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Original Research Article

Periodontal health related practice and awareness among undergraduate medical students and interns of Government Medical College Thrissur–A cross-sectional study

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ABSTRACT

Medical students are considered to be representative of the educated, influential and motivated class of individuals and are considered to have a better perception and realization of maintaining oral health when compared to general population. Hence the present study aims to assess the periodontal health practices and awareness among medical professional students. This cross-sectional study was conducted among undergraduate medical students and interns of Govt Medical College Thrissur using an online proforma and analysis done using SPSS. A statistically significant association was noted between gender and periodontal health practices and also between periodontal health awareness and year of study and posting category. Interns were 2.56 times more aware of periodontal health than students with a p value < 0.01. Clinical students were 2.4 times more aware of periodontal health than preclinical students with a p value < 0.01. Statistically significant mild positive correlation was observed between age and periodontal health awareness with Pearson correlation coefficient of 0.379 and a mild negative, statistically non-significant correlation was observed between age and periodontal health practice. There is a need to further educate and motivate medical students on oral and periodontal health practice so that it improves the future efforts of medical professionals in contributing to oral health as they are often the first contact for patients.

1. Introduction

Periodontitis is a multifactorial disease caused by interaction between bacterial infection and host response to bacterial challenge.[1] Awareness regarding oral health is considered to be an essential prerequisite for health-related behavior. Oral health is an integral component of general health and plays a vital role in maintaining good health. The impact of oral health-related problems with special emphasis on periodontal health has been well documented in literature.[2] Recent studies have shown that there is a strong association between periodontitis and systemic disease.[3] and vice versa, confirming a bidirectional relationship between many systemic diseases and periodontal health.[4] Hence it is highly pertinent for patients suffering from systemic diseases to maintain a healthy periodontium. Management of periodontal disease mandates an understanding of etiological factors, signs and symptoms, and treatment protocols of these conditions. Medical professionals need to be at the forefront of identifying such diseases since they play a pivotal role in screening and treating different systemic diseases and

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conditions.

The primary concern of dental professionals is to introduce a positive oral health attitude and behavior amongst people in society.[5] Medical students are representative of the educated, influential, and motivated class of individuals and are supposed to have a better perception and realization of maintaining oral health when compared to the general population. Hence the aim of this study is to assess the periodontal health practices and awareness among medical students.

2. Subjects and Methods

This cross-sectional study was conducted among undergraduate medical students and interns of Govt Medical College, Thrissur. Ethical clearance was obtained from the Institutional ethical committee (IEC NO17/IEC/GDCTSR/2021). Permission to conduct the study was obtained from Principals of both Dental and Medical College, Thrissur. All the ethical principles including autonomy, informed consent, and confidentiality were maintained in the study. Initial proforma was sent to subject experts to check the face and content validity. Pretesting of the proforma was done by administering the same to twenty five undergraduate medical students of a private medical college and appropriate changes were made as per the feedback obtained. The final proforma was administered to the study participants in the English language. Proforma comprised of 21 multiple-choice questions. Questions 1 - 3 dealt with the demographic details, 4-9 on periodontal health-related practices, and 10-21 on periodontal health awareness. Questionnaires employed in the previous studies were taken as a reference for designing the current proforma.[6,7]

An online survey portal, google form was created, and the survey link was shared through WhatsApp groups and personal contacts. Subjects who were willing to participate and expressed their informed consent were included in the study. All responses received from March to May 2021 were considered. Those who failed to respond after two repeated reminders were excluded from the study. The sample size was calculated using the formula for prevalence studies taking p as 57% and relative precision of 10%.[1] The sample size was estimated to be 301. For the want of this study to be beneficial to all the study participants, we conducted a census type of study including all the undergraduate students and interns, meeting the inclusion criteria.

Data so obtained was exported from google spreadsheet and analyzed using SPSS trial version 22. Outcome measures such as periodontal health awareness and practices were expressed in proportions. Chi-square test was used to determine the association of various sociodemographic variables with outcome measures. Pearson correlation test was used to assess the relationship of age with periodontal health awareness and practices.

3. Results

Five hundred and thirty-three medical students including interns responded to our study. Amongst 533 respondents, 40.9% were males and 59.1% were females. The mean age of students was 21.62±2.089 with a minimum age of 18 years and maximum age of 34 years. Out of the total respondents, 14.3% were interns, 42.6% were preclinical students and 43.1% were clinical students. Only 23.3 percent of students had some relative as a dentist. Only 53.5% of participants brushed twice daily. Further, the proper method of brushing technique (vibration along with roll) was followed only by 17.6%. Nearly 17.8 percent were not aware of the tooth brushing method they practiced.75.8% never visited the dentist for the purpose of cleaning their teeth. The responses to various periodontal health practices are shown in Table 1.

