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ORIGINAL RESEARCH

KNOWLEDGE OF PERIODONTAL DISEASE AND ITS MANAGEMENT AMONG MEDICAL FACULTY MEMBERS IN A TERTIARY MEDICAL CARE CENTER AT THIRUVANANTHAPURAM DISTRICT: A QUESTIONNAIRE-BASED STUDYAnoop Sasi¹, Ajith Kumar K C², Raseena Beevi N³, Roshni Ramesh⁴,MDS, Assistant Professor, Department of Periodontics, Government Dental College, Thiruvananthapuram, Medical College P O, Kerala-695011 Email id: anoopperio@gmail.com ORCID ID: 0009-0000-1924-8805MDS, Associate Professor, Department of Periodontics, Government Dental College, Thiruvananthapuram, Medical College P O, Kerala-695011 ajitkesavan73@gmail.com ORCID ID: 0009-0007-9358-6192MDS, Professor, Department of Periodontics, Government Dental College, Thiruvananthapuram, Medical College P O, Kerala-695011, Email id: raseenakamil@gmail.com ORCID ID: 0000-0003-1008-5418MDS, Professor, Department of Periodontics, Government Dental College, Vandanam P O, Alappuzha, Kerala, India - 688 005 Email id: roshniarun73@gmail.com ORCID ID: 0000-0001-7822-1768**Corresponding author:** Anoop Sasi, Assistant Professor, Department of Periodontics, Government Dental College, Thiruvananthapuram, Kerala -695011 Email id: anoopperio@gmail.com**Received:** Oct.22 2025; **Accepted:** Nov. 29, 2025; **Published:** Dec 5,2025**ABSTRACT**

Background: According to World Health Organization, more than one billion people all globally suffer from severe periodontitis. Terminal periodontitis is irreversible and results in loss of teeth. Thus, early diagnosis and prompt referral can prevent gingivitis leading to periodontitis. Further, gingival diseases can also be prevented through health promotion and specific protective measures. Periodontal disease and treatment awareness play a pivotal role in prevention. The doctors are the first point of contact for patients with dental complaints. They should be able to diagnose the condition and aid in prompt referral. Thus, this study intends to assess the periodontal disease and treatment awareness among teaching faculty in a tertiary medical care center in Southern Kerala.

Methodology: This cross-sectional questionnaire-based study was conducted among 246 medical teaching faculty at Government Medical College, Thiruvananthapuram. Data collection was done using a pre-validated questionnaire comprising of twenty questions on periodontal disease and treatment awareness. Data was entered in Microsoft excel and analyzed using SPSS (Statistical Product and Service Solution) IBM statistics, trial version 25.

Results: Two hundred and forty-six medical teaching faculty responded to the questionnaire and 39.8% of the study participants reported to have good knowledge in this regard. Misconceptions like scaling can cause loss of tooth enamel was believed by 88.6% of the medical teaching faculty. A statistically significant increase in knowledge score was found among those who visited the dentist at least once. There was no gender predilection and those with less than 10 years of experience was found to have a slightly increase knowledge score as compared to others.

Conclusion: The findings highlight the need for tailored education and training modules for medical faculty at all levels, focusing on early identification of periodontal disease and updates on conventional and advanced treatment modalities.

Keywords: faculty, medical, periodontitis, periodontium, periodontal infections, periodontal disease**INTRODUCTION**

Severe periodontal disease emerged to be the eleventh most prevalent disease around the world according to the global burden of disease study in 2016.¹ The prevalence of periodontal diseases all over the world ranges from 20-50%.² An epidemiological study on the correlation between age and periodontal diseases showed that the

prevalence and severity of periodontal disease increases with age, 82% in elderly population, 73% among adults, and 59% among adolescents.³ Region wise study showed highest prevalence of periodontal disease in Southeast Asia region. A systematic review and meta-analysis on the burden of periodontal diseases highlighted that half of the Indian adults suffer from some form of periodontal

disease.³ According to the National Oral health survey conducted in Kerala in 2003, 78.6% of those aged more than 35 years suffer from periodontal disease. This huge periodontal disease burden can be attributed to lack of awareness, delay in seeking treatment, and instrumental and observational errors.

