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Research Article

Knowledge about Periodontal Diseases among Medical Students - A Questionnaire-based Study

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I N F O

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A B S T R A C T

Introduction: Periodontitis is a multifactorial inflammatory disease involving tissue surrounding the tooth, that occurs as a result of local factors or systemic diseases. The aim of the present survey was to assess the knowledge about periodontal diseases among medical students.

Materials and Methods: A total of two hundred and eight medical students participated in this survey. Twenty questions were asked to assess their knowledge about periodontal diseases. Data were collected using Google Forms.

Results: Results revealed statistically significant values in relation to observed frequency for responses at $p \leq 0.001$.

Conclusion: In general, medical students had at least a moderate level of dental knowledge but lacked correct information in relation to signs and treatment of periodontal disease. It was seen that PG students had better knowledge compared to UG students.

Keywords: Periodontal Diseases, Medical Students, Knowledge, Survey

Introduction

Periodontitis is a multifactorial inflammatory disease that occurs in the tissues surrounding the teeth in response to bacterial accumulations, or dental plaque, on the teeth.[1] Oral health is an important and integral part of general health.[2,3] Plaque biofilm present on the tooth surface leads to inflammation of gingiva causing gingivitis; gingivitis when left untreated progresses to periodontitis.

Medical doctors are the first caregivers for the overwhelming majority of health-connected complaints and they conjointly play active roles in oral health promotion.[4] Many studies have shown the role of medical doctors in oral healthcare. Their role in screening for oral diseases, emergency care, and pain management is vital.[5]

Family physicians and paediatricians have way more vital roles to play and also the reckoning on their knowledge of dentistry, higher and more reliable outcomes can be expected. Similar trends were found among medical students in a study by Adeghe et al. during which their data on oral health were represented as suboptimal as solely 2.8% of the 279 medical students had sensible data on dental specialities.[5]

Hence in our present study, we aimed at understanding the knowledge about periodontal diseases among medical students.

Materials and Methods

In order to know the level of knowledge and awareness among medical students regarding periodontal diseases,

a cross-sectional study was carried out among medical students in Bangalore city. A sample of 208 medical students was included. Data were collected using a questionnaire through Google Forms between September 2022 and November 2022. Ethical clearance was obtained from the Institutional Ethics Committee, Rajarajeswari Dental College and Hospital, Bangalore. Informed consent was obtained from all participants.

A specially designed questionnaire consisting of 20 questions was used to assess the knowledge about periodontal diseases among medical students. This questionnaire was shared among medical students and the purpose of the study was explained. It was mentioned that the responses would remain confidential. The data from the filled questionnaire were analysed. Inclusion criteria allowed the inclusion of both Undergraduate and Postgraduate medical students.

Statistical Analysis

Statistical Package for Social Sciences (SPSS) for Windows Version 22.0 released in 2013, Armonk, NY: IBM Corp., was used to perform statistical analyses.

Results

Table 1.Shows the Gender and Qualification Distribution of Participants.

The findings shown in Table 2, in relation to the observed frequency of responses to the study questionnaire, were statistically significant at $p < 0.001$.

89.4% of subjects advised patients for dental check-ups and to brush twice daily. 84.1% of respondents referred patients to dental clinics and 61.1% believed that delayed referral of dental treatment can result in life-threatening conditions. Most of the subjects believed complex sugars (80.8%) and bacteria (76.9%) are the main causative agents for dental caries. 62% of subjects advised circular brushing motion for their patients; they also believed proper brushing and flossing will prevent dental caries and gingival diseases. 46.6% of participants were aware of different dental specialities and about gingival (86.5%) and periodontal diseases (63.5%). 86.5% of respondents believed that there is a correlation between systemic diseases and periodontal diseases. Common oral problems observed by them were tooth pain (66.3%) and bleeding gums (55.8%). 42.8% of subjects prescribed supplements to treat gingival conditions. A significant proportion was not aware of advanced treatment modalities used in dentistry.

It was found that PG students had better knowledge than UG students in certain questions (Figures 1a and 1b).

However, there was no significant difference noted in the responses between the UG and PG students for other study questions.

Table 1.Gender and Qualification of Study Subjects

Variable	Category	n	%
Gender	Male	125	60.1
	Female	83	39.9
Qualification	UG students	167	80.3
	PG students	41	19.7

Table 2.Comparison of Responses to the Questionnaire given by the Study Subjectsusing Chi-square Goodness of Fit Test

Questions	Responses	n	%	χ^2 Value	p Value
Do you advise your patients for dental check-ups?	Yes	186	89.4	295.510	< 0.001*
	No	5	2.4		
	Maybe	17	8.2		
How often do you advise your patient for brushing?	Once daily	13	6.3	294.587	< 0.001*
	Twice daily	186	89.4		
	≥ Thrice daily	9	4.3		
Do you think the claims of dental ads are true?	Yes	47	22.6	65.375	< 0.001*
	No	37	17.8		
	Maybe	124	59.6		

