

# Knowledge and Practice Regarding Periodontal Health / Disease and Oral Hygiene among Medical, Ayurveda and Homeopathy Undergraduate Students of Yenepoya University, Mangalore - A Cross Sectional Study

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## ABSTRACT

### BACKGROUND

The attitude towards oral health reflects the overall health. Knowledge of health care professionals and their attitudes toward oral care corresponds to their understanding of the importance of preventive dental procedure and improving the oral health of patients. We wanted to assess the knowledge and practice regarding periodontal health / disease and oral hygiene among medical, ayurveda and homeopathy undergraduate students of Yenepoya (Deemed to Be University) (YU) and also determine their attitude and awareness towards oral health.

### METHODS

The data related to their knowledge and practice towards the oral health was assembled using a self administered, validated questionnaire containing 13 questions which had multiple choice answers. The questionnaire was distributed through Google form among 341 medical, ayurveda and homeopathy undergraduate students of YU aged more than 17 years.

### RESULTS

Survey responses were downloaded onto Google sheets and the data collected were coded, entered in Microsoft Excel and analysed using SPSS version 23 (Chicago, USA). Majority of study participants in different colleges showed lack of knowledge and practice regarding oral hygiene practices. To compare the mean scores of three colleges under YU for knowledge based and practice questions, ANOVA was performed. There was no significant difference found in knowledge and practice towards oral hygiene among medical, ayurveda and homeopathy colleges of YU.  $P < 0.05$  was considered as statistically significant.

### CONCLUSIONS

Professional health care students who will be the future backbone of the community health care have limited knowledge on periodontal disease and oral hygiene practices. There is no difference in knowledge and practices regarding oral hygiene among the students of medical, ayurveda and homeopathy colleges of YU. It highlights the need of incorporating oral health education in University curriculum for non dental students during their study period.

### KEY WORDS

Knowledge, Practice, Periodontal Disease, Oral Hygiene Practices, Non-Dental Students, Oral Health Education

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## BACKGROUND

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”. Periodontal disease is one of the most prevalent diseases affecting 20 - 50 % of global population.<sup>1</sup> It is the main reason for tooth loss, and also considered as a threat to oral health.<sup>2</sup> The attitude towards oral health dictates the general health status of an individual.<sup>3</sup> As periodontal diseases are linked to many systemic diseases, health practitioners around the world play an important role in identifying the disease at the earliest and limiting its proportion.<sup>4</sup> The successful management of periodontal disease in general population depends upon knowledge of preventive measures, early identification of symptoms and effective treatment.<sup>5</sup> Tooth loss due to periodontal and other dental diseases can have severe impact on an individual's overall well being. Developing countries such as India, have lots of dental related myths which prevent major part of uneducated population of the society in seeking adequate dental treatment on right time, hence losing most of their dentition in early phases of life. This can be prevented through awareness and education on oral health by dental and non-dental health care professionals in society. Lack of awareness on oral hygiene practices among general population has become a major social problem. As lot of importance is now being given on preventive aspects than the treatment itself, it is justified to give due preferences to preventive strategies which will reduce oral disease burden and help in maintaining good dentition. Such preventive approaches would also be helpful in inculcating positive attitude towards oral health maintenance among the general public.

In India, most of the patients in the first instance, consult non dental health professionals (Medical, Ayurveda, Homeopathic) even for their oral health problems. Well informed health care professionals can be instrumental in guiding and referring patients with oral health care needs to dental professionals.<sup>6</sup> Thereby, in an attempt to improve the oral health of general population, it is paramount to understand the existing knowledge of undergraduate students regarding preventive oral care and oral hygiene practice health care. Guidance by health professionals help most of the general public seeking dental care on right time.

There is a general opinion that health professionals are more familiar with interrelationship between oral and overall general health, but sparse data is available in this context in literature.<sup>7</sup> Scientific literature till date mentions only few studies exploring the existing knowledge deficit with respect to periodontal health and oral hygiene among non dental health professional undergraduate students.<sup>8,9</sup> Even studies comparing stand alone university non dental health professional student population are relatively sparse.<sup>10</sup> There was significant gap noticed in literature regarding assessment of oral health knowledge and practice among non dental health professional students studying in standalone university campus. In the above context, a cross sectional study was conducted to assess and compare the knowledge and practice regarding periodontal health and oral hygiene among medical, ayurveda and homeopathy undergraduate students of YU who will be the part of health care system of India in future.

## METHODS

A descriptive, cross sectional study was conducted on undergraduate students of Medical, Ayurveda and Homeopathy colleges under YU. The study was conducted between 26 - 11 - 2019 and 11 - 01 - 2020.

