

## Assessment of knowledge, behaviour and attitude of assorted professionals in a University of Central India towards preventive oral and dental care: A cross-sectional study

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### Abstract

Present study was aimed to analyze knowledge, attitudes and behaviour of various professional groups towards preventive oral and dental care. A cross sectional survey was conducted on 474 subjects of various professional groups including pharmacy, nursing, paramedical, media, engineering and hotel management institutes utilizing a pretested structured questionnaire. Data collected was analysed using chi-square test. A p value < 0.05 was considered to be statistically significant. As a result, we found that study subjects had fair knowledge regarding self care practices. Although subjects had excellent knowledge about preventive oral and dental care and its significance but their attitude towards the same was found to be casual. This study represented a comprehensive overview of the oral and dental health knowledge, behaviour and attitude of various professional groups. To conclude, there is constant urge for stimulation and motivation of study subjects towards prevention of oral and dental problems.

**Keywords:** Oral health, Knowledge, Attitude

### Introduction

Oral health reflects general health and well-being.<sup>(1)</sup> Continuous improvement of oral health services is one of the priority action areas for WHO.<sup>(2)</sup> According to WHO "Oral health means being free of chronic mouth and facial pain, oral and throat cancer, oral sores, birth defects such as cleft lip and palate, periodontal (gum) disease, tooth decay and tooth loss, and other diseases and disorders that affect the mouth and oral cavity".<sup>(3)</sup> It is critical but often an overlooked part of overall health and welfare. Oral diseases like dental caries, periodontitis, oral cancer and malocclusion are considered to be global health problems in both industrialized and especially in developing countries.<sup>(4)</sup> Moreover, they also have a significant impact on general health and quality of life.<sup>(5)</sup> Dental health is a highly individualized concept, the perception of which is very much affected by an individual's culture and socioeconomic status.<sup>(6)</sup> Inappropriate knowledge regarding causes and prevention of oral diseases may invite unwanted and inevitable oral and dental problems. By generating awareness, most of oral health problems can be ignored and prevented. Evidence suggests that improvement in knowledge solely does not always decipher into change of conduct.<sup>(7)</sup> To improve oral health outcomes an adequate knowledge of the ways the individuals use health services and the factors predictive of this behaviour is essential.<sup>(8)</sup> In the present study, it has been hypothesised that dentists and medical professionals generally have sound knowledge and positive attitude towards oro-dental care compared to professionals of other fields. So, our aim was to assess oral health

knowledge, attitude and practice among professionals from various fields (excluding medical and dental) towards preventive oral and dental care. The importance of this study lies in the fact that professionals from various disciplines were assessed.

### Materials and Method

A cross sectional survey was conducted on 500 professionals (age ranging from 19 years to 55 years) belonging to Pharmacy (1), Nursing (2), Hotel management (3), Engineering (4), Paramedical (5) and Media (6) institutes (Graph 1) over a period of 3 months. All the institutes were from single university. Ethical clearance was obtained from institutional ethical committee (2015/400/IEC/05) and Research advisory board (2015/004/RAC/05). A written consent was obtained from the concerned authorities before instigation of survey. Dental and Medical professionals were excluded to elude bias. Verbal informed consent was obtained from the participants and those who agreed were only considered. Subjects were asked to respond to a pretested questionnaire which was clearly explained to the respondents and they were asked to select single, most appropriate option independently. Moreover, one of the investigator was always available during the conduction of survey and the participants were encouraged to approach the investigator in case of any query. Incompletely filled questionnaires were not taken into account. So, the present study sample constituted 474/500 professionals.

**Framing of questionnaire:** A multiple choice questionnaire was primed referring the available literature. It was pretested for precision, validity,

consistency and meaning of questions. It comprised of five segments:

First segment: Included demographic details.

Second segment: Consisted of information on self care practices.

Third segment: Incorporated question related to source of information regarding oral hygiene practices.

Fourth segment: Assessed knowledge about preventive care

Fifth segment: Recorded attitude towards preventive oral and dental care.

**Data analysis:** The data was analyzed utilizing the SPSS version 20.0 software applying chi-square test. A p value < 0.05 was considered to be statistically significant.