There is a reluctance among the patients in Kerala to visit a dentist. The reasons vary from high costs of dental treatment, long waiting hours, to fear of dental procedures.⁴ Periodontal diseases often go unnoticed at the earliest stage owing to these reasons, which ultimately results in loss of teeth.⁵ Hence, it would be ideal to train the doctors and healthcare workers on the diagnosis of early periodontitis.

In order to plan an intervention in this regard, it is pivotal to assess the periodontal disease awareness among the doctors. We have chosen tertiary health care setting as there will be a wide array of patients of different socioeconomic status visiting this center. Hence it is important for those doctors seeing the patients to know the basics of periodontal disease so that they can opt prompt referral. With this intention, this study was aimed at assessing the knowledge of periodontal disease, systemic diseases and periodontal disease, and awareness of doctors towards periodontal treatment.

METHODOLOGY

This study is cross sectional in design and is conducted among medical faculty working in different specialities at a tertiary health care center in Southern Kerala. Sample size was calculated from the sample size estimation formula using finite population by Andrew Fischer, where p was assumed to be 50% to obtain the maximum sample size and the population size was found to be 517. Assuming a 10% non-response rate, the minimum sample size was found to be 246. Data was collected using a pretested and validated questionnaire. The questionnaire comprises of three different sections. First section involved three sociodemographic items (year of experience, gender, speciality), second section comprised of eight periodontal disease knowledge questions, six items on the association between periodontal and systemic diseases, and six items on the attitude towards periodontal treatment. Prior to the first section, a detailed description of the study objectives and the patient consent form was provided. Only those who chose the willingness to consent were allowed to proceed further. The questionnaire was administered online. The contact details of the teaching faculty were obtained from the administrative office of the medical college. The link to the questionnaire was sent to the faculty and repeated reminders were given. Those who failed to respond even after 4 repeated reminders were excluded from the study. All ethical considerations were maintained. The personal details involved in the study were designation and year of experience. Those were not mandatory, and the participant was given the choice to answer or leave those

questions. The participant was assured that their name and other personal information will not be revealed in any dissemination related to this study. The ethical clearance was obtained from the institutional ethics committee. Data entered was made available in Microsoft excel and analyzed using SPSS (Statistical Product and Service Solution) IBM statistics, Chicago trial version 25. The responses to questionnaire were assessed using proportions. Years of experience was expressed in terms of mean and standard deviation and median and interquartile range. Normality was assessed using Shapiro wilk and Kolmogorov-Smirnov tests. As the data was found to be normal, unpaired t test was used to compare the knowledge score with gender, experience, and dental visit. The Knowledge score was categorized into good, fair, and poor based on the median score. Those who scored above median value was considered to have good knowledge. The association between qualitative variables were analyzed using Chi-square test. Pearson correlation was done to analyze the relationship between years of experience and knowledge score.

RESULTS

Two hundred and forty-six medical teaching faculty working in a tertiary health care center participated in the questionnaire administration. The years of experience ranged from 5 to 30 years with mean year of experience at 15.38 ± 8.32 years. There was a female predisposition in the study, accounting to 58.5%. The minimum and maximum knowledge score was found to be 3 and 15 among the study participants, with a mean knowledge score of 9.84 ± 2.13 . Based on the median value, knowledge was categorized into good, fair, and poor. 59.3% of the medical teaching faculty had fair knowledge on periodontal diseases and management. Good knowledge on the periodontal diseases and management was shown by 39.8% and only 0.8% showed poor knowledge.

Knowledge of Periodontal diseases

The proportion of correct responses and the items on knowledge of periodontal disease are shown in Table 1. 91.1% were sure of the ill effects of smoking, and 86.6% of the medical teaching faculty knew gingival enlargement can be caused by certain drugs. 25.6% were aware of the two-way relationship between diabetes and periodontal diseases, and only 18.7% knew mouth was not the only source of bad breath.

