

Assessment of Attitude, Knowledge and Practice about Periodontal Diseases among Medical Professionals: A Questionnaire Based Survey

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Abstract: *Introduction:* Attitude of an individual towards oral health reflects their overall general health. Health care professionals interact with patients every day therefore, they are a good source in promoting oral health in society by encouraging dental visits. There is developing evidence to support the relationship between systemic diseases & periodontitis. Harmony between medical and dental professionals needed for the better overall health of the society. Knowledge of medical professionals about periodontal diseases & treatment modalities and their attitudes toward oral health and their practice level to preventive dental procedure will improve the oral health of patients. *Aim:* 1) To assess the attitude, knowledge & practice level about periodontal diseases in medical professionals. 2) To assess the deficit in knowledge about periodontal diseases in medical professionals. *Material & Methods:* A descriptive, cross sectional study was conducted on Medical, Ayurveda and Homeopathy doctors. The study was conducted in 2022. A web - based, Self - reported, structured, validated and published questionnaire about attitude, knowledge and practice level regarding oral hygiene, periodontal disease & treatment modalities was distributed through Google forms to eligible medical, Ayurveda and homeopathy doctors. 203 medical professionals including medical professionals (medical, Ayurveda, homeopathy) from different areas of Punjab state were included in the Study. To obtain the genuine responses, the anonymity of the subjects participating was assured. The data obtained through questionnaire was analyzed and results were computed. *Results:* This study shows that knowledge on the recent advances in the treatment of periodontal disease is the most needed for the medical professionals. Education and improvement of knowledge of health care professionals can improve the quality of care rendered to the patients with periodontal disease. *Conclusion:* Professional health care students who will be the future backbone of the community health care have limited knowledge on periodontal diseases and oral hygiene practices. Education should be given to them during their teaching program. This will also help us in reducing overall periodontal disease burden of our society in near future.

Keywords: Periodontal diseases, Medical professionals, attitude, knowledge, practice

1. Introduction

People in today's world are more health conscious and aware of latest treatment modalities. Oral health is a paramount aspect of general health that can be defined as "a standard of health of the oral and related tissues which enables an individual to eat, speak, and socialize without active disease, discomfort or embarrassment and which contributes to general well - being". [1]

Periodontology is one of the fast growing dental specialties. Its services not only cover preventive and curative aspects of oral health, but also offer cosmetic flare and regenerative health programs [2]. One of the most prevalent oral diseases all over the globe affecting adult subjects in all age groups is the periodontal disease [3]. Periodontitis (main reason for tooth loss & threat to oral health) is a chronic infection by oral bacteria which commonly preceded by gingivitis in response to bacterial infection or dental plaque on teeth. In addition, oral - hygiene, diet, smoking, diabetes - mellitus, male gender, and various socioeconomic factors are considered as the risk factors for periodontal disease [4].

Periodontal disease is thought to have systemic ramifications such as hypertension, stroke, atherosclerosis, poor pregnancy outcome, cardiovascular diseases, and diabetes mellitus. There is developing evidence to support the relationship between systemic diseases & periodontitis. Periodontitis is considered as the sixth complication of Diabetes mellitus.

The attitude towards oral health dictates the general health status of an individual. [5] In India, most of the patients in the first instance, consult non dental health professionals (Medical, Ayurveda, Homeopathic) even for their oral health problems [1].

Even though the medical professionals are qualified in their fields, their understanding about dental diseases and the relationship of oral health with systemic diseases is meager [6]. Still the non - dental professionals have the potential to play a crucial role in promoting oral health in the population by encouraging dental visits [7]

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Lack of awareness on oral hygiene practices among the general population has become a major social problem [1]. Prevention is always better than cure. It is justified to give preferences to preventive strategies which will reduce oral disease burden and help in maintaining good oral hygiene measures.

Health care professionals working in Adesh University interact with several patients every day. Holistic approach to treat patients needed a harmony between medical and dental professionals.

A detailed survey of literature revealed that no such study that addresses the awareness, knowledge & practice level about periodontal diseases and their treatment modalities among the non - dental professionals in Punjab state, has been carried out in the past. The present study was undertaken to assess attitude, knowledge and practice level about the oral hygiene, Etiology of periodontal diseases and awareness of available treatment modalities among medical professionals (medical, Ayurveda, homeopathy).