## Results

**Demographic facts:** Out of 474 subjects 57.38% (272/474) were males and 42.61% were females (202/474) (**Graph 1**). 263/474 (55.48%) subjects were below 20 years of age and 185/474 (39%) subjects were

in the age group of 21-30 years. 23/474 (4.85%) subjects were in the age range of 31-40 years and only 3/474 (0.63%) subjects were in the age group of 41-50 years. (**Graph 2**)

Knowledge, behaviour and attitude of various professionals regarding oral and dental care was assessed utilizing 5 parameters. Comparison of self care practices among study samples revealed statistical significance difference only in brushing interval and method of brushing (P = .05) (**Table 1**) Data related to source of information concerning to oral health care showed no statistical difference among subjects (**Table 2**). Assessment of knowledge about preventive oral and dental care among different study groups revealed statistical significance difference in all variables (p = .05) (**Table 3**). Analysis of attitude towards same depicted statistical significant difference (p = .05) in four variables (including reason for last dental visit, are regular visit to the dentist necessary, have you ever attended oral health camps and if they proved beneficial to them) amongst all. (**Table 4**)

**Table 1: Shows data regarding Self care practices among different professional groups and their statistical co-relations**

Variable	Options	Profession						P Value
		1 N (%)	2 N (%)	3 N (%)	4 N (%)	5 N (%)	6 N (%)	
Habit of cleaning teeth	Yes	83 (97.1)	95 (96.9)	48 (96.0)	94 (98.7)	95 (97.8)	48 (96.0)	0.859 (NS)
	No	2 (2.34)	3 (3.06)	2 (4.0)	1 (1.1)	2 (2.1)	2 (4.0)	
Oral hygiene method used	Tooth brush and paste	81 (94.8)	92 (93.8)	43 (86.0)	86 (90.3)	91 (93.7)	45 (90.0)	0.979 (NS)
	Dental floss	0 (1.17)	1 (1.02)	1 (2.0)	1 (1.1)	1 (1.03)	2 (4.0)	
	Mouthwash	0 (1.17)	3 (3.1)	3 (6.0)	4 (4.3)	3 (2.1)	1 (2.0)	
	Toothpicks	0 (1.17)	1 (1.02)	2 (4.0)	1 (1.1)	1 (1.03)	1 (2.0)	
	Neem twig	0 (1.17)	1 (1.02)	1 (2.0)	1 (1.1)	1 (1.03)	1 (2.0)	
Frequency of brushing	Once	38 (44.7)	34 (34.7)	18 (36.0)	48 (51.1)	55 (56.7)	22 (44.0)	0.171 (NS)
	Twice	40 (47.1)	60 (61.2)	30 (60.0)	40 (42.6)	38 (39.2)	25 (50.0)	
	More	7 (8.2)	4 (4.1)	2 (4.0)	5 (5.3)	4 (4.1)	3 (6.0)	
Brushing intervals	At morning	33 (39.0)	45 (45.9)	16 (32.0)	59 (62.0)	58 (59.8)	19 (38.0)	0.04 (S)
	Before bed at night	20 (2.34)	3 (3.1)	2 (4.0)	1 (1.1)	2 (2.1)	2 (4.0)	
	At morning and before bed at night	48 (56.1)	48 (49.0)	30 (60.0)	32 (34.0)	35 (36.0)	27 (54.0)	
	Other times	2 (2.34)	2 (2.04)	2 (4.0)	3 (3.15)	2 (2.1)	2 (4.0)	
Frequency of changing brush	After every 1-3 months	71 (83.5)	78 (79.6)	40 (80.0)	60 (63.8)	71 (73.2)	31 (62.0)	0.063 (NS)
	After every 3-6 months	10 (11.8)	12 (12.2)	7 (14.0)	27 (28.7)	21 (21.6)	12 (24.0)	
	Only after it wears out	4 (4.7)	8 (8.2)	3 (6.0)	6 (6.4)	5 (5.2)	7 (14.0)	
Method of brushing	Vertical	16 (18.8)	11 (11.2)	4 (8.0)	9 (9.6)	21 (21.6)	9 (18.0)	0.000 (HS)
	Horizontal	9 (10.6)	7 (7.1)	1 (2.0)	24 (25.5)	9 (9.3)	7 (14.0)	

	Circular	30 (35.3)	41 (41.8)	12 (24.0)	28 (29.8)	33 (34.0)	8 (16.0)
	No particular method	30 (35.3)	39 (39.8)	33 (66.0)	32 (34.0)	34 (35.1)	26 (52.0)

