant to be involved in study were excluded.

Data collection

The questionnaire were designed English, Hindi and Marathi (i.e the local language) and was distributed among the study subjects. The questionnaire was preferred as mode of data collection, to ease a better way of obtaining standardized information. A questionnaire that contains 20 structured questions was distributed into 3 sections following an in-depth review of the literature on the assessment of the knowledge, awareness and practice of periodontal diseases among secondary school teachers. The regulation of questionnaire validation was done by means of face validation, content validation, reliability, and consistency tests by piloting it on 30 subjects [10]. The teachers completed the questionnaire under the supervision of a research assistant through one-to-one interviews and the completed questionnaire was collected immediately.

Statistical analysis

The data entries were entered in Microsoft Office Excel 2010 and analyses of results were carried out using Statistical package for social sciences (SPSS) version 21 software. Descriptive statistics such as frequency and percentage were calculated. Chi-square test was used to analyze responses in relation to three domains i.e. knowledge, awareness, and practices of the study population. The p-value less than 0.05 was considered significant.

RESULTS AND DISCUSSION

A total of 300 secondary school teachers of Karad city participated in the study, out of which 178 (59%) were males and 122 (41%) were females.

Response to knowledge questions

The majority of the subjects 258 (86%) had heard about gum diseases. The 207 (69%) of the subjects knew that the wrong tooth brushing technique affects periodontal health. A significant proportion of the subjects 279 (93%) were affirmative that if they strictly follow the dentist's instructions, they can avoid gum diseases. Few teachers 51 (17%) did not know proper oral hygiene can control gum diseases. Most teachers 228 (76%) knew cavities and

gum diseases are caused by infections in the oral cavity. A vast majority of the subjects 267 (89%) knew that bleeding gums and bad smells are common signs of gum disease. Of some teachers, 111 (37%) did not know that soft deposit build-up on the tooth surface can cause gum disease. The majority of the subjects 171 (57%) were unaware that gum disease can contribute to systemic disease or health problems beyond the mouth. About half of the teachers 135 (45%) did not have the knowledge that untreated gum disease can progressively cause tooth loss. Half proportion of the teachers 150 (50%) did not know that gum disease can affect your overall health. A large proportion 279 (92%) of the subjects knew that early diagnosis and treatment of gum disease reduces its severity (Table 1).

Table 1. Level of knowledge of subjects enrolled in the study

KNOWLEDGE (n=300)	YES n (%)	NO n (%)	Chi square test value	p value
1. Have you ever heard about gum diseases?	258 (86%)	42 (14%)	Chi =155.5	p <0.001**
2. Do you think that wrong tooth brushing technique affects periodontal health?	207 (69%)	93 (31%)	Chi =43.32	p <0.001**
3. Are you aware that if you strictly follow dentist's instructions, you can avoid gum diseases?	279 (93%)	21 (7%)	Chi =221.8	p <0.001**
4. Do you think proper oral hygiene can control gum diseases?	249 (83%)	51 (17%)	Chi =130.6	p <0.001**
5. Do you think that cavities and gum diseases are caused by infections in the oral cavity?	228 (76%)	72 (24%)	Chi = 81.1	p <0.001**
6. Are bleeding and bad smell the common signs of gum disease?	267 (89%)	33 (11%)	Chi =182.5	p <0.001**
7. Can soft deposits build up on the tooth surface cause gum disease?	189 (63%)	111 (37%)	Chi =20.28	p <0.001**
8. Can gum disease contribute to systemic disease or health problems beyond the mouth?	129 (43%)	171 (57%)	Chi = 5.88	p = 0.015*
9. When gum diseases not treated, it can progressively cause tooth loss?	165 (55%)	135 (45%)	Chi = 3.0	p = 0.083
10. Do you think gum disease affects your overall health?	150 (50%)	150 (50%)	Chi =0.0	p = 1.000
11. Do you think early diagnosis and treatment of gum disease reduces its severity?	276 (92%)	24 (8%)	Chi =211.6	p <0.001**

p>0.05 – not significant *p<0.05 – significant **p<0.001–Highly significant difference

Response to awareness questions

A significant proportion of the subjects 117 (39%) were not following the dentist's instructions and 249 (83%) think they were not suffering from gum disease. A great proportion of the subjects 249 (83%) were unaware of bleeding gums. A vast majority of the subjects 231 (77%) did not complain of mobile teeth. A very less proportion of the subjects 33 (11%) had attended awareness lectures or health talks about gum health (Table 2).

Table 2. Level of awareness of subjects enrolled in the study

AWARENESS (n=300)	YES n (%)	NO n (%)	Chi square test value	p value
1. Have you been following the dentist's instructions?	117 (39%)	183 (61%)	Chi = 14.52	p <0.001**
2. Do you think you might have gum disease?	51 (17%)	249 (83%)	Chi = 130.6	p <0.001**
3. Do your gums bleed during tooth brushing?	51 (17%)	249 (83%)	Chi = 130.6	p <0.001**
4. Have you ever had any teeth that had become loose by themselves without some injury (not baby teeth)?	69 (23%)	231 (77%)	Chi = 87.4	p <0.001**
5. Have you ever attended any awareness lecture about gum health?	33 (11%)	267 (89%)	Chi = 182.5	p <0.001**

p>0.05 – not significant *p<0.05 – significant **p<0.001–Highly significant difference

Response to practice questions

All the participants 300 (100%) brushed their teeth daily. Majority proportion of the study subjects 198 (66%) did not brush their teeth after every meal. Half of the teacher participants 156 (52%) had not visited the dentist for

check up. A greater proportion of the teachers 162 (54%) had never undergone scaling, root planning, surgery or other treatment for gum disease (**Table 3**).