Table1. Knowledge of Periodontal disease among medical teaching faculty

Knowledge of Periodontal disease	N (%)
Periodontal disease affects supporting structures of teeth	160(65.0)
Gingivitis is not the same as periodontitis	78(31.7)
Periodontal diseases are preventable	134(54.5)
Halitosis is bad breath	140(56.9)
Genes play a role in periodontal disease	130(52.8)
Primary aetiology is plaque	102(41.5)
Smoking affects periodontal health	224(91.1)
Mouth is not the only source of bad breath	46(18.7)
Two way relationship- DM and periodontal disease	63(25.6)
Periodontal disease will alter the systemic inflammatory markers	136(55.3)
Periodontal disease is a risk factor for pre-term low birth weight infants	78(31.7)
Gingival enlargement can be caused by certain drugs	213(86.6)
Gingival swelling may occur during pregnancy	166(67.5)
Periodontal disease can lead to cerebrovascular and cardiovascular diseases	123(50.0)

Knowledge of medical teaching faculty towards Periodontal treatment

Six questions were asked to the medical teaching faculty in this regard. Eighty-nine percent believed that there is a need to visit the dentist when there is bleeding from gums, and 72.8% knew about the use of lasers in periodontal treatment. Only 2.4% believed that scaling cannot cause removal of enamel.

The proportion of correct responses to the six items relating to this domain are depicted in Table 2

Table 2. Knowledge of medical teaching faculty towards Periodontal treatment

There is a need to visit dentist when there is bleeding from the gums	219 (89.0)
Scaling cannot cause removal of enamel	6(2.4)
One should visit a dentist once in 6 months	130(52.8)
Gingival recession can be treated	130(52.8)
Lasers are used for the treatment of periodontal disease	179(72.8)
Use of local drug delivery for the treatment of periodontal diseases	104(42.3)

Practices related to periodontal treatment among medical teaching faculty

92.7% of the medical teaching faculty in this study setting have visited the dentist at least once. Only 33.3% of the study participants screen their patients on periodontal disease and 52.8% insist the pregnant women to go for a dental check-up.

Previous dental visit and Knowledge of periodontal disease

It was found that those who have been to a dentist either for consultation or treatment was found to have a higher mean knowledge score as compared to others with a statistically significant difference($p < 0.05$). There was no significant relation between screening of patients for periodontal disease and insisting pregnant woman on oral health check-ups with visiting the dentist.

Table 3. Comparison of knowledge score with previous dental visit using Unpaired t test

Knowledge	ever been to a dentist	N	Mean	Std. Deviation	Mean difference	Test statistic	p value
	yes	228	9.92	2.125	1.028	2.121	0.046*
	no	18	8.89	1.967			

Table 4 and 5 shows the items and proportion with correct responses on knowledge towards periodontal disease and treatment among those who have previously visited the dentist

Table 4. Knowledge of Periodontal disease among the study participants who have previously visited the dentist

Items	N (%)
Periodontal disease affects supporting structures of teeth	147(64.5)
Gingivitis is not the same as periodontitis	71(31.1)
Periodontal diseases are preventable	127(55.7)
Halitosis is bad breath	131(51.5)
Genes play a role in periodontal disease	120(52.6)
Primary aetiology is plaque	90(39.5)
Smoking affects periodontal health	208(91.2)
Mouth is not the only source of bad breath	42(18.4)
Two way relationship- DM and periodontal disease	58(25.4)
Periodontal disease will alter the systemic inflammatory markers	129(56.6)
Periodontal disease is a risk factor for pre-term low birth weight infants	77(33.8)
gingival enlargement can be caused by certain drugs	199(87.3)
gingival swelling may occur during pregnancy	156(68.4)
periodontal disease can lead to cerebrovascular and cardiovascular diseases	117(51.3)

Table 5. Knowledge of periodontal treatment among those who have previously visited dentist

There is a need to visit dentist when there is bleeding from the gums	17(7.5)
Scaling cannot cause removal of enamel	5(2.2)
One should visit a dentist once in 6 months	121(53.1)
Gingival recession can be treated	121(53.1)
Lasers are used for the treatment of periodontal disease	164(71.9)
Use of local drug delivery for the treatment of periodontal diseases	102(44.7)

Sociodemographic characteristics and Knowledge of periodontal disease and treatment

