



Awareness of the Influence of Periodontitis on Systemic Health among Medical Professionals: A Questionnaire Study

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Abstract

Background Periodontitis is a chronic inflammatory disease of the periodontium, characterized by progressive destruction of supporting periodontal structures. However, the periodontal infection can enter into the systemic circulation and affect different organs in the body, and systemic diseases may be aggravated by periodontal disease.

Aim The aim of this study is to evaluate the knowledge of medical professionals regarding periodontal disease and its correlation with systemic disease.

Materials and Methods The survey was conducted in different government/private hospitals in and around Mangaluru city, Karnataka, India. The online survey form was circulated among various medical practitioners between June and August 2019. There was a total of 10 questions in the questionnaire, and the respondents were asked to mark their appropriate choices. Using SPSS version 16, the data collected were compiled and analyzed.

Results A total of 186 general practitioners were involved in the study. About 75.4% of practitioners were aware of periodontal disease and 73.7% of practitioners were aware of the association between periodontitis and cardiovascular diseases. Moreover, 88.1% have referred their patients to a dentist. Among the medical doctors practicing in and around Mangaluru city, this survey showed that knowledge about the relationship between oral health and general health was good.

Conclusion This study emphasizes on increasing the awareness regarding periodontal and systemic interrelationships among physicians and more comprehensive and collective efforts by both the general physicians and dental surgeons to improve overall health through improving oral health.

Keywords

- periodontal medicine
- medical professionals
- periodontal diseases
- systemic health
- doctors

Introduction

Periodontitis can be defined as a biofilm-induced chronic inflammatory disease affecting the teeth-supporting tissues. It can result in the loss of the periodontal ligament

and supporting alveolar bone progressively with pocket formation, recession, or both.¹ Periodontal diseases can constitute a major public health concern as it is highly prevalent and contributes to chronic diseases global burden. It involves a chronic inflammatory process in the

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periodontium as a response to bacterial antigens in the tooth plaque. In the past, doctors and dentists have confined themselves to their fields, treating only diseases relevant to their specialized field. However, latest findings suggest that oral health can impact systemic health and that this may be a bidirectional relationship for certain conditions such as pulmonary disorders, diabetes mellitus, osteoporosis, cardiovascular problems, pancreatic cancer, obesity, and Alzheimer's disease.² This kind of interrelationship demonstrates a cyclical association, where a systemic disease makes the individual susceptible to oral infection, and, once the oral disease has been established, it in turn accentuates the systemic condition.³ Therefore, importance should now be given in the treatment of periodontitis and other dental diseases as a means to improve systemic diseases. As reported by the World Health Organization, many oral diseases, such as periodontal diseases, are a significant and essential part of the individual's overall health.⁴ Medical professionals should familiarize themselves with knowledge, as they can alter the course of systemic diseases and assess their diagnosis and prognosis accordingly. Because of the higher prevalence of periodontal diseases and their correlation with systemic health, patients visiting medical professionals may not obtain the requisite guidance and education.⁵

Therefore, this study was conducted to understand the level of knowledge about medical practitioners about the periodontal disease to realize their training needs for the subject under review.

Materials and Methods

This survey was conducted in and around Mangaluru city in various hospitals. The online survey form was created and was circulated among various medical practitioners between June and August 2019. Consent to conduct the survey was obtained from the hospitals chosen for analysis after evaluating them on the aim and importance of the study and maintaining the hospitals' confidentiality and the respondents' confidentiality. From all participants, verbal consent was obtained. One-hundred eighty-six doctors were randomly selected from different hospitals. The purpose and all the terminology used in the survey were clarified to the respondents and were ensured that absolute confidentiality would be maintained. Each participant had to answer the multiple-choice type questionnaire. The survey was designed to evaluate the knowledge of medical practitioners on periodontitis and its relationship with systemic diseases. There was a total of 10 questions in the study, and the respondents were asked to tick their appropriate answers. The collected data have been compiled and analyzed using SPSS version 16. Results are expressed in percentage.

