

Oral Hygiene and Gingival Health among Dental Students

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ABSTRACT

Background: This study seeks to evaluate the oral health awareness, and oral hygiene maintenance habits, of dental students.

Materials and Methods: The present study included 180 students of GITAM Dental College and Hospital, Visakhapatnam- 30 students from each of the 4 years of BDS and also 30 interns and 30 post graduate students were selected randomly and divided into the 6 corresponding groups.

Results: The IV year students in this study showed the least oral health awareness and the post graduate students demonstrated highest oral health awareness among the six groups.

Conclusion: This study concluded that there may not be an improvement in the oral hygiene status of the dental students despite the increasing years of dental education.

Keywords: Gingivitis, Periodontal disease, Epidemiology, Sulcus bleeding index, Plaque index, CPITN index.

INTRODUCTION

Dental students are expected to maintain good general and oral health and play a major role in educating and motivating their patients to maintain good oral hygiene.^{[1][2]} The attitude of dental students towards their own oral health could predict the manner in which they provide oral health care and promote healthy oral habits among their patients. Hence, acquiring a comprehensive knowledge of oral hygiene is very important for a dental student.^{[3][4]} The aim of this present study was to assess the oral health awareness, and the prevalence, of gingival and periodontal diseases among dental students.

MATERIALS AND METHODS

The present study included 180 students of GITAM Dental College and Hospital, Visakhapatnam- 30

students from each of the 4 years of BDS and also 30 interns and 30 post graduate students, selected randomly and divided into the 6 corresponding groups.

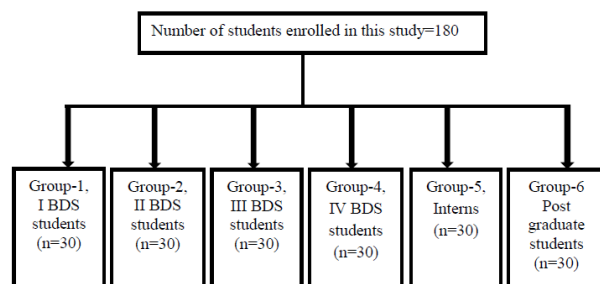
A questionnaire regarding brushing habits, use of other oral hygiene aids and their attitude towards oral health was answered by all these students, which helped assess their oral health awareness. The structured proforma consisted of 16 questions, of which the 6 questions mentioned in **Table 3** were considered representative. Plaque index (PI)(Silness and Loe, 1964), Sulcus bleeding index (SBI)(Muhlemann and Son, 1971)and Community Periodontal Index For Treatment Needs index (CPITN) (Ainamo and Barnes, 1982) were used to record the oral hygiene and gingival health status.

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All the teeth were examined for recording the PI and SBI excluding the third molars, and for each tooth the disto-facial, facial, mesio-facial and lingual surfaces were examined using a mouth mirror and a straight probe. The PI was recorded by sweeping the probe along the tooth surface at the gingival margin. The SBI was examined for all the teeth and four gingival units were scored for each tooth - the labial and lingual marginal gingiva, the mesial and distal papillary gingiva. The probe was held parallel with the long axis of the tooth for labial and lingual marginal gingiva and the probe was directed towards the col area for mesial and distal papillary gingiva and after waiting for 30 seconds after probing, the gingiva was dried gently to observe for bleeding. The CPITN was recorded only for the selected 10 teeth with a CPITN probe to detect and record presence of bleeding, calculus and pockets.

Statistical analysis:

A total of 180 students were selected for this study randomly from the under graduate program and the post graduate program. PI, SBI and CPITN were examined in all these students and the results were subjected to statistical analysis. All the analyses were done using SPSS version 18. A p-value of <0.05 was considered statistically significant. Comparison of mean values of various indices was done using the Kruskal Wallis ANOVA and multiple Mann-whitney U tests with post-hoc Bonferroni correction. (Table 1 and Table 2)

RESULTS

A total of 180 students were randomly selected for this study randomly from the under graduate program and post graduate program and divided into 6 groups (30 students in each group). PI, SBI and CPITN were examined in all these students and the results were subjected to statistical analysis. A questionnaire regarding their brushing habits and use of other oral hygiene aids was given to all these

students to assess their oral health awareness among the students and 6 questions mentioned in Table 3 were evaluated.