Though the mean knowledge score was slightly higher among males (9.92) as opposed to females (9.78), the difference was not statistically significant. Similarly, there was no significant difference in knowledge based on years of experience. Those with less than 10 years of service experience were found to have a higher knowledge score. Pearson correlation showed a strong negative correlation (-0.84) of years of experience with periodontal knowledge, but not statistically significant. Fifty-six (45.2%) medical speciality faculty, 26(32.5%) of the surgical specialty faculty, 8(29.6%) of para clinical teaching faculty, and 8(50%) of the preclinical specialty faculty were found to have good knowledge on periodontal disease and treatment. Paraclinical includes Pharmacology, Community medicine, Pathology, Microbiology, and Forensic medicine specialists. Preclinical includes anatomy, physiology, and biochemistry specialists. Medical and surgical speciality includes all speciality and super speciality related to medicine and surgery. This classification was chosen based on the National Medical Commission's categorization of subjects.

DISCUSSION

This study is highly relevant as the first point of contact with a patient is a general physician.⁶ This study underscores the critical role of medical faculty in recognizing and referring patients with periodontal disease at an early stage. Dental diseases are known for many systemic manifestations; hence doctors should receive training in identifying and referring dental diseases at the earliest. The doctors often prescribe antibiotics for pain and infection, which is usually not followed up further by the doctor and patient. This gives temporary relief, but the disease remains and will become evident at a stage where a productive treatment cannot be rendered. This scenario is highly depressing, and it contributes to increased oral disease burden. In order to devise intervention modules for training doctors, it is pivotal to assess their baseline knowledge on periodontal disease and treatment. This study deserves attention in this regard.

Though the medical teaching faculty has a fair knowledge about periodontal disease, a large majority believed gingivitis and periodontitis to be the same. This reflects on the inadequate training received during undergraduate education. Though there are dental postings as a part of MBBS UG curriculum,⁷ the positive outcome related to those postings are questionable. As the saying goes, changes should start at the grass root level, curriculum revisions accommodating mandatory dental postings is needed to reduce the oral disease burden.

More than half of the study participant believed periodontal diseases are preventable. This emphasizes on the fact that primary health care providers and health care workers need to be trained in basic preventive dental

care.⁸ This can be incorporated into the existing preventive/screening disease programmes

While the term halitosis was familiar to a large majority, plaque being the primary etiologic agent of periodontal disease was known only to a minor proportion of medical teaching faculty. This demands some knowledge on the basic aetiology, and treatment of periodontal diseases. Nearly 80% of the study participants believed mouth is the only source of bad breath. It was surprising to see that the teaching faculty were not aware of the intestinal and extraintestinal systemic causes of bad breath. Though 65% of the medical teaching faculty knew diabetes will lead to periodontal disease, two-way association between these two diseases were known only to a lesser number of study participants. This reflects the lack of updating in medical field. Recent articles have focused on the inflammatory action of periodontitis leading to many systemic diseases including an increase in glycaemic value.⁹⁻¹² Periodontitis as a risk factor for low birth weight and premature birth was not known to majority of medical teaching faculty, while role of drugs in gingival swelling, pregnancy tumour, and Cerebro and cardiovascular diseases were quite familiar. Gynaecologists should be made aware of the gingival changes that can take place during pregnancy as this can lead to adverse or untoward complication. A special session for gynaecologists in this regard is highly desirable as the next generation also suffers from the mother's oral health issues. This finding in our study is contrary to a study where 75.9% of the gynaecologists agreed that periodontal disease affects the outcome of pregnancy.^{13,14} The low level of awareness in the preterm birth weight item in our study may be due to the lesser proportion of responses from gynaecologists.

Nearly 90% of the specialty doctors believed that scaling causes enamel loss. This was expected from a general population, but this low level of knowledge from an elite health professional class reflects on the need to strengthen the awareness campaigns relating to periodontal treatment. These could be implemented through professional platforms and digital media, including WhatsApp and Instagram, to reach the faculty efficiently.

This finding is in accordance with a study done in Andhra Pradesh where nearly 50% of the medical fraternity believed scaling results in enamel loss.¹⁵ This misconception was also seen in studies done in Karnataka, Chennai, and Pakistan.¹⁶⁻¹⁸ . These findings from Indian and international studies on this misconception underscores the universality of this knowledge gap.