Results

A total of 186 medical practitioners (106 male and 80 female) were involved in the study. The mean age of the population is 41.67 years (20–40 years—80 participants, 41–60 years—71

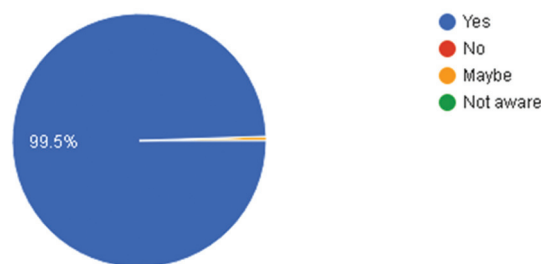


Fig. 1 Care among teeth is important as any part of the body.

participants, >60 years—35 participants). The results are summarized in ►Figs. 1–9.

Amid the respondents, approximately 99.5% believed that care among teeth is important as any part of the body. Only 0.5% respondent appreciates that care among teeth may be important as any part of the body (►Fig. 1).

The majority of the doctors, 75.4%, responded that periodontal disease affects gums, whereas 18.4 and 0.5% stated tooth decay and inflammation of the tongue, respectively. However, around 2.7% was not aware of the term periodontal disease (►Fig. 2).

Only 62% of the study population thought that dental plaque is the etiological factor for periodontal disease. However, 73.5% respondents answered positively to the early sign of periodontitis as bleeding gums except for 11.9 and 12.4% respondents who acknowledged the early sign of

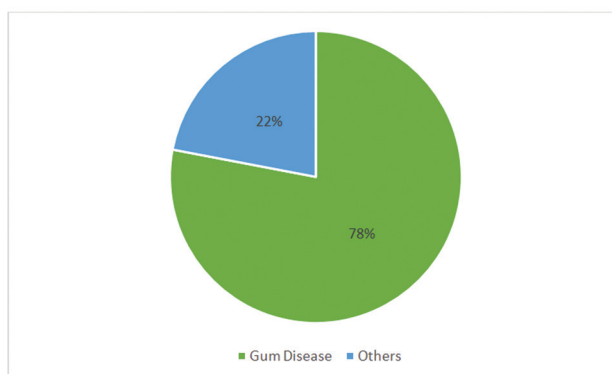


Fig. 2 Knowledge regarding the term "periodontal disease."

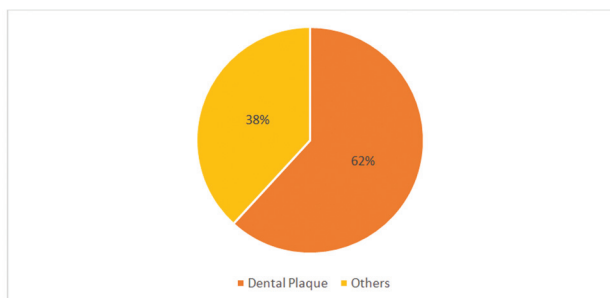


Fig. 3 Knowledge regarding cause of periodontal disease.

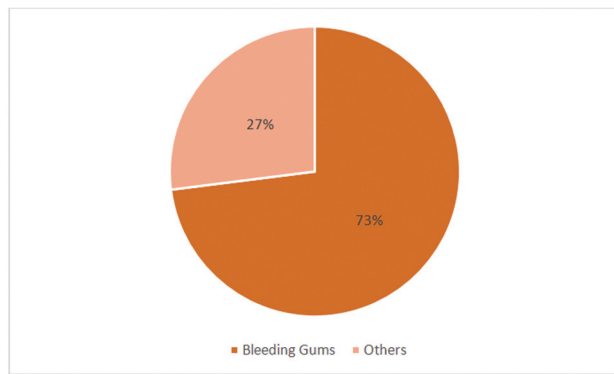


Fig. 4 Knowledge regarding the early sign of periodontal disease.

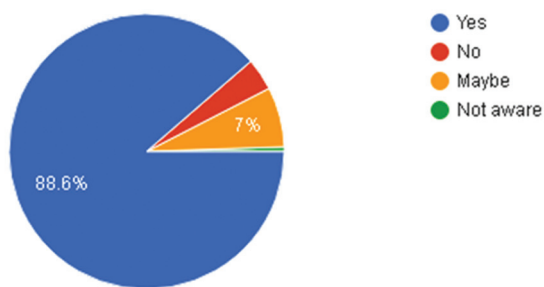


Fig. 5 Is there any relationship between periodontal disease and general body health?

periodontitis as loose tooth and tooth decay, respectively. Moreover, 2.2% was not aware of the early sign of periodontitis (►Fig. 3).