2. Materials and Methods

A descriptive, cross sectional study was conducted on Medical, Ayurveda and Homeopathy doctors. Ethical clearance was obtained from the Adesh College of dental sciences and research Ethics Committee before starting the study.

Study Population and Sample Size

203 medical professionals including medical professionals (medical, Ayurveda, homeopathy) from different areas of Punjab state were included in study. To obtain the genuine responses, the anonymity of the subjects participating was assured.

Inclusion & exclusion criteria

Inclusion criteria were medical professionals from medical, Ayurveda, homeopathy doctors.

Exclusion criteria includes staff from nursing, paramedical, non - medicos.

Instrument Development

A web - based, Self - reported, structured, validated and published questionnaire about attitude, knowledge and practice level regarding oral hygiene, periodontal disease & treatment modalities was distributed through Google forms to eligible medical, Ayurveda and homeopathy doctors. Survey forms were distributed to all the study participants through whatsapp, or any other social media platform [1]. Questionnaires were divided in two sections. First section included demographics - gender, professional course details. Second section of the questionnaire consisted of 22 questions focused on the awareness, knowledge and practice on preventive and therapeutic approaches related to periodontal health and disease. Each question had only one correct answer. Survey responses were collected during the above mentioned study period [1]. The data obtained through questionnaire was analyzed and results were computed. Link for the Google form: <https://forms.gle/rpNb4hzhJHHZvCcx7>

Questionnaire

Attitude

S. No	Questions	Agree	Disagree	Neither Agree Nor Disagree
1	Oral health is an integral part of general health.			
2	Periodontal diseases are preventable.			
3	Saliva can be a good diagnostic tool.			
4	Proper brushing of teeth & flossing will enable to prevent both dental caries & gingival diseases.			
5	Scaling causes removal of enamel.			
6	Frequent teeth cleaning causes loosening of teeth.			
7	Certain systemic diseases can manifest in the oral cavity.			
8	Oral diseases have an implication on certain systemic diseases like CVS diseases, Pregnancy etc.			
9	Oral health has an influence on the overall quality of life.			
10	Tooth loss is an inevitable natural phenomenon during old age.			

Knowledge

1) Periodontal disease is caused by:

- Plaque
- Hereditary
- Vitamin c deficiency
- All of the above

2) Bad breath is caused by:

- Controlled diabetes mellitus
- Chewing of fibrous foods
- Controlled hypertension
- Gum diseases

3) Gum diseases means:

- Decay of tooth with pain
- Disease of supporting structure of the tooth
- Both a & b
- Neither a & b

4) Dental plaque is:

- Soft deposit consisting of colonies of microorganisms
- Hard deposits around the tooth
- Food debris around the gums
- Decay close to the gum

5) Dental calculus is:

- Small deposit around the tooth
- Food debris around the gums
- Hard deposits around the tooth
- Decay close to the gum

6) How does smoking affect periodontal tissues?

- a) Increase bone loss
- b) Delayed wound healing
- c) Decrease gum bleeding
- d) All of the above

7) Which drugs cause gingival enlargement?

- a) Phenytoin
- b) Nifedipine
- c) Cyclosporine
- d) All of the above

8) How periodontal diseases can lead to preterm low birth weight deliveries?

- a) Hormonal changes
- b) Dental plaque
- c) All of above
- d) Neither of above

Practice

S. no	Questions	Yes	No
1	Do you visit the dentist at regular intervals?		
2	Do you screen your patients for periodontal diseases?		
3	Have you ever encountered gingival changes in pregnancy during your practice?		
4	Do you refer your patients to a dentist for evaluation?		

Statistical Analysis

The data thus collected were compiled, analyzed, and interpreted. Collected data was tabulated and subjected for statistical analysis using statistical package for social sciences (SPSS) version 13.0. To compare the responses between different education levels chi square test was performed. There was a significant difference found in knowledge, attitude and practice among them as $p > 0.05$ considered as statistically significant.