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What do you think causes dental caries?	Smoking	35	16.8	..	..
	Complex sugars	168	80.8	..	..
	Bacteria	160	76.9	..	..
	Tooth picking	35	16.8	..	..
	Do not know	1	0.5	..	..
Do you think delayed referral of dental treatment can result in life-threatening conditions?	Strongly agree	40	19.2	160.885	< 0.001*
	Agree	127	61.1		
	Disagree	38	18.3		
	Strongly disagree	3	1.4		
Which method of brushing do you advise your patients?	Horizontal	23	11.1	84.875	< 0.001*
	Vertical	56	26.9		
	Circular	129	62.0		
Are you aware of different dental specialisations?	Yes	97	46.6	27.529	< 0.001*
	No	36	17.3		
	Maybe	75	36.1		
Do you know about gingival diseases?	Yes	180	86.5	111.077	< 0.001*
	No	28	13.5		
Do you about periodontal diseases?	Yes	132	63.5	15.077	< 0.001*
	No	76	36.5		
Do you think there is a link between systemic health and periodontal disease?	Yes	180	86.5	111.077	< 0.001*
	No	28	13.5		
What are the common oral problems that you have seen in your patients?	Bleeding gums	116	55.8	..	..
	Tooth pain	138	66.3	..	..
	Tooth mobility	76	36.5	..	..
	Malodour	69	33.2	..	..
	Oral ulcers	65	31.3	..	..
	Sensitivity	83	39.9	..	..
Do you give any supplements to treat gingival conditions?	Yes	89	42.8	11.548	0.003*
	No	49	23.6		
	Maybe	70	33.7		
How do you address patients with dental problems?	Refer the patients to a dental clinic	175	84.1	247.625	< 0.001*
	Give antibiotics and analgesics	31	14.9		
	Ignore/ leave alone	2	1.0		
Do you think proper brushing and flossing will prevent dental caries and gingival diseases?	Yes	129	62.0	105.644	< 0.001*
	No	8	3.8		
	Maybe	71	34.1		

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Do you think laser is used in dentistry?	Yes	149	71.6	146.144	< 0.001*
	No	12	5.8		
	Maybe	47	22.6		
Are you aware of advanced treatment modalities used in dentistry?	Yes	76	36.5	8.346	0.02*
	No	50	24.0		
	Maybe	82	39.4		

* - Statistically significant

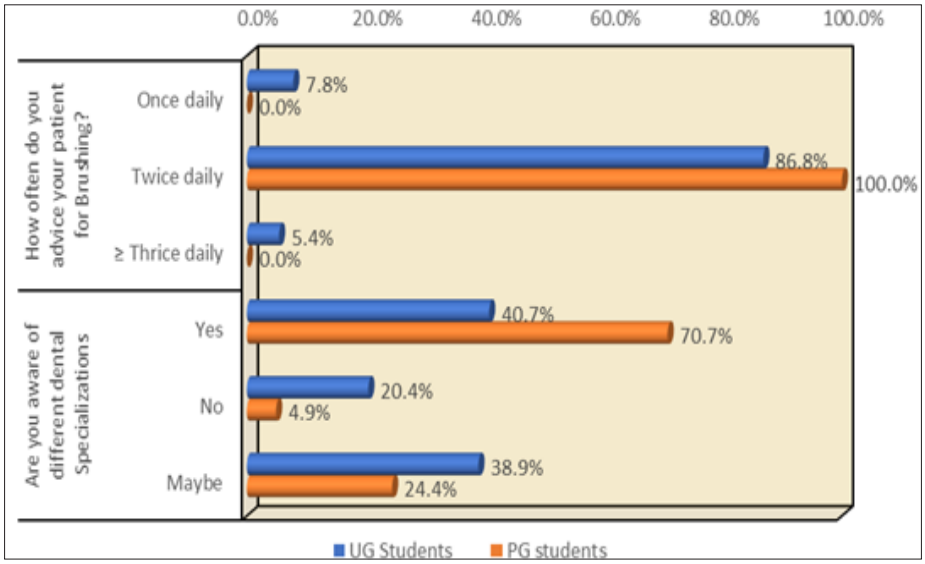

Figure 1a.Significant Differences in the Responses to the Study Questions based on the Qualification of Study Subjects - Part 1