About 88.6% respondents agreed to the fact that there is an association between periodontitis and general body health. Meanwhile, 0.8% believed that there is no relationship between both. Around 7% respondents were in a dilemma, and 0.5% was not aware of the relationship between the two (►Fig. 4).

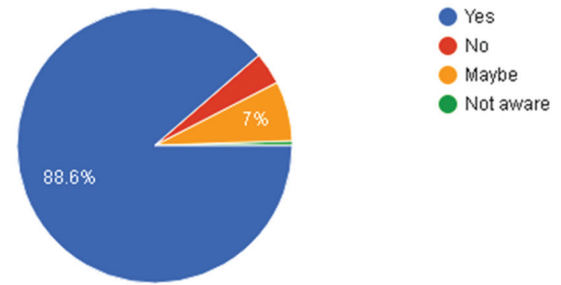


Fig. 6 Opinions of the participants regarding the periodontal disease relationship with specific systems.

Among 186 replies, 167 respondents positively specified the systems linked to periodontal disease. About 73.7, 21.6, 16.2, and 28.1% specified cardiovascular system, renal system, central nervous system, and respiratory system, respectively (►Fig. 5).

Amidst 169 responses, 26.6% (45), 23.7% (40), and 21.9% (37) respondents acquired information from the Internet, journals, and dentists, respectively. About 27.8% (47) respondents acquired information from other major sources of information that are listed out in ►Fig. 6.

Among 183 responses, 97.8% respondents agreed that periodontal treatment would improve quality of life, whereas the rest disagreed (►Fig. 7).

Among 185 responses, 11.9% have not referred to his/her patients to a dentist till date. However, 17.1% (32) of the respondents were not clear regarding the term periodontal disease and the first sign. For example, participants have opted for bleeding on probing as first sign of the disease but has chosen tooth decay as the meaning for the term periodontal disease and vice versa.

A medical practitioner's frequent referral to dentists was included as 32.7% for gingival bleeding, 36.9% for the presence of an intraoral lesion, 19.6% responded due to other reasons, and 10.7% were referred due to malodor (►Fig. 9).

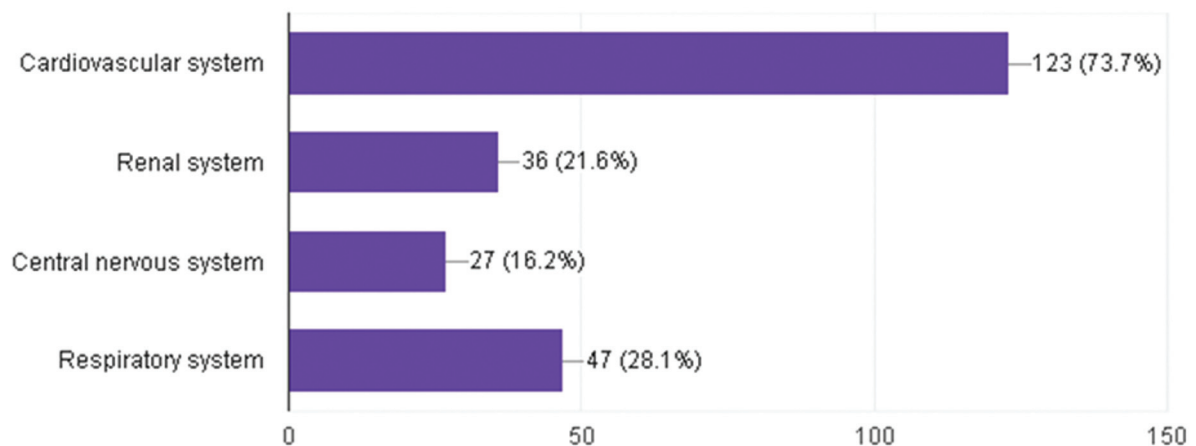


Fig. 7 Source of information for participants.

