Assessment of Oral Hygiene Status and Attitude of Dental Students Towards Periodontal Care: An Introspective Mirror

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Abstract

Dental students represent the educated, urbanized, influential and motivated class of individuals. If motivated for oral health, they can transfer the same knowledge and behavior patterns to patients during their practices. With this intention, this study was planned. 200 dental students were assessed by a close-ended, four-item questionnaire. Oral hygiene was assessed by Simplified Oral Hygiene Index (OHI, Greene and Vermilion, 1964) and gingival condition by Gingival Index (GI, Loe & Silness, 1963). A positive change in attitude was observed from first to final year students. 100% of them used tooth brush and paste, but 88%, 88% 96%, 92% in first, second, third and fourth year cleaned their tongue; whereas 70%, 92%, 94%, 92% of them, respectively, were in favor of scientific method of brushing. 92%, 90%, 96%, 100%, respectively, felt visiting the dentist during gingival bleeding. Also, there was statistically significant improvement in GI between first and final year ($p=0.00005$), between second and final year ($p=0.0003$) students. OHI showed a consistent improvement from first to final year ($p<0.05$). A positive change in attitude with reduction in GI and OHI status was observed with the increase in professional years.

Key message: The attitude towards periodontal care is quite unsubstantial and oral hygiene status, gingival condition among first and second year dental students is poor as compared to third year and final year students. So, there is need to bring about a change in the attitude and improvement in oral hygiene status and gingival condition of dental students from their initial years of learning.

Keywords: *Attitude, dental students, oral hygiene status, periodontal care, questionnaire.*

Introduction

Dental professionals play a vital role in the motivation and improvement of oral health education of people. Therefore, acquiring knowledge and attitude related to dental health and the prevention of oral diseases is very important during the future dentist's training period.[1] One of the main objectives of dental education is to train students who can motivate patients to adopt good oral hygiene.[2] They are more likely to be able to do this if they themselves are motivated. Moreover, dental students should be able to apply this knowledge and attitude for their own dental care.[3]

The prevention of oral and periodontal diseases is the most accepted and efficient method for ensuring oral health.[4] Oral health is now recognized to be equally important in relation to general health.[5] The behavior of oral health care providers and their attitudes towards their own oral health reflect not only their understanding of the importance of preventive dental procedures but also helps in improving the oral health of their patients.[6] Researchers have found that oral hygiene practices among dental students are different by years of study in dental school.[7]

Various studies have been conducted in different countries to evaluate the changes in attitude and oral hygiene status in dental students. The study carried out to assess dental attitudes and behavior among dental students in Jordan reported that the oral health attitude and behavior in Jordan were poor[7].

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Kawamura et al. reported that significant cultural differences in oral health attitudes, behaviors and values were found in the freshman dental students from Japan, Hong Kong and Western China.[8]

Another study that explored the cross-cultural differences in the self-reported oral health behavior between Greek and Japanese dental students concluded that there were considerable differences in dental health attitudes/behaviors between the students in the two countries, reflecting the different cultures and the health education systems.[9]

However, a few studies have been conducted in India regarding this issue. So a cross sectional survey and oral examination was designed and conducted at one institute in Moradabad, India, to investigate and evaluate the oral hygiene status and change in attitude of dental students towards periodontal diseases.

Materials and Methods

A cross-sectional study by oral examination was conducted among dental students of Kothiwal Dental College and Research Centre, Moradabad, U.P, India to assess their oral hygiene status and attitude regarding periodontal diseases from 4th January 2014 to 31st March, 2014. Ethical approval from the authority and written consents were obtained from the participating subjects. A total of 200 dental students, 50 each from first year to fourth year were interviewed through a self-administered questionnaire containing 4 closed ended items (Table-1)[10,11] and their oral hygiene status was examined. The respondents were instructed to fill the questionnaire without discussing with each other in their own classroom.

Oral hygiene status was assessed by Simplified Oral Hygiene Index (OHI, Greene and Vermilion, 1964). Gingival condition was evaluated by Gingival Index (GI, Loe & Silness, 1963). The responses and findings were compiled, computed and analyzed.

Results

Overall, the percentage of students who gave positive answers were found to be 87.5% among first year dental students, 92.5% for second year, 96.5% for third year and 98% for fourth year dental students (Graph-1). Also, there was an improvement in OHI status and GI, the difference for GI being statistically significant between first year and final year and between second year and final year dental students. OHI showed a consistent statistical improvement from first year to final year.

Graph-01: Overall percentage of students who gave positive responses

Question no.1: The first question was to assess the attitude of dental students towards oral hygiene aids like tooth brush and paste for cleaning the teeth. 100% of all the 1st year, second year, third year and final year dental students used tooth brush and tooth paste for cleaning their teeth.

In Question no.2: When asked about any scientific method of brushing, 70%, 92%, 94% and 92% of dental students from first, second, third and fourth year, respectively said "Yes".