Table 1: Periodontal health practices

Periodontal health practices	N (%)
Ever visited a dentist for treatment	435(81.6)
Twice daily tooth brushing	285(53.5)
Vertical stroke technique of tooth brushing	168(31.5)
Replacing with a new toothbrush once in 3 months	271(50.8)
Tongue cleaning	260(48.8)
Using Mouthwash	75(14.1)
Occasional use of mouthwash	49 (9.2)

92.3% of our study participants felt that gum diseases are preventable. The responses to periodontal health awareness questions are depicted in Table 2.

Table 2: Periodontal health awareness

Periodontal Health Awareness	N (%)
Poor Oral hygiene is the commonest cause of bleeding gums	122(22.9)
Poor Oral hygiene is the commonest cause of tooth loss	337(63.2)
Poor Oral hygiene is the commonest cause of bad breath	484(90.8)
Dental plaque causes gum disease	158(29.6)
Drugs can cause gingival swelling	375(70.4)
Gingival swellings occur during pregnancy	143(26.8)
Gum disease is related with preterm low birth weight	130(24.4)
Poor Oral Hygiene affects general health	488(91.6)
Diabetes act as a risk factor for gingival disease	395(74.1)
Gum disease alters the level of systemic inflammatory markers	278(52.2)
Gum disease is preventable	492(92.3)

Two hundred and sixty-nine respondents completed their dental posting. 68% of those who completed the dental posting showed good periodontal health awareness as opposed to 29.5% of others (those who are yet to complete the posting). Those who have completed dental college posting were found to be 2.3 times more aware of

periodontal health than others with a statistically significant p-value less than 0.01. When we assessed the relationship of periodontal health practices with sociodemographic characteristics such as gender, year of study, and posting category, a statistically significant association existed between gender and periodontal health practices. Similarly, a significant association was found between periodontal health awareness and year of study and posting category. Interns were found to have 2.56 times more aware of periodontal health than students with a p-value less than 0.01. Clinical students were 2.4 times more aware of periodontal health than preclinical students with a p-value less than 0.01 (Table 3).

The relationship between age and periodontal health awareness showed a statistically significant ($p<0.01$) mild positive correlation with a correlation coefficient of 0.379. A mild negative, statistically non-significant correlation was observed between age and periodontal health practice.

4. Discussion

The findings of our study highlighted good level of periodontal health awareness, but poor periodontal health practices among medical students. Further, the level of awareness with respect to systemic diseases and periodontal health was found to be superficial. Since more than 70% of the target population were included in the study, the sample is representative of this population. In the present study, female medical students were found to have a higher level of awareness than males. This may be due to the extra attention given by females to dentition, and esthetics. Their interest in tooth brushing reflected on their periodontal health status. This is on par with the studies conducted among orthodontic patients[8] and among professional undergraduate students.[9] However, the small sample size and the male/ female ratio make this finding inconclusive. In the present study, less than 20 % of the participants were unaware of the brushing technique they practiced. In another study in Karachi among professional students, only 5% were unaware of the same.[10]The higher level of unawareness regarding brushing technique in our study can be attributed to the existing deficit in the undergraduate medical curriculum in Kerala. Our findings showed that more than 50 % of the participants changed their toothbrushes every 3 months. This is in accordance with another study where 59% changed their toothbrushes every 3 months.[7] Another study by Sabeena et al among similar populations showed that only 37% changed their toothbrush every 3 months.[10]These variations may be due to the lack of awareness regarding the judicious use of toothbrushes and the toothbrushing technique among medical students.

Since bleeding is the first objective sign of periodontal disease it is important that the medical students should be aware of the significance of bleeding from gums. In the present study, about 23% of the participants reported poor oral hygiene as the commonest cause of bleeding gums as compared to 43% in another study among a similar population.[11] More than 90% of our study subjects reported poor oral hygiene as the commonest cause of bad breath as compared to 73% in Yadav study.[11] While more than 90% of our subjects reported that poor oral hygiene affects general health, only 62% were aware of this fact in a similar study by Yadav.[11]The difference in proportion noted here may be because of the exclusion criteria followed in the study by Yadav et.al where the medical students who attended lectures of dentistry/were exposed to clinical practice were excluded. Nearly 70% of the participants believed that dental plaque does not cause gum disease which reflects their lack of awareness on the etiology of periodontal disease. This can be attributed to the poor attendance of medical students in dental postings. The reasons for this poor attendance, whether it is due to the lack of interest among students or dental faculties need to be explored. A study conducted among interns and postgraduates of Andhra Pradesh showed that 60% of the medical students believed that plaque causes gum disease.[12] This can be attributed to the improved awareness among the population studied as they are all graduated medical professionals.