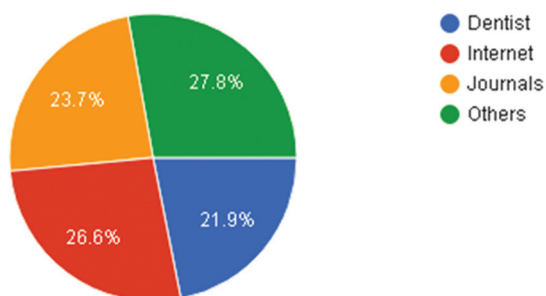


Fig. 8 Other sources of information.

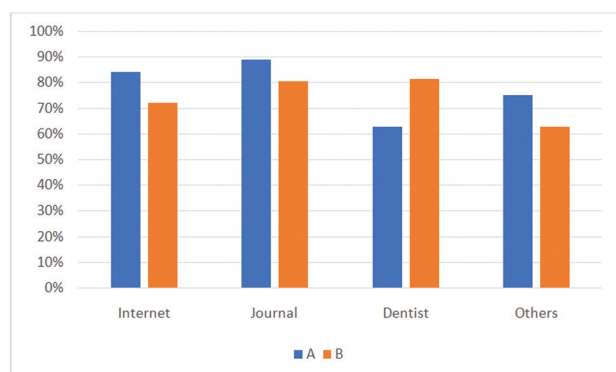


Fig. 9 Knowledge regarding the (A) term periodontal disease and (B) early sign of periodontal disease, among groups with varied sources of information.

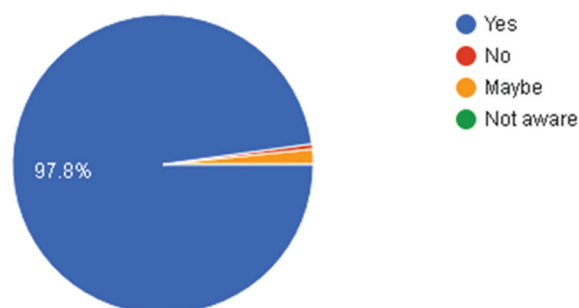


Fig. 10 Opinion of the participants regarding the relationship between periodontal treatment and improvement in quality of life.

However, the other reasons for referral amidst 26 responses included dental caries, extraction, maxillofacial surgery, and trauma (► **Fig. 10**). Besides, 88.1% of the practitioners referred patients to dentists (► **Fig. 11**), with the intra-oral lesion being the most common reason for referral (► **Fig. 12**).

Discussion

This study evaluated medical professionals' knowledge regarding the relationship between periodontal and systemic diseases. Medical professionals are deemed an appropriate means to reach a vast number of patients than dentists.

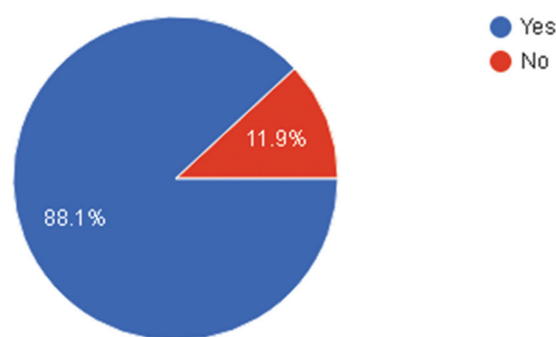


Fig. 11 Information regarding the referral to dentist.

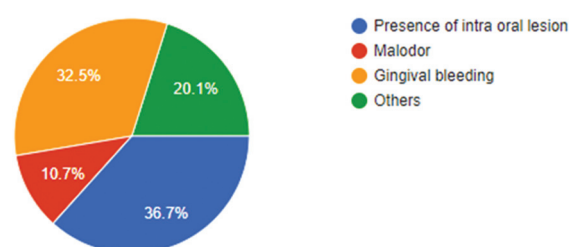


Fig. 12 Reason for referral.

