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Comparison of Oral Hygiene Status between Pre-Clinical and Clinical Dental Undergraduates.

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ABSTRACT

Oral hygiene is a matter of serious health concern and as dentists, the professionals are considered a role model to the general public population in regions of oral hygiene and oral hygiene status. To evaluate and compare the oral hygiene status amongst the preclinical and clinical dental undergraduates. A cross sectional study comprising of 146 preclinical undergraduate dental students (GROUP 1) and 146 clinical undergraduate dental students (GROUP 2) were recruited and their oral hygiene habits were assessed using a preformed questionnaire, and oral hygiene status was measured using the simplified Oral Hygiene Index (OHI-S) and Gingival Index (GI). Out of the 292 students examined, which were in two groups i.e. 146 preclinical dental graduates and 146 clinical dental graduates, most students reported a habit of brushing twice daily viz., an overall mean value of 73.84%, which comprised 74.7% in preclinical students and 72.92% in clinical students. The auxiliary aids usage was found to be 26.88% in the group 2 and 26.77% in the group 1, with an overall mean of 26.83%. It was found that the mean OHI values were 2.037 ± 0.513 in the group 1, and 2.266 ± 0.428 in the group 2. The Gingival Index was found to be 0.990 ± 0.457 in the preclinical group and 1.03 ± 0.528 in the clinical group. Both the OHI-S and GI values were found to be relatively higher in the clinical undergraduate group 2 in comparison to the group 1. The OHI values had a significant statistical difference of -0.2290 ($p < 0.0001$) and the Gingival Index values were not found statistically significant with a mean difference of -0.045 ($p = 0.4370$). The preclinical dental undergraduates exhibited better oral hygiene levels than the clinical undergraduate students.

Keywords: oral hygiene, undergraduate, pre-clinical, clinical.

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INTRODUCTION

The oral cavity is the mirror of the body. A good oral hygiene is of uttermost importance in an individuals well being. A poor oral hygiene can be suggestive of improper maintenance as a result of which there is a focal oral infection or it can cause systemic problems too. Oral diseases can affect any individual regardless of the age,gender,nationality,race etc.[1] The oral hygiene status has been improving markedly due to the increasing awareness among the general population. But oral diseases continue to prevail due to many other factors such as consumption of fast food, smoking and liquor habits, sweet and sticky food substances etc, especially noted amongst the youngsters.

Dental caries and periodontal diseases are considered to be the major causes of global oral disease burden. According to the World Health Organisation(WHO) worldwide 60-90 % of school children almost 100% adults suffer from dental caries 15-20% middle aged adults suffer from periodontal diseases. [2]Most of these are preventable, but the key is to reachout and spread awareness to the underprevilaged and lower rungs of the society where the prevalence is more.

Dentists and dental health professionals are to be more responsible as they are considered as role models to the society. Being educated in this field , it is of absolute importance that they maintain their own personal oral hygiene levels as well as educate their patients on the importance of maintaining a good oral hygiene. In the path of graduating as a dental surgeon. the undergraduate students are trained and educated on the field of dentistry extensively and now the current aim of the study is to evaluate and compare the oral hygiene status in the preclinical and clinical students, trying to understand if clinical training on patients has encouraged oneself to maintain an improved oral hygiene.

METHODOLOGY

The study was conducted in Saveetha Dental College and Hospital, Chennai. A total number of 146 preclinical undergraduate students (GROUP 1) and 146 clinical undergraduate students(GROUP 2) were chosen randomly for this cross-sectional study. Students not willing to participate and those with systemic conditions were excluded from the study.

All the study participants were gathered and a basic case history was taken followed by an intra-oral examination. The history comprised of the basic details of the student such as the name,age,sex,year of study,residence and their oral hygiene habits. Information about the oral hygiene behaviour was assessed by questioning the frequency of brushing per day and use of auxillary aids. Followed by history taking, oral hygiene status was assessed by recording the Simplified Oral Hygiene Index(3) and Gingival Index(4) using a mouthmirror and explorer. The demographic data and the data on oral hygiene habits were tabulated and represented as percentages. The mean values of Oral hygiene index and Gingival Index between the groups were statistically compared using unpaired t test.

