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Original Research

Knowledge and awareness of periodontal disease among healthcare professionals

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***ABSTRACT*:**
Background: Healthcare professionals regularly interact with patients on a day-to-day basis. Thus, an assessment and improvement in the level of knowledge regarding periodontal disease among them is important as they may act as an educator for their patients regarding oral health. Aim: The aim of the study was to evaluate the knowledge and awareness of periodontal diseases among the healthcare practitioners. **Materials and methods**: A total of 300 healthcare professionals which included medical doctors, nursing and physiotherapy providers were included in this questionnaire based study. The questionnaire comprised of questions on knowledge, risk factors and preventive measures for periodontal diseases. All collected data was analyzed using ANOVA test and P values ere determined. A value measuring less than 0.05 was taken as with high statistical significance. **Results**: All studied questionnaire parameters demonstrated highly significant P values of lesser than 0.001. **Conclusion**: A large lacuna in knowledge of periodontitis, various risk factors that are associated with its development and preventive strategies was observed among all healthcare professionals.
Keywords: Healthcare, professionals, periodontitis, knowledge.

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INTRODUCTION

"Oral health" has been defined by 'Federation Dentaire Internationale' or FDI as involving multiple facets which include- ability of speech, smile, taste and smell, touch, deglutition, and also involves a wide range of facial expressions without any pain or discomfort due to diseases of craniofacial region. Good oral health is an integral component of general systemic health as it mirrors overall physical health. [1]

Periodontal diseases are one of the most common oral diseases. This disease records a high prevalence regardless of gender, education level, demographic location or socioeconomic status. It affects approximately 5 % to 20 % of general population all over the world. [2] Periodontal diseases which include- gingivitis and periodontitis if left untreated may result in loss of teeth. Initiation and progression of periodontal diseases is governed by a subject's perception of methods used to control local irritating factors such as- dental plaque and calculus. [3]

A holistic approach which involves health-care professionals from all streams towards diagnosing as well as referrals to dental professionals is required for managing the disease.[2]

Patients suffering from chronic diseases affecting metabolism significantly impair oral health. One such disease is diabetes mellitus which if not adequately controlled increase an individual's susceptibility to development of oral infections. Most prevalent of these disease is periodontitis.[4] There is scientific evidence to show that diseases of periodontium pose considerable risk for adverse outcomes in pregnancy.[5] Hormonal alterations which are associated with female reproductive cycle changes cause alterations in periodontal and oral mucosal soft tissues in response to

local etiological factors which creates diagnostic as well as therapeutic problems. [6]

There is a generalized lack of knowledge and related awareness with regards to the effect of oral health on mortality rates among neonates and low-birth weight and pre-term infant births. This may be partially attributed to lack of awareness imparted by medical professionals in identifying potential role of oral health status surrounding child birth.[5]

William and Offenbacher introduced a terminology "medical periodontology" in order to impress upon the inter-relationship between periodontal and systemic diseases, for example, cardiovascular, cerebrovascular, respiratory diseases, diabetes mellitus, pre-term and low birth weight.[7] A person's attitude reflects self-experience, cultural differences, family values and beliefs, various situations in life. An individual's attitude influences their oral health maintenance.[8, 9] It is an attending Physician's duty to help in increasing awareness regarding maintenance of oral health in patients suffering from systemic diseases such as diabetes mellitus, hypertension, renal insufficiency etc.[10]

Thus after reviewing existing literature, the aim of current study was to assess the knowledge and awareness of periodontal disease among health-care professionals.

MATERIALS AND METHODS

This questionnaire based analytical study enrolled total of 300 subjects who were healthcare professionals which comprised of medical doctors (n= 120), nursing (n= 90) and physiotherapy (n= 90) professionals. Random sampling method was employed for case selection and questionnaire was sent through electronic mail (email) and through other social media platforms. Study clearance was obtained from the Institutional ethical committee. Informed consent was acquired from all subjects who participated in this study. The questionnaire was subdivided into sections pertaining to- a) knowledge of periodontitis; b) knowledge regarding risk factors that are associated with periodontitis and c) knowledge regarding measures for prevention of periodontal diseases and their treatment. For each correct answer and a score of '+1' was given. Knowledge level of all study participants was analyzed by each of their capability for selection of correct answers.

Statistical analysis: All collected data was subjected to statistical analysis by employing the SPSS statistical software version 20.0. One way ANOVA (Analysis of Variance) was employed to observe any differences in mean scores that were obtained from the study. *P value of less than* 0.05 was considered with statistical significance. Chi-square statistical test was done to evaluate any significant difference existing between healthcare professional belonging to various age groups of male and female participants.