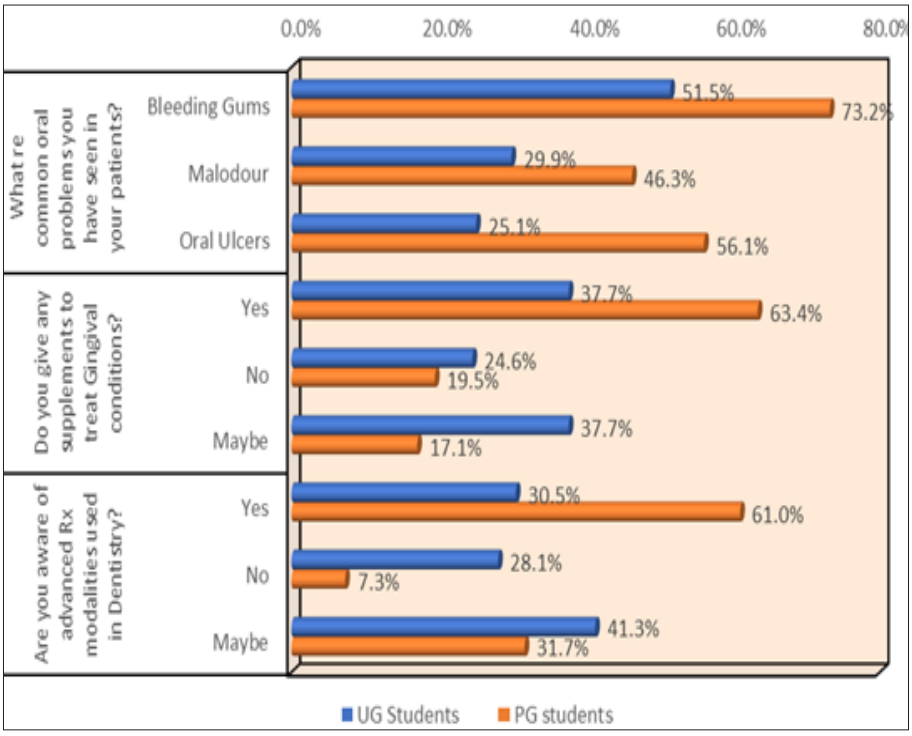

Figure 1b.Significant Differences in the Responses to the Study Questions based on the Qualification of Study Subjects - Part 2

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Discussion

In our study, the subjects showed moderate knowledge about periodontal health but the studies conducted by Usman et al.[6] and Doshi et al.[7] among medical and paramedical students, and engineering students respectively showed poor oral health knowledge. In a study conducted by Baseer et al.[8] too, health professionals showed less knowledge about oral health. The probable reasons for this could be less clinical exposure of medical students to oral health problems as they are committed to their own curricular activities, and also the attitude of the students toward oral health considering it as least important.

Oral cavity has been described as "the window to general health",[9] and many recent studies have proven the correlation between dental diseases. The oral cavity is also the intersection of dentistry and medicine, semi-independent professions that share the common goal of improving the overall health and quality of life of patients. Garcia et al. reported that the greater the number of missing teeth, the poorer the quality of life.[10]

As future practitioners, sufficient awareness regarding oral health issues is very important to treat patients. Literature evidence began to suggest a possible link between periodontitis and a number of systemic diseases decades ago.[11] Periodontitis acts as a potential source of infection and is considered an important risk factor for cardiovascular diseases, cerebrovascular diseases, peripheral arterial disease, respiratory diseases, and low birth weight.[12] Many medical professionals are not familiar with oral diseases and oral health research. They do not recognise the potential infection that may exist within the oral cavity and its influence on systemic disease.[13]

The results of studies looking at the dental knowledge of practising health visitors, pharmacists, medical practitioners and nurses did not vary much from that of the students.[14] Most studies show that health science students had low and moderate levels of dental knowledge.[15]

With reference to the limitations of the study, the finding may not be applicable on a national level as it was carried out in one city, hence this may lead to bias. Thus a similar study on a larger scale is required to get a conclusive result. Also, there is a necessity for medical students to have additional comprehensive coaching in oral/ periodontal health.

This study showed awareness about systemic effects of periodontal disease among medical practitioners, for better interdisciplinary understanding and comprehensive treatment for patients. Various ways may be enforced to realise this goal, like inclusion of dental postings in the medical programme, and making certain adequate theoretical and practical syllabi relating to oral health, which might improvise the general physicians' knowledge in treating oral health-related problems efficiently.

Conclusion

The study shows that medical students also have a vital role in the oral healthcare of the population and it is well-known that when awareness is lacking, patients suffer. In general, medical students had at least a moderate level of dental knowledge but lacked correct information in relation to signs and treatment of periodontal disease. Also, postgraduates had better knowledge than undergraduates in regard to periodontal diseases.

Although a majority of the medical doctors reported that they knew the relationship between periodontal disease and systemic health, this awareness was not supported by precise knowledge and they failed to practice it clinically. The importance of the relationship between oral health and systemic health should be well understood. It is important for primary medical care professionals to understand the relationship between periodontal disease and systemic disease to give appropriate assessment, prevention, and management of the health needs of the patient.

This awareness can be increased by conducting educational programmes and establishing an integrated practice structure for managing all aspects of systemic disease along with periodontal disease management and the exchange of knowledge between dental and medical practitioners.

Hence, there is a need for the inclusion of oral health education in the medical curriculum. Each dentist and medical professional should work hand in hand to administer quality care to patients.

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