Good knowledge of periodontal disease and treatment was shown only by 40% of our medical teaching faculty. This is in accordance with the studies conducted in various parts of the world. The findings of this study were like a study done in Guntur district, where majority was having a fair knowledge of periodontal diseases.¹⁵ There was a slight female predilection regarding knowledge of periodontal disease in a study done in Jordan, which was not evident in our study.¹⁹ The Jordanian study concluded that poor

knowledge on the aetiology of periodontal disease and the conventional treatment modality for periodontal disease which is in accordance with our study.¹⁹

The finding that younger faculty scored better may reflect their greater engagement with continuous learning and updated curricula. Conversely, senior faculty, focused on specialised cases, may rely on older biomedical models that overlook holistic, integrated approaches. This generational difference should be addressed when designing awareness and training interventions. This higher knowledge score among less experienced faculty is evident in Guntur district study also.¹⁵

As the specialty doctors have not received training to screen the periodontal disease, the attempt has not been made by majority of our study participants. Examination of oral cavity, identifying the basic oral diseases should be taught to the speciality doctors also. Though this is time consuming, this will significantly reduce the oral disease burden and improve the quality of life of individual. This indicates that knowledge does not always translate into practice, and training modules should therefore include not only theoretical content but also clinical case-based learning to build confidence in screening and referral

Strength and Limitations

This is one of the few studies assessing periodontal knowledge among medical teaching faculty in Kerala. However, the findings are limited to a single study setting confined to a tertiary medical care centre, where the staff are either specialists or superspecialists. This can result in either overestimation or underestimation of the knowledge score. The findings from this single setting owes to limited generalisability. As the study is quantitative in nature, the subjective perceptions of medical teaching faculty in this regard was not captured. The limitation of the study design owes to the non-causal inference. Though knowledge level showed a significant association with previous dental visits, other confounders such as age, accessibility, availability, and affordability of dental services might have influenced the outcome.

CONCLUSION

This study highlights the fact that majority of medical teaching faculty have heard about periodontal disease. But they lack knowledge on the aetiology, treatment, effect on preterm birth, premature delivery, and unaware of periodontal disease screening process. The medical speciality and super speciality faculty, with less than 10 years of experience were found to have good periodontal knowledge compared to others. This recommends the need for designing customised education modules for training general physician, specialists, and super specialists. We have not assessed the knowledge level of general physician. Further research among general physicians is warranted, as they are often the first contact point for dental complaints. Studies in this regard will also help in providing a baseline knowledge of periodontal

diseases. Further, qualitative studies should be designed to know the reasons for their low knowledge level despite dental postings in the undergraduate curriculum.

DECLARATIONS

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The authors have no competing interests to declare.

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The study was approved by the appropriate ethics committee and conducted according to relevant guidelines and regulations.

Informed Consent:

Not applicable.

REFERENCES

1. Nazir M, Al-Ansari A, Al-Khalifa K, Alhareky M, Gaffar B, Almas K. Global Prevalence of Periodontal Disease and Lack of Its Surveillance. *Sci World J* [Internet]. 2020 May 28 [cited 2025 Aug 19];2020:2146160. A
2. Sanz M. European workshop in periodontal health and cardiovascular disease. *Eur Heart J Suppl* [Internet]. 2010 Apr 1 [cited 2025 Aug 19];12(suppl_B):B2.
3. Janakiram C, Mehta A, Venkitachalam R. Prevalence of periodontal disease among adults in India: A systematic review and meta-analysis. *J Oral Biol Craniofac Res* [Internet]. 2020 [cited 2025 Aug 17];10(4):800–6.
4. Sidharthan S, Ramanarayanan V, Karuveettil V, Ravindran GC. Utilization of dental health services and its associated factors among adult population in Ernakulam district, Kerala, India: A mixed-method analysis. *J Oral Biol Craniofac Res* [Internet]. 2024 [cited 2025 Aug 19];14(2):133–42. Available from: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC10862006/>