In Question no.3: 88% of first year, 88% of second year, 96% of third year and 92% of final year dental students said that they clean their tongue.

In Question no.4: When they were asked if there is a need to visit the dentist when there is bleeding from the gums, 92% of first year, 90% of second year, 96% of third year and 100% of final year dental students felt the need.

The detailed questionnaire and responses of the dental students in percentage from first year to final year has been depicted in Table-2.

Table-02: Illustration of percentage of responses of questionnaire

Questions	Question Type	1st Year (%)	2nd Year (%)	3rd Year (%)	4th/Final Year (%)	Total (%)
How do you clean your teeth?	Tooth brush and tooth paste	100	100	100	100	100
	Any other	0	0	0	0	0
Do you think that there can be any scientific method of brushing?	YES	70	92	94	92	87
	NO	30	8	6	8	13
Do you clean your tongue?	YES	88	88	96	92	91
	NO	12	12	4	8	9
Do you think there is a need to visit the dentist when there is bleeding from the gums?	YES	92	90	96	100	94.5

Oral hygiene status and gingival condition evaluation showed that with advancing professional status (1st year to 4th year) a significant decrease in GI and OHI status was observed (Graph-2) which was also significant statistically ($p<0.001$).

Also, there was an improvement in oral hygiene status and gingival index, the difference for gingival index being statistically significant between first year and final year and between second year and final year dental students. Oral hygiene index showed a consistent statistical improvement from first year to final year (Graph-2) (Table-3).

Graph-02: Mean Values of GI and OHI

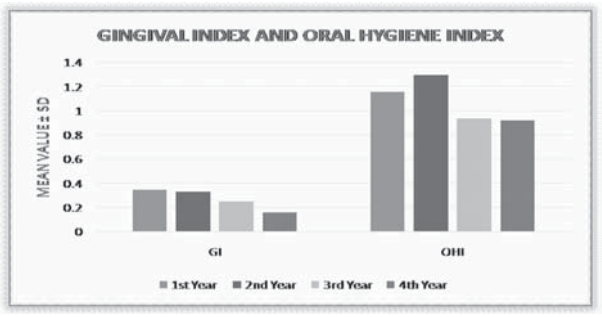

Table-03: Illustration of GI and OHI in dental students

		n	Mean	Std. Deviation	Minimum	Maximum
GI	1st year	50	0.3487	0.23977	0.00	1.08
	2nd year	50	0.3301	0.22721	0.07	1.12
	3rd year	50	0.2502	0.20251	0.00	1.19
	4th year	50	0.1675	0.09853	0.00	0.46
	Total	200	0.2741	0.21105	0.00	1.19
F=8.609; p=0.0000213970						
OHI	1st year	50	1.1547	0.36448	0.00	2.00
	2nd year	50	1.3104	0.25919	0.92	1.91
	3rd year	50	0.9430	0.33852	0.00	1.54
	4th year	50	0.9281	0.29170	0.00	1.46
	Total	200	1.0841	0.35164	0.00	2.00
F=16.749; p=$9.9923135585751\times10^{-10}$						

A moderate correlation between OHI and GI was observed which was also significant statistically (Graph-3). Strong correlation between OHI and GI was observed in 2nd professional students. For all the other professionals, the correlation was moderate (Table-4).

Graph-03: Correlation between GI and OHI

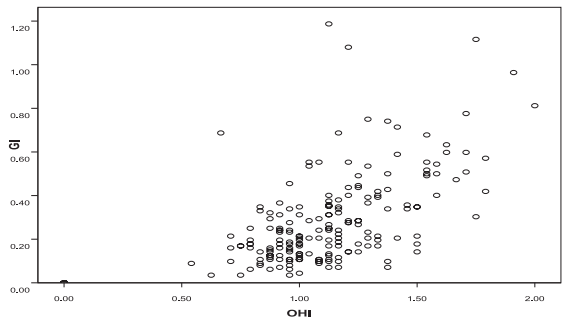

Table-04: Correlations between GI and OHI

1st year	Pearson Correlation Sig. (2-tailed)	.539(**) 5.37×10^{-5}
2nd year	Pearson Correlation Sig. (2-tailed)	.713(**) 6.35×10^{-9}
3rd year	Pearson Correlation Sig. (2-tailed)	.533(**) 6.78×10^{-5}
4th/Final year	Pearson Correlation Sig. (2-tailed)	.570(**) 1.53×10^{-5}

Discussion

It has been observed that oral hygiene has mostly remained as an ignored and unrealized major social problem. Majority of the people including dental professionals, themselves are unaware about the relationship between oral hygiene and systemic diseases or disorders.

Most diseases show their first appearance through oral signs and symptoms and they remain undiagnosed or untreated because of this missing awareness and neglected attitude towards periodontal care.[11]

By virtue of their profession, dental professionals and students play a pivotal role in health promotion and dissemination of preventive information, oral hygiene practices, positive attitude among their patients, family and society. It is therefore important that their own health knowledge is good and their oral health behavior conforms to the expectation of the population. Therefore, a study was conducted to assess their oral hygiene status and attitude regarding periodontal diseases.