Physicians can provide screening assistance and guidance to seek appropriate dental care. Considering the effects of poor oral health in general and periodontal health in specific on the general health of an individual and the consequent impact on the quality of life of that individual, medical professionals need to develop a deeper understanding of the etiology and pathogenesis of the periodontal disease and various options available in the treatment of the condition.⁶

Generally, people continue to ignore oral health but seek medical care as required. However, it is not perceived by the people that often poor dental or periodontal health, in precise, can become a reason for the deteriorating systemic health. In such instances, medical professionals' knowledge about the interrelationship between periodontal and general health comes to the patient's rescue.

Periodontitis is a chronic inflammatory disease initiated by biofilm that destroys the supporting tissues, including bone support of the teeth. Periodontal disease is diagnosed by clinical signs such as recession, clinical attachment loss, mobility of the tooth, probing pocket depth, and tooth loss. Williams and Offenbacher⁷ introduced a new area called "Medical periodontology," now referred to as periodontal medicine, and pointed to the bidirectional inter-relationship between periodontal diseases and other systemic disorders like cardiovascular disorder and diabetes mellitus, cerebrovascular diseases, and respiratory disorders. Patients with periodontal disease have accentuated systemic markers of inflammation, such as C-reactive protein, and with the

resolution of periodontal disease, systemic inflammation levels have been reported to decrease.⁸ There are different potential triggers for the increased systemic inflammatory response, including transient metastatic bacteremia injury from circulating oral microbial toxins and metastatic inflammation from an oral microorganism-induced immunological injury.⁹ For most dental procedures, preserving the health of the tissues investing the tooth is essential.¹⁰

The knowledge of term periodontitis among medical practitioners was good in the present survey (78.4%). The majority of the practitioners were able to recognize the term, which depicts their awareness regarding gum diseases. However, all medical practitioners need to have good, if not, complete knowledge regarding the basic terms, etiological factors, and/or first signs of periodontal disease (►Fig. 2).

Periodontal disease is multifactorial in etiology.¹¹ In terms of the etiology and pathogenesis of the periodontal disease, most medical practitioners (61.2%) agreed on the dental plaque as the primary etiological agent for initiating periodontal disease (►Fig. 3). However, biofilm is precisely the etiological agent for the initiation of periodontal disease.¹² The majority of the medical practitioners (73.5%) were aware of the early sign of periodontal disease (►Fig. 4). Surprisingly, the rest believed it to be a loose tooth, decay, and few of them were unaware of the early signs.

In this study, 88.6% of the participants were aware of the association between periodontal and systemic diseases (►Fig. 5). Moreover, in this study, 73.7% of medical practitioners were aware of the association between cardiovascular and periodontal diseases. However, the general physicians' initial oral health advice can be more effective than those provided by dental practitioners as commonly patients refer more to the general physicians than nearby dentists.¹³ However, medical practitioners only had limited knowledge regarding the association between periodontitis and renal, central nervous system, and the respiratory system (21.6, 16.2, and 28.1%, respectively). Additionally, previous research has shown that periodontal diseases may impact an individual's general health or change the course of systemic conditions¹⁴ (►Fig. 6).

It was also noted that only a few medical practitioners received information regarding the association between periodontal disease and systemic disease from dentists (21.9%). This result depicts the need for a more interactive workshop for medical practitioners by dental researchers (►Fig. 7). Besides, 97.8% agreed that periodontal treatment would improve the quality of life, which was outstanding. Moreover, 88.1% referred their patients to the dentist (►Figs. 8 and 9).

The present survey was conducted in only one region or locality, and the study results cannot be applied to an entire population. Maybe due to their busy service schedules, all medical practitioners could not participate in the survey, which may have contributed to some bias. Therefore, a similar study with broader questions and a large scale is needed for more accurate and illustrative results, which can

help us better understand medical practitioners' knowledge and awareness regarding the periodontal and systemic interrelationships.

Conclusion

Among the medical doctors practicing in and around Mangaluru city, this survey showed that knowledge regarding the association between oral and general health was good. General oral health education is highly recommended in medical school and the postgraduate setting. Also, emphasis must be given to increasing the awareness regarding periodontal and systemic interrelationships among physicians with frequent, continuous education programs, or workshops regarding interrelationships. Comprehensive and collective efforts by both the general physicians and dental surgeons improve overall health by improving oral health.

Conflict of Interest

None declared.

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