RESULTS AND OBSERVATIONS

a) Assessment of Knowledge of periodontitis among healthcare professionals:

An average score of 6.95 ± 1.610 was observed among medical doctors; while average scores of 6.54 ± 1.48 and 5.35 ± 2.523 was obtained among nursing and physiotherapy professionals. The F-value was found to be 52.98 and *P*-value was found to be 0.001 which is of high significance [Table 1].

b) Knowledge of risk factors that are associated with periodontitis in healthcare professionals:

On assessment of knowledge regarding various risk factors associated with healthcare professionals, it was observed that medical practitioners had an average score of 6.92 ± 1.620 while nursing professionals had an average score of 6.25 ± 1.450 and Physiotherapy professionals had an average score of 5.51 ± 2.455. The F-value was found to be 17.68. The P-value was observed to be 0.001 which has high significance [Table 2].

c) Assessment of Knowledge involving various measures for prevention along with treatment of Periodontal disease:

Medical doctors were found to have an average score of 6.98 ± 3.209 whereas those in nursing and physiotherapy professionals were found to have average scores of 6.06 ± 1.21 and 5.56 ± 2.508, respectively. The F value was found to be 15.67. Here also, a highly significant *P*-value of 0.001 was observed [Table 3].

One-way ANOVA test was used to calculate if the mean scores varied significantly among the healthcare professionals. A highly significant statistical difference in mean scores was noted between health-care professionals which demonstrates a significant deficit in knowledge among healthcare professionals.

Table 1: Table demonstrating Knowledge of periodontitis among healthcare professionals

Healthcare profession	No. of subjects	Mean scores	Standard Deviation (SD)	F value	P value
Medical doctors	120	6.95	1.610	52.98	0.001
Nursing professionals	90	6.54	1.48		
Physiotherapy professionals	90	5.35	2.523		

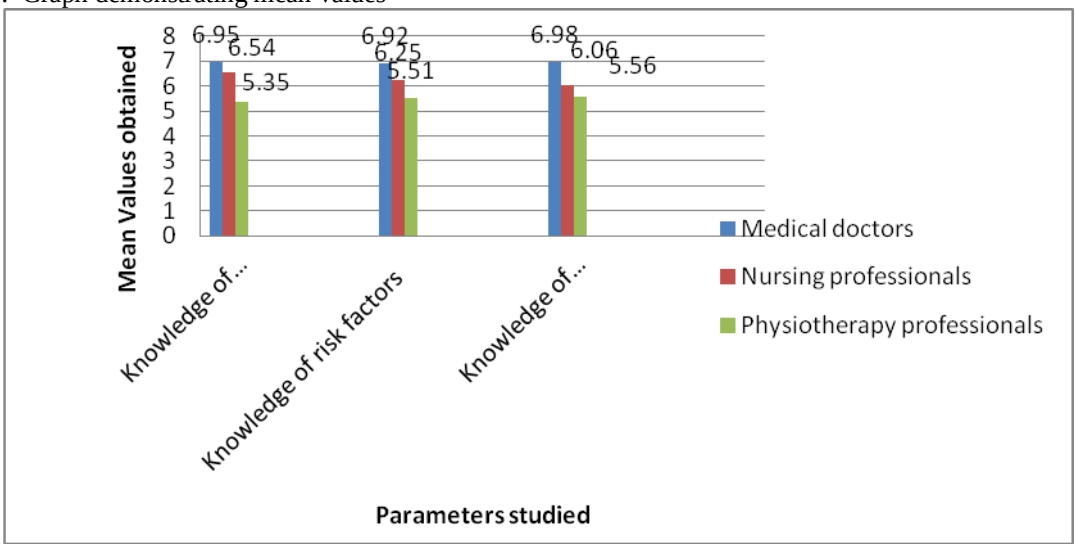
Table 2: Table showing knowledge of risk factors associated with periodontitis in healthcare professionals

Healthcare profession	No. of subjects	Mean scores	Standard Deviation (SD)	F value	P value
Medical doctors	120	6.92	1.620	17.68	0.001
Nursing professionals	90	6.25	1.45		
Physiotherapy professionals	90	5.51	2.455		

Table 3: Table showing Knowledge of prevention measures and treatment of Periodontitis

Healthcare profession	No. of subjects	Mean scores	Standard Deviation (SD)	F value	P value
Medical doctors	120	6.98	3.209	15.67	0.001
Nursing professionals	90	6.06	1.21		
Physiotherapy professionals	90	5.56	2.508		

Graph 1: Graph demonstrating mean values



DISCUSSION

Inter-disciplinary approach among various healthcare streams requires a close co-operation between doctors and dental practitioners. Thus, a closely knit team comprised of knowledgeable health-care professionals and dental practitioners benefits patients and society, at large as the healthcare providers may act as good resource for knowledge concerning the importance of oral specially, periodontal health to general population.

In current study, significant gap in knowledge regarding importance of periodontal health and periodontitis was found with a high significant P value of 0.001. Also, the studied healthcare professionals showed a significant lack of knowledge regarding various risk factors which may be associated with development of periodontitis. Additionally, significant difference in knowledge regarding various measures for preventing development of periodontal diseases was seen ($P < 0.001$).