**Table 2: Reveals various sources of information regarding oral health care in different professional groups and their statistical co-relations**

Variable	Options	Profession						P value
		1 N (%)	2 N (%)	3 N (%)	4 N (%)	5 N (%)	6 N (%)	
Source of information	Dentist /Doctor	48 (56.5)	50 (51.0)	37 (74.0)	35 (37.2)	47 (48.5)	17 (34.0)	0.001 (HS)
	Newspaper/ Magazines	16 (18.8)	18 (18.4)	8 (16.0)	16 (17.0)	23 (23.7)	15 (30.0)	
	Television/ Radio	9 (10.6)	15 (15.3)	5 (10.0)	27 (28.7)	16 (16.5)	14 (28.0)	
	Internet	12 (14.1)	15 (15.3)	0 (0.0)	16 (17.0)	11 (11.3)	4 (8.0)	

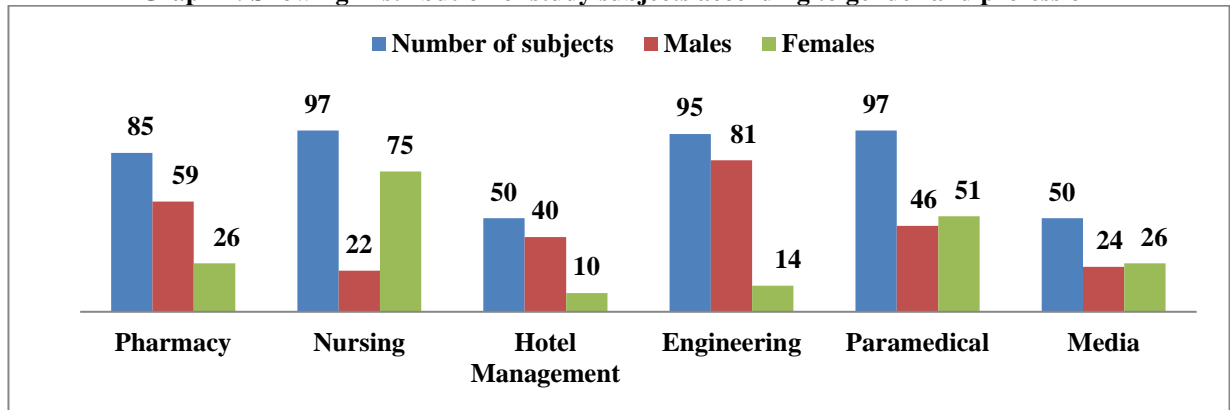
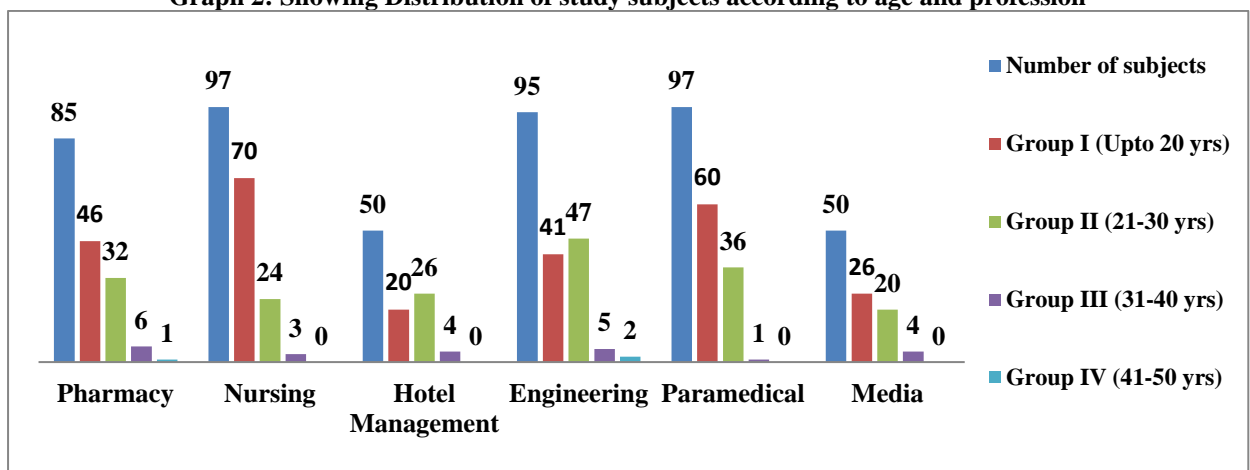
**Table 3: Depicts knowledge about preventive oral and dental care among different professional groups and their statistical co-relations**