### Study Population and Sample Size

Total of 321 undergraduate students of medical, ayurveda and homeopathy colleges under YU aged 18 or more were selected after obtaining written informed consent. Participants consisted of first year to third year students of respective courses. Random sampling technique using computer generated numbers was employed in selection of study participants. Sample size calculation for estimation of proportion was done by formula  $N = z^2pq \div d^2$ .

At 5 % level of significance with 66 % estimated proportion and 9 % margin of error<sup>9</sup> the total sample size of  $N = 107$  was decided for each of the three groups. Total responses received through Google forms were 341 (Fig. 1)

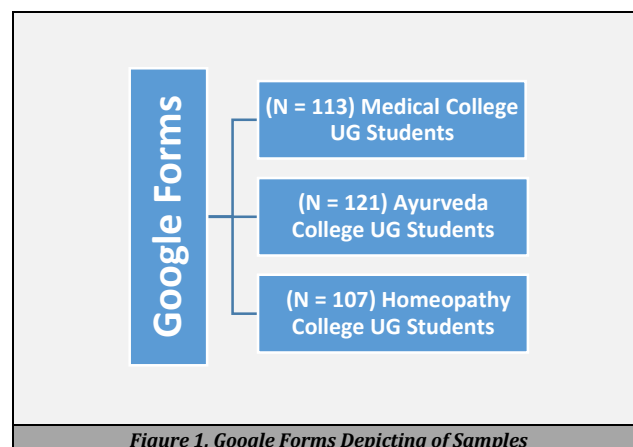


Figure 1. Google Forms Depicting of Samples

### Ethical Clearance

Ethical clearance was obtained from the YU Ethics Committee (YEC - 1 / 2019 / 209) before starting the study.

A web-based, Self reported, structured, validated and published questionnaire<sup>9</sup> about knowledge and practice regarding periodontal disease and oral hygiene was distributed through Google forms to eligible undergraduate students of medical, ayurveda and homeopathy colleges under YU. Survey forms were distributed to all the study participants through Whatsapp, Instagram social media platform. Questionnaires were divided in two sections. First section included demographics - age, gender, professional course details. Second section of questionnaire comprised of 15 questions focused on the awareness and practice on preventive and therapeutic approaches related to periodontal health and disease. Each question had only one correct answer and it was scored as +1. Incorrect answer was given the score of zero. Survey responses were collected during the above mentioned study period.

Age - Gender - Student - Medical / Ayurveda / Homeopathy

Do you brush your teeth?

a) Yes b) No

If yes, How often do you brush your teeth

a) Usually once daily b) Usually twice daily  
c) Usually thrice daily d) Occasionally

How often should you change your tooth brush?

a) 6 months b) 3 months  
c) 1 year d) Till bristle gets frayed

Which type of brushing technique is better for good oral health

a) Horizontal stroke b) vertical stroke  
c) Roll stroke d) Not aware

Do you use dental floss?

a) Yes b) No

If Yes, how often do you use?

a) Every day b) Occasionally

How often do you use antimicrobial mouthwash

A) Never b) Daily  
c) Once a week d) As recommended by the dentist

What is the commonest cause of bleeding gums?

a) Vitamin C deficiency b) Gum disease  
c) Injury to gums d) not aware

What is commonest cause of bad breath?

a) Smoking b) Poor oral hygiene  
c) Lung disease d) Intake of an odoriferous food items

Do you think coffee / tea causes staining of teeth

a) Yes b) No c) May be d) Not aware

What do you think is the most commonest cause for loose teeth?

a) Old age b) Gum disease  
c) Accident / injury d) Nail biting habit

Do you think sensitivity to hot or cold food can be treated

a) Yes b) No c) May be d) Not aware

Do you think bad oral hygiene affects your general health

a) Yes b) No c) May be d) Not aware

What is the commonest cause for receding gums?

a) Improper tooth brushing b) Nail biting  
c) Injury d) Gum disease

How often you visit your dentist for cleaning your teeth

a) In 3 months b) In 6 months  
c) Once in a year d) Never till now

**Figure 2. Proforma of Questionnaire <sup>9</sup>**

**Statistical Analysis**

Survey responses were downloaded into Google sheets and the data collected were coded, entered in Microsoft Excel and analyzed using SPSS version 23 (Chicago, USA). Descriptive statistics, including mean, standard deviation was calculated. To compare the mean scores of three colleges for knowledge based and Practice questions, ANOVA was performed. P < 0.05 was considered as statistically significant.