Table 3. Level of practice of subjects enrolled in the study

PRACTICE (n=300)	YES n (%)	NO n (%)	Chi square test value	p value
1. Do you brush your teeth daily?	300(100%)	0 (0%)	Chi = 0.0	p = 1.00
2. Do you brush your teeth after every meal?	102 (34%)	198 (66%)	Chi =30.72	p <0.001**
3. Have you ever visited dentist?	156 (52%)	144 (48%)	Chi = 0.48	p = 0.488
4. Have you ever had scaling, root planning, surgery or other treatment for gum disease?	138 (46%)	162 (54%)	Chi = 1.92	p = 0.166

p>0.05 – not significant *p<0.05 – significant **p<0.001–Highly significant difference

School teachers play an important role as a positive stimulus on the overall development of the students. The teachers can reinforce general health as well as basic oral health awareness among the students and motivate them to follow proper oral health measures. This mandates the necessity to inquire whether there is adequate training and knowledge of oral health education among the teachers. School teachers can be used, as one of the best health personnel available worldwide to instruct their students about health and be familiar with the current oral health concepts [11]. The present study was conducted to assess the knowledge, awareness, and practice of periodontal disease among secondary school teachers.

In the current study, most of the teachers had heard about gum disease which is similar to a study conducted by Azodo C *et al.* where a majority of the participants reported that they had heard of periodontal disease [12]. The overall increased knowledge of teachers about the periodontal disease could be owed to sources of information via electronic media, television, magazines, and the rise of social media that acts as the prevalent source of health information. A majority of the participants felt that the wrong tooth brushing technique affects their periodontal health. A majority of the respondents knew that good oral hygiene can control gum diseases. This is in accordance with the study conducted by Abdulaziz-Albwardi *et al.* and Aljanakh M *et al.* who reported that 88.6% and 97.3% of subjects believed that regular tooth brushing can keep away gingival disease [13, 14]. In the present study, an equal number of subjects believed that gum disease affects overall health attitude and majority agreed that early diagnosis and treatment of gum disease reduces its severity and that following dentist's instructions can avoid gum diseases. The findings are in accordance with a study done by Singh *et al.* where the majority knew that the health of the mouth impacts the health of the body and that dental treatment is important as any other treatment [15].

The vast majority of the subjects thought that cavities and gum diseases are caused by infections in the oral cavity which is contradictory to a study by Azodo C *et al.*, who reported very few subjects attested that plaque or infections in the mouth can result in periodontal disease and dental caries [12]. A greater proportion of the subjects knew that bleeding gums and bad smell are the common signs of gum disease, this is similar to a study by Abdulaziz-Albwardi *et al.* where majority of teachers knew that gum bleeding is caused by inflamed gum [13]. A significant proportion of the subjects knew that soft deposit build up on the tooth surface can cause gum disease, which is contradictory to findings reported by Abdulaziz-Albwardi *et al.* and Manjunath *et al.* where a few subjects had the knowledge that plaque leads to inflamed gums [13, 16]. This lack of knowledge among the participants on aspects of plaque, soft debris, calculus, and hard debris shows a lack of training in oral health education in those regions. In the current study, a few subjects knew that gum disease affects your overall health which is, in contrast, to the study by Zhu *et al.*, where majority of the participants felt that oral and dental health improves overall health [17]. A significantly less proportion of the subjects were following the dentist's instructions. The average knowledge among the secondary school teachers was good, this could be due to the profession the study subjects belonged to that deals with referring to books and excess to updating knowledge.

A majority of the subjects were not aware about their bleeding gums or presence of gum disease. This is in contrast with the findings by Manjunath *et al.* and Singh *et al.* where a greater proportion of the school teachers think gum bleeding means inflamed gums [15, 16]. Very few subjects complained of tooth mobility but the majority of the subjects agreed that gum diseases if not treated, can progressively cause tooth loss. This finding is opposed to study by Azodo C *et al.* where only a few participants considered periodontal disease as the main cause of tooth loss among adults [12]. The average awareness of the study subjects was poor, which could be due to lack of exposure to awareness programs or seminars pertaining to oral health and gum diseases.

In the present study, all the subjects brushed their teeth daily but a few brushed after every meal. A significant number of subjects had visited the dentist, however a few had undergone scaling, root planning, surgery or other treatment for gum disease. The average oral health practices of the study subjects was poor, due to the lack of awareness among the teachers.

CONCLUSION

The majority of teachers had sufficient knowledge of causes and prevention of gingivitis but poor awareness and practices. It was concluded that the oral health knowledge was found satisfactory among the secondary school teachers but poor awareness and practices. There is dire need for improving oral health knowledge among school teachers on periodontal diseases and its prevention.

The school curriculum subjects should incorporate topics related to oral health and diseases. The teachers should be made aware of oral health maintenance measures, which they can inculcate among the students. This will improve the overall oral and general health among the students, who are the future generations of the nation.

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