Variable	Options	Profession						P Value
		1 N (%)	2 N (%)	3 N (%)	4 N (%)	5 N (%)	6 N (%)	
Prevention of dental decay	Brushing & flossing	38 (45.0)	53 (54.1)	33 (66.0)	55 (58.0)	70 (72.1)	30 (60.0)	0.041 (S)
	Avoiding sweets & chocolates	20 (23.4)	25 (25.5)	11 (22.0)	23 (24.1)	6 (6.2)	6 (12.0)	
	Regular visit to dentist	10 (11.8)	5 (5.1)	1 (2.0)	8 (8.4)	5 (5.2)	4 (8.0)	
	Fluoride application	2 (2.34)	2 (2.04)	2 (4.0)	2 (2.1)	5 (5.2)	2 (4.0)	
	Pit & fissure sealants	2 (2.34)	2 (2.04)	2 (4.0)	2 (2.1)	2 (2.1)	2 (4.0)	
	Don't know	13 (15.3)	11 (11.2)	1 (2.0)	5 (5.3)	9 (9.3)	6 (12.0)	
Prevention of gum problems	Cleaning	34 (40.0)	50 (51.0)	33 (66.0)	52 (55.3)	61 (62.9)	25 (50.0)	0.002 (HS)
	Mouthwashes	17 (20.0)	14 (14.3)	12 (24.0)	13 (13.8)	12 (12.4)	3 (6.0)	
	Gum Massaging	10 (11.8)	17 (17.3)	3 (6.0)	6 (6.4)	10 (10.3)	6 (12.0)	
	Don't know	24 (28.2)	17 (17.3)	2 (4.0)	23 (24.5)	14 (14.4)	15 (30.0)	
Prevention of malocclusion	Care of milk teeth	23 (27.1)	12 (12.2)	7 (14.0)	29 (30.9)	9 (9.3)	12 (24.0)	0.000 (HS)
	Care of habits	19 (22.4)	23 (23.5)	8 (16.0)	22 (23.4)	8 (8.2)	7 (14.0)	
	Early intervention	0 (0.0)	10 (10.2)	4 (8.0)	8 (8.5)	7 (7.2)	1 (2.0)	
	All of the above	43 (50.6)	44 (44.9)	31 (62.0)	30 (31.9)	67 (69.1)	20 (40.0)	
Prevention of oral cancer	Avoidance of adverse habits	35 (41.2)	31 (31.6)	23 (46.0)	52 (55.3)	30 (30.9)	18 (36.0)	0.000 (HS)
	Care of long standing	6 (7.1)	5 (5.1)	2 (4.0)	9 (9.6)	3 (3.1)	5 (10.0)	

	ulcer/lesion						
	Care of sharp tooth	14 (16.5)	11 (11.2)	4 (8.0)	10 (10.6)	1 (1.0)	3 (6.0)
	All of the above	30 (35.3)	51 (52.0)	21 (42.0)	23 (24.5)	63 (64.9)	24 (48.0)

**Table 4: Shows attitude towards preventive oral and dental care among different professional groups and their statistical co-relations**