The results of this present study stated that there was no statistically significant difference in the mean PI scores between group 1, group 2 and group 5 and the mean PI scores were significantly higher in group 3 and group 4 when compared to all the other groups. Group 4, which is the IV BDS group, showed the highest mean PI scores and group 6 which is the post graduate student group exhibited the lowest mean PI scores among all the 6 groups.

There were significant variations in the mean SBI scores among the 6 groups. There was no statistically significant difference in the mean SBI scores among group 1, group 3 and group 5. The mean SBI scores of group 2 were significantly higher than those of group 1, 3, 5 and 6 but lower than that of group 4. In this present study group 4 (IV BDS students) showed the highest mean SBI scores and group 6 (post graduate students) showed the least mean SBI scores.

There were no significant variations in the mean CPITN scores among the groups 1, 2, 3, 4, and 5 but, the mean CPITN scores of group 6 were significantly lower in group 6 when compared to the other 5 groups. (Table 1 and Table 2)

The results of these 6 questions showed that 70 % of the IV year BDS students brushed their teeth only once; frequency of dental visits were also lower and oral health awareness was significantly less in the IV year BDS group when compared to the other 5 groups.

DISCUSSION

Oral health is an essential component of general health and quality of life.^[5] One of the main objectives of teaching dentistry is to train experts whose principal task is to motivate patients to adopt good oral hygiene practices. They are more likely to be able to do this if they themselves are adept at it.^[6]

Although there is a lot of published data regarding the motivation of patients to follow oral health care programs, there are few studies that assess the attitude of dental students towards their own health and their positive aptitude or ability in motivating

Table 1: Kruskal Wallis ANOVA with Post-Hoc Bonferroni Correction.

	Group												p-value	Post-hoc test
	1		2		3		4		5		6			
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD		
PI	0.25	0.13	0.25	0.11	0.30	0.11	0.33	0.16	0.25	0.15	0.23	0.10	0.045; Sig	-
SBI	0.16	0.12	0.21	0.11	0.15	0.09	0.23	0.14	0.13	0.11	0.04	0.05	<0.001; Sig	1,2,3,4,5>6 2,4>5
CPITN	1.10	0.66	1.07	0.52	0.90	0.55	1.00	0.64	1.07	0.52	0.63	0.49	0.018; Sig	1,2,5>6

Table 2: p-Value Matrix of the Inter-Group Comparisons with Mann-Whitney U Test.

Inter-group	PI	SBI	CPITN
1 vs 2	0.813	0.046; Sig	0.786
1 vs 3	0.061	0.756	0.205
1 vs 4	0.048; Sig	0.053	0.547
1 vs 5	0.9	0.203	0.786
1 vs 6	0.83	<0.001; Sig	0.005; Sig
2 vs 3	0.058	0.021	0.228
2 vs 4	0.069	0.468	0.67
2 vs 5	0.994	0.004; Sig	>0.99
2 vs 6	0.574	<0.001; Sig	0.002; Sig
3 vs 4	0.641	0.031; Sig	0.529
3 vs 5	0.061	0.234	0.228
3 vs 6	0.014	<0.001; Sig	0.064
4 vs 5	0.05	0.004; Sig	0.67
4 vs 6	0.022	<0.001; Sig	0.023; Sig
5 vs 6	0.599	0.003; Sig	0.002; Sig

Table 3: Oral health awareness among the 6 groups.

Questions	I BDS students	II BDS students	III BDS students	IV BDS students	Interns	Post Graduate students
1. Frequency of brushing?						
A. Once						
B. Twice	43.33%	60.00%	46.66%	70.00%	20.00%	6.66%
	56.67%	40.00%	53.34%	30.00%	80.00%	93.34%
2. Type of brush?						
A. Hard	10.00%	3.33%	6.66%	13.33%	3.33%	3.33%
B. Medium	40.00%	10.00%	40.00%	47.67%	50.00%	60.00%
C. Soft	50.00%	86.67%	53.34%	40.00%	46.67%	36.67%