3. Results

203 participants participated in this questionnaire survey out of which 100 (49.3%) were male and 103 (50.7) were female. **The general characteristics of respondents (like gender, education) were given in TABLE NO.1**

Table 1: General characteristics of respondents

Gender	Frequency	Percentage
Male	100	49.3
Female	103	50.7
Education	Frequency	Percentage
MBBS	97	47.8
BAMS	53	26.1
BHMS	20	9.9
MD/MS	33	16.3

The response of study subjects on attitude towards oral health and periodontal diseases. (table no.2)

84.2% medical professionals unequivocally agreed that oral health is an integral part of general health & 12.3% were neutral. Periodontal diseases are preventable 97% were

agreed to this and rest were neither agree nor disagree. A majority of 97% were shown they find saliva as a diagnostic tool for oral as well as systemic diseases. 5% of medical professionals disagree with it. 95.1% medical professionals believed that proper brushing of teeth flossing will enable to prevent both dental caries & gingival diseases. 16.7% subjects thought scaling did cause removal of enamel 48.3% disagree to this lack of knowledge towards the dental treatment reflected in it. 52.2% participants disagree that frequent teeth cleaning causes loosening of teeth & 11.3% agree to this statement. The knowledge of medical professionals about certain systemic diseases manifested in the oral cavity appeared to be good as 93.6% agreed with it & only 2.5% were confused. They neither agree nor disagree. Surprisingly only 46.8% respondents thought that real diseases have an implication on certain systemic diseases like CVS and 33% disagree. A substantial percentage (97%) believed that oral health has an influence on overall quality of life. 60.6% agree with the fact that tooth loss is an inevitable natural phenomenon during old age and surprisingly 16.7% disagree with it.

Table 2: Responses to attitude related to periodontal health among the respondents

S. No	Questions	Agree	Disagree	Neither Agree Nor Disagree
		(%)	(%)	(%)
1	Oral health is an integral part of general health.	84.2	3.4	12.3
2	Periodontal diseases are preventable.	97	-	3
3	Saliva can be a good diagnostic tool.	97	0.5	2.5
4	Proper brushing of teeth & flossing will enable to prevent both dental caries & gingival diseases.	95.1	1	3.9
5	Scaling causes removal of enamel.	16.7	48.3	35
6	Frequent teeth cleaning causes loosening of teeth.	11.3	52.2	36.5
7	Certain systemic diseases can manifest in the oral cavity.	93.6	3.9	2.5
8	Oral diseases have an implication on certain systemic diseases like CVS diseases, Pregnancy etc.	46.8	33	20.2
9	Oral health has an influence on the overall quality of life.	97	0.5	2.5
10	Tooth loss is an inevitable natural phenomenon during old age.	60.6	60.6	60.6

The response of study subjects on practice towards oral health and periodontal diseases. (table no.3)

Only 90.1% of medical professionals visit the dentist at regular intervals, the rest 9.9% do not go to the dentist at regular intervals. Screening of patients for their periodontal needs were not usually undertaken by the medical professional; only 81.8% chose to do it. A very less population of subjects knows about pregnancy tumors 53.7% and the rest of them marked no. As the medical professionals are to be first to encounter the patient but only

87.2% medical professionals refer their patient to the dentist.

Table 3: Responses to practice related to periodontal health among the respondents

S. no	Questions	Yes (%)	No (%)
1	Do you visit the dentist at regular intervals?	90.1	9.9
2	Do you screen your patients for periodontal diseases?	81.8	18.2
3	Have you ever encountered gingival changes in pregnancy during your practice?	53.7	46.3
4	Do you refer your patients to a dentist for evaluation?	87.2	12.8

The Response of Study Subjects on Knowledge towards Oral Health and Periodontal Diseases. (Table No.4)

As for the cause of periodontal disease 42.4% marked plaque, 9.4% believed it to be hereditary and 11.8% related it to vitamin C deficiency. Halitosis / bad breath is caused by 7.9% subjects who answered controlled diabetes mellitus, 27.1% responded for chewing of fibrous food and a significant number of respondents believed it to be gum disease. 55.2 % of medical professionals believed the gum disease means decay of tooth with pain and diseases of supporting structures of tooth 3% marked neither of both, only 32.5% answered it as diseases of supporting structures as it concludes the lack of knowledge among medical professionals.