**RESULTS**

Out of 341 participants, 78 (22.87 %) were males, and 263 (77.13 %) were females. The mean age of the students was 20.48 ± 1.63 years with minimum age of 18 years and maximum age of 25 years. (Table 1)

Demographics	Mean (SD)
Age	20.48 (1.63)
Gender	Percentage
Male	78 (22.87 %)
Female	263 (77.13 %)

**Table 1. Socio-Demographic Characteristics**

Knowledge based Questions	Medical College	Ayurvedic College	Homeopathy College	
Brushing technique	Correct answer	34 (10 %)	41 (12.1 %)	30 (8.8 %)
	Wrong answer	78 (23 %)	80 (23.6 %)	76 (22.4 %)
Bleeding gums	Correct answer	23 (6.8 %)	35 (10.3 %)	18 (5.3 %)
	Wrong answer	89 (26.3 %)	86 (25.4 %)	88 (26 %)
Receding gum	Correct answer	27 (8 %)	37 (10.9 %)	32 (9.4 %)
	Wrong answer	85 (25.1 %)	84 (24.8 %)	74 (21.8 %)
Bad breath	Correct answer	80 (23.6 %)	100 (29.5 %)	81 (23.9 %)
	Wrong answer	32 (9.4 %)	21 (6.2 %)	25 (7.4 %)
Stains	Correct answer	58 (17.1 %)	46 (13.6 %)	44 (13 %)
	Wrong answer	54 (15.9 %)	75 (22.1 %)	62 (18.3 %)
Loose teeth	Correct answer	74 (21.8 %)	80 (23.6 %)	64 (18.9 %)
	Wrong answer	38 (11.2 %)	41 (12.1 %)	42 (12.4 %)
Sensitivity	Correct answer	70 (20.6 %)	59 (17.4 %)	70 (20.6 %)
	Wrong answer	42 (12.4 %)	62 (18.3 %)	36 (10.6 %)
Oral hygiene and general health	Correct answer	97 (28.6 %)	95 (28 %)	87 (25.7 %)
	Wrong answer	15 (4.4 %)	25 (7.4 %)	19 (5.6 %)
Recession	Correct answer	64 (18.9 %)	85 (25.1 %)	77 (22.7 %)
	Wrong answer	48 (14.2 %)	36 (10.6 %)	29 (8.6 %)

**Table 2. Descriptive Statistics for Various Knowledge Based Items in the Questionnaire**

Practice Based Questions	Medical College	Ayurvedic College	Homeopathy College	
Do you brush	Correct answer	112 ( 33 %)	121 ( 35.7 %)	103 ( 30.4 %)
	Wrong answer	0 ( 0 %)	0 ( 0 %)	3 ( 0.9 %)
How often do you brush	Correct answer	35 ( 10.3 %)	66 ( 19.5 %)	54 ( 15.9 %)
	Wrong answer	77 ( 23.4 %)	55 ( 16.6 %)	52 ( 1.5 %)
Use of dental floss	Correct answer	21 ( 6.2 %)	15 ( 4.4 %)	26 ( 7.7 %)
	Wrong answer	91 ( 26.8 %)	106 ( 31.3 %)	80 ( 23.6 %)
How often do you use?	Correct answer	7 ( 2.1 %)	2 ( 0.6 %)	8 ( 2.4 %)
	Wrong answer	105 ( 31 %)	119 ( 35.1 %)	98 ( 28.9 %)
Use antimicrobial mouthwash	Correct answer	27 ( 8 %)	37 ( 10.9 %)	2 ( 9.4 %)
	Wrong answer	85 ( 25.1 %)	84 (24.8 %)	74 ( 21.8 %)
Visit to dentist	Correct answer	15 ( 4.4 %)	10 ( 2.9 %)	12 ( 3.5 %)
	Wrong answer	97 ( 28.6 %)	111 ( 32.7 %)	94 ( 27.7 %)
Replacement of toothbrush?	Correct answer	21 ( 6.2 %)	20 ( 5.9 %)	19 ( 5.6 %)
	Wrong answer	91 ( 26.8 %)	101 ( 29.8 %)	87 ( 25.7 %)

**Table 2. Descriptive Statistics for Various Practice Based Items in the Questionnaire**

Questions	Students from Constituent Colleges	Mean (SD)	P Value	95 % CI
Knowledge regarding oral hygiene and periodontal disease	Medical	1.53 ( 0.12)	0.68	1.51 to - 1.76
	Ayurveda	1.52 ( 0.11)		
	Homeopathy	1.51 ( 0.13)		
Practice regarding oral hygiene	Medical	1.76 ( 0.43)	0.48	1.28 to - 1.81
	Ayurveda	1.69 ( 0.46)		
	Homeopathy	1.70 ( 0.46)		

**Table 3. Comparing Mean Scores of Knowledge and Practice Based Questions for Different Colleges**

Descriptive statistics for various items in the questionnaire regarding knowledge and practice among medical, ayurveda and homeopathy students has been shown in Table 2. Majority of study participants in all different colleges of YU showed lack of knowledge and practice regarding oral hygiene practices. To compare the mean scores of three colleges for knowledge based and practice questions, ANOVA was performed. (Table 3). The mean score of knowledge and practice was not statistically significant in all three different colleges of YU (Medical, Ayurveda and Homeopathy).