The questionnaire for the study consisted of questions related to oral hygiene practices for judging their attitude towards periodontal care and maintenance, for example - cleaning the teeth, tongue, any scientific method of brushing, need to visit the dentist when there is bleeding from gums.

Oral hygiene is the practice of keeping the mouth healthy and clean by brushing and flossing to prevent tooth decay and gum diseases. It can be maintained only when an individual has a positive attitude towards his own periodontal care. So, when the dental students were asked regarding the cleaning of teeth, 100% of them responded that they cleaned their teeth with tooth brush and tooth paste, this finding attributes to the positive attitude of these students regarding maintenance of periodontal care and oral hygiene because of increased knowledge and awareness regarding this aspect. This was contradictory to the consumer usage and attitudes study done in 2010, where, one of the most shocking finding was that nearly half of the Indian population did not use a tooth brush and only 51% brushed their teeth using a tooth brush and toothpaste.[12]

When interrogated whether they cleaned their tongue and whether there is a scientific method of brushing, less percentage of students used in first year (88%, 70% respectively), however, this percentage increased in second year (88%, 92% respectively) probably because their knowledge regarding maintaining oral hygiene increased through their seniors and interaction with their teachers.

In the third year, percentage increased (96%, 94% respectively) as their basic knowledge further increased as basic course in clinical periodontology started in the third year and they were taught in detail about dental plaque and methods of plaque control.

Surprisingly, in final year, less percentage of students (92%, 92% respectively) cleaned their tongue, and were less ledgeabale in scientific method of brushing as compared to third year. Mostehy et. al.,[13] reported the absence of an improvement in oral hygiene practices of dental students regardless of having obtained information and education. However, this finding needs to be evaluated in a large sample size.

When the students were asked about the need to visit the dentist when there is bleeding from gums, less percentage of second year students (90%) felt the need than the first year (92%). However, third year (96%) and final year (100%) students' attitude changed and became more assertive by observing their seniors, staff treating cases and by reading periodontology books.

It is expected that the students might have the basic interest or knowledge about oral hygiene and periodontal maintenance and they practice it well in daily life before entering the course, simultaneously, their oral hygiene status should also improve from first year to final year. So, their oral hygiene status was assessed by Simplified Oral Hygiene Index (OHI, Greene and Vermilion, 1964). Gingival condition was evaluated by Gingival Index (GI, Loe & Silness, 1963).

There was an improvement in OHI status and GI (Graph-2), the difference for GI was statistically significant between first and final year (p=0.00005) and between second and final year (p=0.0003) dental students, insignificant finding between first and second year (p value=0.9666), first and third year (p value=0.0691), second and third year (p value=0.1924), third and final year (p value=0.1664). The decrease in GI values with mean of 0.3487, 0.3301, 0.2502, 0.1675 from first, second, third and fourth year, respectively may be due to prior admission in dentistry, evaluation of attitude and oral hygiene status in first year gives an idea of the level of understanding and perception of society towards oral hygiene and periodontal care, OHI showed a consistent improvement from first year to final year, that was significant between first and third year (p=0.005), first and final year (p=0.002), second and third year (p=0.0000001), second and final year (p=0.00000004), third and first year (p=0.002). Insignificant finding (p value=0.0690) was observed between first year and second year (p=0.0690) and third year and final year (p=0.9953) students. Thus, OHI status showed a significant decrease from first year to final year, as during first and second year, students are unaware of various oral hygiene practices, methods and etiology for periodontal diseases that is poor oral hygiene i.e. plaque and calculus as it is not included in their curriculum, but as they reached third year and final year, their basic knowledge further increases by the virtue of their clinical postings and also as the basic course in clinical periodontology starts in the third year and they are taught in detail about dental plaque, its control by various tooth brushing methods and role in causing periodontal diseases.

A moderate significant correlation between oral hygiene index and gingival index was observed (Table-3) (Graph-3) that clearly signified that poor oral hygiene was responsible for gingival inflammation, implicating the vital role of dental plaque in causing gingival inflammation and therefore, leading to periodontal diseases.

A strong correlation between OHI and GI was observed in 2nd professional students. This may be due to few students in second year with poor oral hygiene and gingival status, that has led to these negative findings in second year.

Further studies are required to include more students at multiple professional institutes to evaluate the oral hygiene status and attitude towards periodontal care among the budding dentists. These findings may be utilized to improve the courses of studies and policy-making in the Dental Councils.

Conclusion

This study presented a comprehensive overview of oral hygiene status and the attitude towards periodontal care among dental students. It can be concluded that there is change in attitude and reduction in gingival index and oral hygiene index status with the progress in professional year i.e. from first year to final year students.

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