A mixed response was obtained for the questions related to periodontitis and its relationship with systemic disease. The bidirectional relationship between periodontal diseases and diabetes has been well established and it is good to notice that a considerable number of participants were aware of the relationship between diabetes and periodontal disease. But the awareness of gingival swellings associated with pregnancy and relationship between periodontal disease and preterm low birth weight infants was found to be comparatively low. Only 25% of the medical students in the present study were aware of gingival swellings associated with pregnancy and the relationship between periodontal diseases and preterm low birth weight. In a study conducted among medical faculty, 59% of the medical professionals were aware that periodontal diseases cause preterm low birth weight.[1] Another study by Patil et. al among gynecologists in Karnataka[13] also showed similar results. Only 3% of the medical interns were found to be aware of the relationship between periodontal disease and low birth weight in the study by Gur and Majra.[14] These variations among professionals and students can be attributed to the increased clinical exposure among medical faculties and gynecologists. The reason for less awareness level regarding this in our study could be due to the less clinical exposure of medical students in gynecology postings.

Table 3: Association of socio demographic characteristics with periodontal health practices and awareness

Sociodemographic characteristics	Ref Category	p-value	Odds Ratio	95% Confidence Interval
Periodontal Health Practices				
Year of study	Interns	0.289	1.25	1.90 -0.83
Gender	Females	0.002*	1.25	1.44 - 1.09
Posting category	Clinical	0.434	0.913	1.146-0.728
Periodontal Health Awareness				
Year of study	Interns	<0.01*	2.56	4.08-1.605
Gender	Females	0.628	1.04	1.19-0.89
Posting category	Clinical	<0.01*	2.418	3.067-1.906
* statistically significant				

Since females with chronic periodontitis have a greater chance of premature labor and low birth weight babies, awareness should be developed among the medical students by including these aspects in their curriculum for planning joint ventures in reducing low birth weight deliveries and perinatal morbidity. About 70% of the participants were aware of the gingival swellings associated with certain drugs. This can be attributed to their preclinical knowledge acquired regarding the pharmacological aspects and side effects of drugs.

Although the proportion of clinical and non-clinical students who participated in the study is almost the same clinical students were found to have better periodontal health awareness compared to pre-clinical students which can be attributed to the dental posting exposure for clinical students. It is disappointing to report that despite increased awareness, oral health practices did not show any improvement as the semester progressed which reflects the attitude of students towards oral health. It is noted that even though 90% were aware that poor oral hygiene affects general health, 76% of the participants never visited a dentist for cleaning teeth which again reinforces their poor attitude and behavior towards periodontal health. The level of dental health knowledge, positive dental health attitude, and dental health behaviors are interlinked and positively associated with the level of education.[15]

People continue to neglect oral health, but seek medical care as required. However, it is not realized that often poor periodontal health can be a cause for deteriorating systemic health of the individuals. It is in such instances that medical professionals knowledge about the relationship between periodontal health and general health comes to the rescue of the patient. There is evidence of similar studies in the literature which reflects the ignorance of oral health, lack of oral hygiene understanding, and limited knowledge of oral hygiene practices among students and health professionals.[7] There is a need to further educate medical students on oral and periodontal health to enable them to improve their awareness as they are often the first contact point for patients. This education may help them to identify periodontal problems and refer patients accordingly which can reduce the morbidity associated with periodontal diseases. This in turn improves the quality of life of the patient. In this regard, medical students need to be well informed as to the need for dental care which calls for joint advocacy between medical and dental professionals.

Since this is a single institution study generalization of our findings may be limited which may have led to a slight underestimation of results.

5. Conclusions and Recommendations

The results from our study showed that well-educated professionals who are going to become the foundation of our modern society stand nowhere better than the rest of the general population in terms of attitude and behavior to periodontal health practices even though the level of periodontal health awareness is good. Outcomes of the study are highly alarming due to poor oral hygiene practices within medical students which may contribute to periodontal problems.

A few recommendations that can improve the periodontal health practices include implementing mandatory attending of dental postings by medical students, deployment of one staff for training medical students in dental postings, including the medical students in oral health outreach programs, and the incorporation of periodontal medicine in the medical curriculum. The study also recommended a higher necessity for the medical schools to have more comprehensive training in periodontal health practices, ensuring adequate theoretical and practical knowledge regarding oral health, prevention counseling which would improvise the future efforts of physicians in contributing to oral health.

6. Author Statement

All authors read and approved the manuscript.

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None.

8. Conflict of Interest

The authors declare that they have no known competing financial interest or personal relationships that could have appeared to influence the work reported in this paper.

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