48.3% answered that dental plaque is soft deposits consisting of colonies of microorganisms, 23.2% marked it as hard deposits around the tooth, and 21.7% took it as food debris around the gums. Surprisingly only 57.6 % knew dental calculus is hard deposits around the tooth rest 16.3 % marked it as soft deposit around the tooth, 18.2 answered it as food debris around the tooth.

44.8% of medical professionals believed smoking affects periodontal tissue adversely as it increases bone loss, delayed wound healing, decreases gum bleeding, 15.3 % believed it affects bone loss, 21.2 % answers for delayed wound healing. 53.7% respondents know the drugs causes gingival enlargement are phenytoin, nifedipine, cyclosporine only 14.3 % believed it is phenytoin only, 19.2 % believed it is nifedipine only. 59.6% of medical professionals answered for how the periodontal diseases can lead to preterm low weight deliveries as both hormonal changes and dental

plaque, 6.9% makes neither of them, 19.7 of respondents marked for hormonal changes only rest believed it to be dental plaque only.

Table 4: Responses to knowledge related to periodontal health among the respondents

	Frequency	Percentage
Periodontal disease is caused by:		
Plaque	86	42.4
Hereditary	19	9.4
Vitamin C Deficiency	24	11.8
All of the above	74	36.5
Bad breath is caused by:		
Controlled diabetes mellitus	16	7.9
Chewing of fibrous foods	55	27.1
Controlled hypertension	27	13.3
Gum diseases	105	51.7
Gum diseases means:		
Decay of tooth with pain	19	9.4
Disease of supporting structure of the tooth	66	32.5
Both a & b	112	55.2
Neither a & b	6	3
Dental plaque is:		
Soft deposit consisting of colonies of microorganisms	98	48.3
Hard deposits around the tooth	47	23.2
Food debris around the gums	44	21.7
Decay close to the gum	14	6.9
Dental calculus is:		
Small deposit around the tooth	33	16.3
Food debris around the gums	37	18.2
Hard deposits around the tooth	117	57.6
Decay close to the gum	16	7.9
How does smoking affect periodontal tissues?		
Increase bone loss	31	15.3
Delayed wound healing	43	21.2
Decrease gum bleeding	38	18.7
All of the above	91	44.8
Which drugs cause gingival enlargement?		
Phenytoin	29	14.3
Nifedipine	39	19.2
Cyclosporine	26	12.8
All of the above	109	53.7
How periodontal diseases can lead to preterm low birth weight deliveries?		
Hormonal changes	40	19.7
Dental plaque	28	13.8
All of above	121	59.6
Neither of above	14	6.9

Comparison of responses to selected question by respondents graded according to their education level. (table no.5)

Education Level	Responses	Frequency	Percent	Chi Square Test	P Value
Have you ever encountered gingival changes in pregnancy during your practice?					
MBBS	Yes	54	55.7	3.917	0.271
	No	43	44.3		
BAMS	Yes	29	54.7		
	No	24	45.3		
BHMS	Yes	13	65		
	No	7	35		
MD/MS	Yes	13	39.4		
	No	20	60.6		
How periodontal diseases can lead to preterm low birth weight deliveries?					
MBBS	Hormonal changes	12	12.4	16.417	0.059