3. Direction of brushing?						
A. Vertical						
B. Horizontal	60.00%	40.00%	40.00%	43.34%	50.00%	26.66%
C. Both	10.00%	24.34%	33.33%	40.00%	33.33%	10.00%
	30.00%	36.66%	26.67%	16.66%	16.67%	63.34%
4. Do you use a mouthwash?						
A. Yes						
B. No	6.66%	3.33%	13.33%	3.33%	13.33%	80.00%
	93.34%	96.67%	86.67%	96.67%	86.67%	20.00%
5. Frequency of dental check-ups?						
A. 3 months	10.00%	13.33%	6.66%	3.33%	6.66%	50.00%
B. 6 months	20.00%	33.33%	3.33%	3.33%	10.00%	33.33%
C. When there is a dental problem	70.00%	53.34%	90.01%	93.34%	83.34%	16.67%
6. Do you know the relationship between oral health and systemic health?						
A. Yes	36.66%	33.33%	76.66%	80.00%	90.00%	100.00%
B. No	63.34%	66.67%	23.34%	20.00%	10.00%	0.00%

and encouraging patients to follow a good oral hygiene. Little is known about the oral health behaviors and attitudes of Indian dental students and the influence of educational training on them. Since today's students of dentistry will provide dental services in the future and be responsible for public oral health education, it is important to study their oral health knowledge, attitude, and behavior and also its impact on their own dental health status.^{[7][8]}

This study was conducted to assess the attitude of the dental students towards oral hygiene and also to assess the oral hygiene and gingival health status of dental students. 180 dental students of GITAM Dental College and Hospital, from the IBDS to IVBDS, interns and post graduates participated in this study. 30 students were selected from each year randomly and were enrolled in this study.

All the dental students were given a questionnaire consisting of 16 questions to be answered by them.

The questionnaire (**Table 3**) helped us to assess their attitude towards oral health care and hygiene. In this study, the results of the 6 questions that were assessed showed that the IV BDS students had a poor attitude towards oral health care when compared to the other 5 groups which was reflected in their brushing habits and their frequency of dental visits. The post graduate students in this study demonstrated the highest positive attitude and aptitude towards oral health.

The oral hygiene status of the students was assessed by using PI, SBI and CPITN and the highly significant ($P < 0.001$) lower mean plaque index scores in the IBDS, II BDS, internship and post graduate students indicate that intensive exposure to preventive dentistry is reflected in their standard of personal oral hygiene maintenance (**Table 1 and Table 2**). Conversely, *Elmostehy, Zaki & Stallard*^[9] who studied the attitude of dental students towards oral hygiene were unable to demonstrate any improvement in the student's oral hygiene status as

a result of an educational program in preventive dentistry.

In this study, the IV BDS students showed the highest mean plaque and SBI scores when compared to the students of the I, II, III BDS and also the interns and the post graduates. This is surprising considering that the curriculum in the IV BDS included clinical courses in all the aspects of dentistry and one might expect that these students should have better oral hygiene and that the effectiveness of oral hygiene maintenance increases with the increasing years of the dental education(**Table 1 and Table 2**).

The high mean PI and SBI scores in the IVBDS students might be due to their habit to brush only once daily and their less frequent dental visits. Thus in this study, higher plaque distribution in the IV BDS students suggests that there was no major improvement that could be related to increased knowledge and clinical experience, may be due to a preoccupation with their training program and since they had to take a theory and clinical examination in 8 subjects at the end of the fourth year.

This increase in plaque distribution was in accordance with the studies conducted by **Ainamo and Ainamo** on Finnish and Indian students^[10], and **El-Mostehy et al** on 100 Egyptian students and **Meister et al** at the University of Marquette (Michigan) in the United States of America. All these studies noted the absence of improvement in the practice of oral hygiene in students, in spite of having received information and education. According to **H.Tenebaum**, the deterioration may also be due to an increased emphasis on mechanically oriented dentistry since the last year was entirely devoted to comprehensive dental care^{[11][4]}

CONCLUSION

This study was conducted to assess the oral health attitude and oral hygiene status of dental students. The IV BDS students in this study showed the lowest levels of oral hygiene among the six groups and the post graduate students showed the highest levels of oral hygiene, which showed that there may not be an improvement in the oral hygiene status of the dental students despite the

increasing years of dental education, as reflected in their oral health examination and even in the assessment of their attitudes towards oral health care. Further long term studies are however needed with an increased subject pool to assess the oral hygiene status and attitude of dental students towards self-oral health care.

CONFLICT OF INTEREST

No potential conflict of interest relevant to this article was reported.

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