5. Gasner NS, Schure RS. Periodontal Disease. In: StatPearls [Internet]. Treasure Island (FL): StatPearls Publishing; 2025 [cited 2025 Aug 19]. Available from: <http://www.ncbi.nlm.nih.gov/books/NBK554590/>
6. Cohen LA. Expanding the Physician's Role in Addressing the Oral Health of Adults. *Am J Public Health* [Internet]. 2013 Mar [cited 2025 Aug 19];103(3):408–12. Available from: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3673507/>
7. UG Curriculum | NMC [Internet]. [cited 2025 Aug 19]. Available from: <https://www.nmc.org.in/information-desk/for-colleges/ug-curriculum/>
8. Douglass AB, Maier R. Promoting Oral Health: The Family Physician's Role. *Am Fam Physician* [Internet]. 2008 Oct 1 [cited 2025 Aug 19];78(7):814–5. Available from: <https://www.aafp.org/pubs/afp/issues/2008/1001/p814.html>
9. Casanova L, Hughes FJ, Preshaw PM. Diabetes and periodontal disease: a two-way relationship. *Br Dent J* [Internet]. 2014 Oct [cited 2025 Aug 19];217(8):433–7. Available from: <https://www.nature.com/articles/sj.bdj.2014.907>
10. Private practice, Danku Mohalla, Khrew, Jammu and Kashmir, 191103, India, Nazir G, Amin J, PG Scholar, RRIUM, Naseem Bagh, Srinagar, Jammu and Kashmir- 190006, India. Diabetes mellitus and periodontal diseases: A two way relationship. *Int J Dent Res* [Internet]. 2021 July 25 [cited 2025 Aug 19];6(2):43–56. Available from: https://www.dentistryscience.com/IJDR_202162_05.pdf
11. Chung YL, Lee JJ, Chien HH, Chang MC, Jeng JH. Interplay between diabetes mellitus and periodontal/pulpal-periapical diseases. *J Dent Sci* [Internet]. 2024 July 1 [cited 2025 Aug 19];19(3):1338–47.
12. Preshaw PM, Alba AL, Herrera D, Jepsen S, Konstantinidis A, Makrilakis K, et al. Periodontitis and diabetes: a two-way relationship. *Diabetologia* [Internet]. 2012 [cited 2025 Aug 19];55(1):21–31. Available from: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3228943/>
13. Hashim R, Akbar M. Gynecologists' knowledge and attitudes regarding oral health and periodontal disease leading to adverse pregnancy outcomes. *J Int Soc Prev Community Dent* [Internet]. 2014 Dec [cited 2025 Aug 19];4(Suppl 3):S166–72. Available from: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4304054/>
14. Patil SN, Kalburgi NB, Koregol AC, Warad SB, Patil S, Ugale MS. Female sex hormones and periodontal health-awareness among gynecologists - A questionnaire survey. *Saudi Dent J*. 2012 Apr;24(2):99–104.
15. Dhulipalla R, Marella Y, Keerthana AJ, Pillutla HPD, Chintagunta C, Polepalle T. Awareness of periodontal disease and its management among medical faculty in Guntur district: A questionnaire-based study. *J Indian Soc Periodontol* [Internet]. 2016 [cited 2025 Aug 19];20(5):525–30. Available from: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5676335/>
16. Maloth S, Mukunda A. Knowledge and awareness of periodontal health among medical practitioners - A cross section institutional study. *Int J Dent*. 2018;7(2).
17. Shah MN, Anwar S, Khalil A, Akhtar S. PERIODONTAL DISEASE AWARENESS AMONG MEDICAL DOCTORS. *J KHYBER Coll Dent* [Internet]. 2013 Dec 31 [cited 2025 Aug 19];4(1):34–7. Available from: <https://journalofkcd.com/kcd/article/view/529>
18. Ingle NA, Srinidhi S, Chaly PE, Reddy C. Dental Awareness and Attitudes among Medical Practitioners in Chennai. *J Oral Health Community Dent* [Internet]. 2011 May [cited 2025 Aug 19];5(2):73–8.
19. Alzammam N, Almalki A. Knowledge and awareness of periodontal diseases among Jordanian University students: A cross-sectional study. *J Indian Soc Periodontol* [Internet]. 2019 [cited 2025 Aug 19];23(6):574–9.