## DISCUSSION

Oral hygiene is the most neglected and ignored practice in India and its non maintenance is directly linked to increased incidence of dental caries and periodontal disease. General population at large, in India, consult medical, ayurveda, and homeopathy health professionals even for their oral health problems. Elhassan AT<sup>11</sup> et al. emphasized the crucial role of healthcare providers in identifying the patients with periodontal diseases. Thereby, it is the health professional's duty to spread awareness on regular dental care and direct their patients to visit dental professionals to receive appropriate dental care.

In our present study we found that majority of students of Medical colleges brush their teeth on a regular basis only once daily whereas 66 % students of Ayurveda and 54 % of homeopathy students brushed twice daily regularly. Our findings are in agreement with previous study by Al - Batayneh<sup>10</sup> who reported high percentage of non dental students brushing regularly only once daily. Based on the findings of current study only 30 to 40 % students of total study population brushed their teeth in roll stroke and only 10 to 20 % replaced their brush every 3 months irrespective of their study course. Knowledge regarding use of dental floss in maintaining oral hygiene in interproximal areas showed very poor response, use of dental floss showed only 7 % of medical, 2 % of ayurveda and 8 % of homeopathy students actually practicing it daily. This finding is consistent with the study of Dayakar et al.<sup>9</sup> which reported that only 9 % of health professionals were actually aware of flossing. In contrast, study by Hamilton and Coulby in 1991 reported around 44 % study population in North eastern Ontario used dental floss.<sup>12</sup> This may be attributed to educational policies of Canada regarding oral health. Andhare MG et al.<sup>13</sup> found in their study that oral health attitude, knowledge, and behaviour were high among the dental students as it is a part of their professional education. Students of medical profession comparatively showed poor oral health knowledge. There was lack of exposure in medical faculty regarding oral health in their curriculum.

Knowledge regarding etiology of gingival disease also seems to be poor among the study population of the present study. Most of the participants think Vitamin C deficiency as a main cause for bleeding gums whereas only 23 % of medical, 35 % of ayurveda and 18 % of homeopathy students were aware of gum disease being the leading cause for gingival bleeding. This result is in line with study by Dayakar et al.<sup>9</sup> in which only 18 % of medical, 36 % of ayurveda, and 18 % of

homeopathy students were aware of the common cause of bleeding gums. The probable reason behind knowledge deficit regarding main cause of bleeding gums could be less emphasis on oral health education in their course curriculum.

Present study findings also confirmed the fact that only small population of non dental health professional students actually visited dentist for tooth cleaning every 3 - 6 months. Studies by Behbehani and Shah<sup>14</sup> Quteish Taani<sup>15</sup> also confirmed the same. On contrary, study by Sulekha Rathod et al.<sup>16</sup> reported that health care professionals who visited their dentist regularly, used proper tooth brushing technique and other interdental aids, had less dental problems and good lifestyle as compared to non health care professionals.

On the contrary, a few encouraging facts of the present study population was the knowledge regarding cause for bad breath, loose teeth and recession. Majority of the study participants were aware of periodontal disease being the cause for above mentioned oral problems. Even their knowledge regarding oral-systemic disease link was high. Quite surprisingly above 90 % of all study participants of all the constituent colleges knew the fact that oral health can affect general health.

This finding is as par to study by Al - Zarea<sup>17</sup> in contrast Umezudike KA et al.<sup>18</sup> study concluded that knowledge of periodontal disease as a risk factor for systemic illnesses among medical residents in Nigeria was inadequate.

Strength of the study was its diverse population within the university campus. We included larger sample size compared to similar previous study articles.<sup>9</sup> The main limitation of the study could be inability to generalize the study result to the entire population and most of the students who participated were females from constituent colleges. With considerable limitations, our study concludes with the fact that non dental professionals of YU university are having knowledge deficit regarding periodontal health / disease and oral hygiene practices.

There was no difference seen in the knowledge regarding periodontal health / disease and oral hygiene practices among medical, ayurveda and homeopathy undergraduate students of YU. The present study results suggests that Professional health care students who will be the future backbone of the community health care have limited knowledge on periodontal disease and oral hygiene practices.<sup>19</sup> Importance should be given to raise the awareness levels regarding the same among non dental health professional students through oral health talks and oral hygiene awareness programs by dental health education unit. The present study also highlights the need to include Oral health education in university curriculums for non- dental students during their study period.

## CONCLUSIONS

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 and awareness needs to be created in non dental students during their teaching program. It will motivate the patients to maintain a good oral hygiene and also provides appropriate referrals to dental specialists for adequate dental

treatment. This will also help us in reducing overall periodontal disease burden of our society in near future.

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