Variable	Options	Profession						P Value
		1 N (%)	2 N (%)	3 N (%)	4 N (%)	5 N (%)	6 N (%)	
Dental visit ever	Yes	69 (81.2)	67 (68.4)	38 (76.0)	66 (70.2)	74 (76.3)	37 (74.0)	0.420 (NS)
	No	16 (18.8)	31 (31.6)	12 (24.0)	28 (29.8)	23 (23.7)	13 (26.0)	
Reason for last dental visit	Routine check up	30 (36.5)	29 (29.6)	30 (64.0)	30 (31.5)	48 (49.5)	25 (50.0)	0.003 (HS)
	Filling	7 (8.2)	13 (13.3)	1 (2.0)	9 (9.5)	4 (4.1)	5 (10.0)	
	Extraction	4 (4.7)	3 (3.1)	2 (0.0)	3 (3.2)	5 (5.2)	2 (4.0)	
	Cleaning	26 (30.6)	19 (19.4)	3 (10.0)	22 (23.1)	11 (11.3)	3 (6.0)	
	Orthodontic T/t	2 (1.2)	3 (3.1)	2 (0.0)	2 (2.1)	6 (6.2)	2 (4.0)	
Dental experience	Satisfied	55 (64.7)	59 (60.2)	36 (72.0)	54 (57.4)	59 (60.8)	31 (62.0)	0.506 (NS)
	Not satisfied	13 (15.3)	9 (9.2)	2 (4.0)	12 (12.8)	15 (15.5)	6 (12.0)	
Are regular visit to the dentist necessary	Yes	51 (60.0)	44 (44.9)	32 (64.0)	45 (47.9)	73 (75.3)	31 (62.0)	0.002 (HS)
	No	23 (27.1)	37 (37.8)	9 (18.0)	34 (36.2)	19 (19.6)	13 (26.0)	
	Don't know	11 (12.9)	17 (17.3)	8 (16.0)	15 (16.0)	5 (5.2)	6 (12.0)	
Does the dental and oral health affect the health of body	Yes	57 (67.1)	72 (73.5)	35 (70.0)	57 (60.6)	80 (82.5)	36 (72.0)	0.013 (S)
	No	16 (18.8)	14 (14.3)	10 (20.0)	11 (11.7)	8 (8.2)	6 (12.0)	
	Don't know	12 (14.1)	12 (12.2)	5 (10.0)	26 (27.7)	9 (9.3)	8 (16.0)	
Have you ever attended oral health camps	Yes	49 (57.6)	48 (49.0)	30 (60.0)	33 (35.1)	63 (64.9)	23 (46.0)	0.001 (HS)
	No	36 (42.2)	50 (51.0)	20 (40.0)	61 (64.9)	34 (35.1)	27 (54.0)	
If yes, have they proved beneficial to you	Yes	43 (50.6)	45 (45.9)	29 (58.0)	29 (30.9)	58 (59.8)	22 (44.0)	0.012 (S)
	No	7 (8.2)	4 (4.1)	1 (2.0)	4 (4.3)	5 (5.2)	1 (2.0)	
Regular health camps should be conducted	Yes	78 (91.8)	92 (93.9)	49 (98.0)	86 (91.5)	95 (97.9)	48 (96.0)	0.256 (NS)
	No	7 (8.2)	6 (6.1)	1 (2.0)	8 (8.5)	2 (2.1)	2 (4.0)	

**Graph 1: Showing Distribution of study subjects according to gender and profession****Graph 2: Showing Distribution of study subjects according to age and profession**

## Discussion

This study presented a comprehensive overview of the oral health behaviour, knowledge and attitudes of various professional groups (Pharmacy, Nursing, Hotel management, Engineering, Paramedical and Media). Although there have been some studies regarding assessment of preventive knowledge in dental students, dentists, dental hygienist, school children and teachers and general population, very few studies have focused on appraisal of preventive aspects among different professions. Since in our survey subjects were highly educated we consider that chances of negative comebacks and inaccuracies were minimal.

**Parameter wise comparison:** In the present study we have assessed self-care practices among samples and we found that almost all subjects (99.6%) had a habit of cleaning teeth regularly which is in accordance with study by Dali M et.al.<sup>(1)</sup> and Jamjoom HM<sup>(9)</sup> who found the same habit in 98.35% and 98.5% respectively of their study subjects which comprised of general population. Frequency of brushing twice daily was highest (49.2%) when compared to brushing once daily (45.4%) and brushing more than twice (5%). Study by Sharath KS et al, on health care professionals also showed maximum percentage (54.6%) for habit of

brushing twice daily.<sup>(10)</sup> Jamjoom HM<sup>(9)</sup> found 36.8% of samples brushing twice daily. But the results of study by Dali M (2014) showed 94.9% for brushing once daily. This disparity in result of brushing habit from study of Jamjoom HM and Dali M compared to our results might be attributed to difference in study population. The assessment of different methods of brushing in our study showed lowest percentage for horizontal brushing (12.0%) and highest for no particular method (40.9%). This was in conflict with the results of study by Sharath KS<sup>(10)</sup> which showed lowest percentage for no particular method (5.6%) and highest for vertical brushing (19.9%). From the above analysis we could infer that the knowledge about self-care practices was appreciable among the subjects of our study.