Bains in 2020 found that an awareness of periodontal health was present in 79 % of health care professionals while 11 % demonstrated gap in knowledge, attitude and practice. [11]

Sree et al in 2020 reported that 78 % of gynaecologists had no knowledge of specialized branches in Dentistry. 90 % of them were of the agreement that dental treatment may be provided during the period of pregnancy while 77 % preferred pregnant subjects with gingival problems to dental professionals and 99 % referred the patients during the second trimaester of pregnancy. [5]

Sudhakar et al in 2019 reported that only 15 % of medical practitioners counseled their patients for maintaining good oral hygiene basically due to inadequate knowledge involving periodontal disease and need for treatment. However, 40 % of them were reluctant about increasing their knowledge of

periodontal diseases. Poor knowledge of importance of periodontal health and diseases among health-care professionals reflects on their inability to identify such problems. Lack of diagnosis of periodontal diseases may adversely affect the quality of life as significant morbidity may result in affected patients. One significant improvement can be the inclusion of dental education in curriculum which may help in identification of these periodontal diseases and other mucosal conditions. [2]

Chugh et al in 2019 in their analysis on health care students (i e., belonging to medical and nursing) as well as professionals found that 81 % of the study participants were aware of the fact that routine dental examination is mandatory during pregnancy. [1]

In a study conducted by Alzammam and Almaki in 2019 to assess knowledge along with awareness of periodontal diseases among medical students belonging to Jordan, it was seen that only 58.9 % of the study population could correctly identify dental plaque deposition and smoking as one of the primary causes for gingival and periodontal diseases while 89.5 % and 88.5 % of this population did not believe that smoking can cause an increase in probability of higher knowledge of periodontal diseases. Female study participants demonstrated statistically significant (P<0.000) higher knowledge of periodontal disease when compared to their male counterparts. [12]

Vellayapan and Verghese in their study conducted in 2019 reported that 82 % of medical practitioners were aware of periodontal diseases occurrence. Out of these, 58 % regularly referred patients with systemic health conditions to dental professionals for oral treatment. [13]

Razi et al in 2018 in their study on medical practitioners of Jharkhand reported that 86.6 % were of the knowledge that periodontal diseases are preventable in nature. 95.56 % of medical practitioners were of opinion that utilizing proper brushing techniques and flossing helps in maintenance of good oral hygiene. However, only 44.49 % referred patients for diagnosis and treatment.[14] Obulareddy et al in 2018 demonstrated that only a minor percentage i.e., 10.8 % of diabetic patients were visiting dental professionals for regular oral examination and routine dental check-ups. [10]

Jaiswal et al in 2015 in their study on medical internees found that though they have some knowledge of periodontal diseases (i.e, 70.67 %), they are largely unaware about an inter-relationship between diabetes and periodontitis (30.67 %). [4]

Cohen et al in 2015 in their analysis reported that only 85.8 % of Gynaecologists were aware of had knowledge regarding periodontal diseases. [15] Similarly, Shenoy et al (2009) in their study provided conclusion that the knowledge of gynaecologists was extremely good regarding periodontal diseases, however, they are surprising less knowledge regarding the effect of periodontal disease on pre-term births and low-weight births. [16]

Tasdemir and Alkan in 2015 reported that 90.8 % of study participants demonstrated the knowledge of inter-relationship between periodontal and systemic health. 56.5 % of medical practitioners referred cases of periodontal diseases to specialists. [7]

Sushmita et al in 2015 found that post-graduate students belonging to medical courses had better knowledge regarding periodontal health when compared to those pursuing under-graduate course along with interns. [17]

Significant contrast findings have been reported by Opeodu et al in 2014 who observed that 10 % of medical practitioners strongly disagreed upon an inter-relationship existing between oral health and systemic diseases. [18]

Nasir et al in 2013 also demonstrated that there is a limited awareness regarding effects of systemic diseases on oral conditions. [19]

Nagarakanti et al in 2013 reported in their study that 86.1 % referred patients for oral diagnosis to dental practitioners. Out of this studied cohort, 10.1 % referred patients suffering from systemic diseases without any complain of oral diseases; 25.8 % send referrals to specialist dental professionals while 9.7 % simply made enquiries from their patients regarding dental treatment. [20]

Marneedi et al (2009) reported that 51.7 % of medical undergraduate students were unaware if there is a link between periodontal disease and diabetes mellitus while 55.1 % of these in first year of study were completely unaware of this association. [21]

CONCLUSION

Hence, after viewing literature evidence regarding the effects of systemic diseases on periodontal and oral health, it is recommended to educate the medical learners for performing examination of oral cavity as part of general physical examination. It is also strongly recommended that clinics with both medical and dental set-ups should be set up for providing both medical and dental health care under a single common facility. Also, imparting oral health education to medical students can help in early diagnosis and subsequent, referrals to specialists.

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