	Dental plaque	18	18.6		
	All of above	60	61.9		
	Neither of above	7	7.2		
BAMS	Hormonal changes	11	20.8		
	Dental plaque	4	7.5		
	All of above	34	64.2		
	Neither of above	4	7.5		
BHMS	Hormonal changes	5	25		
	Dental plaque	1	5		
	All of above	14	70		
MD/MS	Hormonal changes	12	36.4		
	Dental plaque	5	15.2		
	All of above	13	39.4		
	Neither of above	3	9.1		
How does smoking affect periodontal tissues?					
MBBS	Increase bone loss	17	17.5	7.04	0.633
	Delayed wound healing	16	16.5		
	Decrease gum bleeding	14	14.4		
	All of the above	50	51.5		
BAMS	Increase bone loss	6	11.3		
	Delayed wound healing	13	24.5		
	Decrease gum bleeding	12	22.6		
	All of the above	22	41.5		
BHMS	Increase bone loss	3	15		
	Delayed wound healing	6	30		
	Decrease gum bleeding	4	20		
	All of the above	7	35		
MD/MS	Increase bone loss	5	15.2		
	Delayed wound healing	8	24.2		
	Decrease gum bleeding	8	24.2		
	All of the above	12	36.4		
Proper brushing of teeth & flossing will enable to prevent both dental caries & gingival diseases.					
MBBS	Agree	92	94.8	3.243	0.778
	Disagree	1	1		
	Neutral	4	4.1		
BAMS	Agree	52	98.1		
	Disagree	1	1.9		
BHMS	Agree	19	95		
	Neutral	1	5		
MD/MS	Agree	30	90.9		
	Disagree	1	3		
	Neutral	2	6.1		
Periodontal diseases are preventable.					
MBBS	Agree	94	96.9	0.74	0.864
	Neutral	3	3.1		
BAMS	Agree	51	96.2		
	Neutral	2	3.8		
BHMS	Agree	20	100		
MD/MS	Agree	32	97		
	Neutral	1	3		

4. Discussion

A team of trained healthcare professionals can benefit the society & can act as a good source of knowledge providers to the general public. Improving periodontal knowledge can play an important role in the prevention of periodontal diseases [9]. Hence, this study was designed to assess the existing knowledge of the health care professionals in Punjab.

The gingival changes during pregnancy is seen by MBBS/MD/MS professionals the most then seen by BAMS/BHMS professionals. The knowledge about the pregnancy tumor helps new young women to maintain their oral hygiene.

60 MBBS, 34 BAMS, 14 BHMS, 13 MD/MS subjects believe that the cause of preterm low weight babies is both hormonal changes and dental plaque.

Most MBBS/MD/MS subjects believe the effect of smoking on periodontal tissue is to increase bone loss, decrease gum bleeding, and delay wound healing.

In a study by Mohammed Ahsan Razi., *et al.* Surprisingly only 44.44% doctors referred their patients to the dentists for proper diagnosis and treatment of oral diseases.

Swati Pralhad and Betsy Thomas (2011) from manipal university mangalore, India conducted a survey on 150 medical professionals in a rural based Medical institute

regarding periodontal awareness. A positive attitude towards dental and periodontal check and treatment needs were observed but urge for treatment is often underestimated. Hence the author concluded that inputs can be used to organize periodontal health awareness programs.

Susmitha and Arjunkumar (2015) from saveetha dental college, Chennai India conducted a survey on 150 medical professionals in a medical College by means of questions to identify the knowledge of periodontitis and risk associated with periodontal disease. The author did observe that awareness increased with the number of years of experience but there is deficiency in the knowledge with respect to the latest treatment modalities. The inputs from surveys can be used to organize periodontal health programs and awareness among professionals about periodontal disease and the importance of treating the same.

Rajesh. H et al (2013) from yenepeya university, mangalore India conducted a survey on 224 medical professionals regarding knowledge of periodontal diseases among medical professionals. A severe knowledge deficit was seen in risks associated with periodontitis. The input of a survey can be used to improve knowledge about periodontal diseases in health professionals.

Mohammad Ahsan Razi et al (2018) from Hazaribag college of dental science and research, India conducted a questionnaire survey among medical professionals in various parts of hazaribagh district regarding general awareness, knowledge about periodontitis and risk associated with it. The awareness and knowledge is sufficient about periodontal diseases, but there is a lack of awareness about prevailing treatment. In conclusion, inputs can be used in conduct of regular periodontal health awareness programmes for updating the knowledge of medical professionals about latest treatment modalities for boosting benefit of the patients.

5. Conclusion

Professional health care students who will be the future backbone of the community health care have limited knowledge on periodontal diseases and oral hygiene practices. [1] Education should be given to them during their teaching program. This will also help us in reducing the overall periodontal disease burden of our society in near future. [1]

This study shows that knowledge on the recent advances in the treatment of periodontal diseases is the most needed for the medical professionals.

Education and improvement of knowledge of health care professionals can improve the quality of care rendered to the patients with periodontal disease. [8]

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Conflict of Interest

There are no Conflict of Interest

Patient Consent Declaration

The authors certify that they have obtained all appropriate patient consent.

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