Among the oral hygiene utilization methods maximum subjects in our study used tooth brush and paste (95.1%) while only 0.8% used floss, 3% used mouthwash, 0.4% used neem twigs and 0.4% used tooth picks. This is found to be different from study by Dali M et. al.<sup>(1)</sup> in which 62.35% subjects used tooth brush and paste and 18.35% used neem twigs. Sharath KS et. al.<sup>(10)</sup> found that 15.5% used floss, 29.5% used mouth wash and 12% used tooth picks after meals and

38% whenever required. Jamjoom HM<sup>(9)</sup> investigated the same and found 35.2% opted for floss, 31.7% for mouth wash and 35.6% for tooth picks. We found that 74.1% of subjects used to change the brush after every one to three months and 7.0% of them used to change after it wears out, which is comparatively higher than the study by Dali M et. al.<sup>(1)</sup> who found 41.7% of the subjects changed the brush after 1-3 months and 25% of them used to change after it wears out.

The subjects of our study acquired maximum information about oral hygiene and preventive practices by doctors/dentists (49.4%) followed by mass media (newspapers/magazines 20.3%, television/radio 18.1% and internet 12.2%). Whereas according to the study by Sharath KS et al.<sup>(10)</sup> 22.3% of them got information from doctors/dentist and 54.6% from mass media. Jamjoom HM<sup>(9)</sup> also reported mass media as a prime source of information.

When we assessed the knowledge about prevention of dental decay, maximum number of subjects were in favour of brushing and flossing (60.3%) followed by avoidance of sweets and chocolates (20.7%). Least knowledge was found about flouride application (1.9%) and use of pit and fissure sealants (0.8%). While 9.5% were totally unaware of any of the mentioned preventive measures. Regarding prevention of gum problems most of the subjects believed that cleaning (53.8%) is the most appropriate method. While 20% of them did not know about any of the preventive methods. Petite information about mouthwash (15%) and gum massaging (11%) was found. 49.6% of the subjects agreed that care of milk teeth, care of habits and early intervention together will help in preventing malocclusion. Since oral cancer is a fiery condition most of the subjects were aware of its preclusion by all of the stated measures like avoidance of adverse habits, care of long standing ulcer or lesion and sharp teeth. To the best of our knowledge, present study has only assessed above mentioned parameters in professionals due to which comparison of result was difficult.

Analysis of attitude towards preventive oro-dental care in our study revealed routine dental check up was the main reason to visit a dentist. Whereas Dali et.al<sup>(1)</sup> and Sharath KS et.al<sup>(10)</sup> found pain and dental caries respectively as the main cause for making a dental appointment. Most of the subjects desired that regular visit to dentist is necessary which in accordance with study by Jamjoom et. al,<sup>(9)</sup> Baseer et al.<sup>(11)</sup> and Timmerman et al.<sup>(12)</sup>

Most of the subjects reported satisfactory previous dental experience. Though, they were professionals, 137/474 subjects were unaware of the facts that oral & dental health affects the general health of body. Many subjects visited oral health camps and it proved beneficial to them so, they were in favour of regular conduction of such camps by dental professionals. Above findings dictates that although our subjects have fair knowledge regarding oro-dental care but their

behaviour towards same demand positive motivation and implementation.

Our study has got certain limitations also like small sample size and study subjects being recruited from single university. So, the results of the study do not represent the entire population of particular profession in Central India. Hence, it calls for further researches including large representative sample population. Secondly, we have utilised some of the new parameters which are difficult to compare and discuss upon.

## Conclusion

Oral and dental diseases are becoming an alarming public health issue now days with ubiquitous distribution and age being not an exception. While, there was an appreciably sound knowledge of self care practices and preventive care amongst the subjects, this does not seem to have substantial impact on their oral health attitude. So, there is constant urge for stimulation and motivation of study subjects towards prevention of oral and dental problems and it calls for measures on various front such as organising frequent oral health related talks and symposiums, arranging oral health camps for screening of dental diseases, providing awareness regarding National Oral Health Care Programme and National Cancer Control Programme. Moreover, knowledge regarding oral health should be instilled in the prospectus for all professionals which will help in improving and maintaining their oral health status. Oral health being an integral part of general health demands equivalent care and shouldn't be ignored at all.

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