RESULTS

The demographic details and oral hygiene habits data were assessed and it shows that,Group 1 comprised of 14.31% of male population, and 85.69% of female population and Group 2 comprised of 14.4% of male population and 85.6% female population. Both the groups showed an increased female proportion. 25,21% of group 1 brushes once daily and 74.77% brushes twice daily and on the other hand, 27.07% of group 2 population brushes once daily and 72.9% twice daily. The usage of auxillary aids was found to be almost similar in both the groups viz,. 26.85% in group 2 and 26.75% in group 1.

It was found that the mean OHI values were 1.96+-0.67(first year),2.12+-0.3571 (second year),2.2+-0.4442(third year),2.32+-0.4329(final year). The overall mean for group 1 is 2.037+-0.513, and for group 2 was found to be 2.266+-0.428. The mean difference between the two groups was -0.2290 ,(p<.0001) which is extremely significant.

The gingival indices were found to be 1.96+-0.670 , 2.12+-0.3571, 2.20+-0.4442 , 2.32+-0.432 in preclinical (first and second years) and in clinical(third and final years) respectively. The overall gingival index

for group 1 and group 2 are 0.990 ± 0.457 and 1.03 ± 0.528 , with a mean difference of -0.045 ($p=0.4370$), which was not statistically significant.

DISCUSSION

The main aim of the study was to evaluate and compare oral hygiene habits and overall oral hygiene status between preclinical and clinical undergraduate BDS students. The results of the study shows that in both the groups the frequency of brushing twice daily was high and was almost equal. This is also significantly similar to a study done by Sinem et al. in dental students where the frequency of brushing twice daily was found to be 74% [5]. The auxiliary aids usage was comparatively less. The OHI values between the two groups were found to be statistically significant ($p < 0.0001$), wherein Group 2 exhibited a higher Oral Hygiene Index value, when compared to Group 1. The gingival indices did not show much of a variation between the two groups, with the difference being statistically insignificant ($p=0.4370$). The brushing habits and auxiliary aids usage were also found to be similar among the two groups.

Western literature has shown improved oral hygiene levels amongst the dental student in comparison to the public. A comparative study based on oral hygiene status and gingival status in the students of medical, paramedical and non medical categories were done by Archana et al [6] have showed significantly better gingival health in medical category. The non-medical category had a higher gingival index value of 1.48 ± 1.61 compared to the medical category value of 1.01 ± 1.28 . The gingival index value is almost similar to that of our current study. Also a study comparing oral hygiene status between Japanese and Chinese dental students done by Mitsuhiro et al [7] has shown better oral hygiene levels in the Japanese, with their gingival bleeding seen as subjective symptom in 37% of Chinese students in contrary to 13.6% of Japanese students. This is concordant with a study done by Rushabh et al [8], where dental attitude and behaviour of dental students were assessed in a dental school in Rajasthan where the assessment was done using a Hiroshima University Dental Behavioral Inventory (HU-DBI) questionnaire [5], and the results have shown relatively poorer oral hygiene in Indian students in comparison to the Japanese students.

In the present study, it was expected that the Group 2 population will exhibit a better oral hygiene than Group 1 population, as they started treating patients, whereas Group 1 is still in the preclinical training. But the study has revealed an increased OHI value in the Group 2 population, in comparison to the Group 1 population, with a significant statistical difference. This can be attributed to the facts that the student sample utilised here consisting of 146 preclinical students (Group 1), who had not commenced their clinical practise, had an clinical exposure as a part of their preclinical training in their curriculum, where they were allowed to observe the practise of the clinical students. They were also allowed to perform certain basic procedures such as instructing the patients on oral hygiene habits and demonstrating brushing techniques. This could have possibly increased the awareness among the preclinical students.

On the other hand, the reduced oral hygiene status seen in Group 2 can also be attributed to the increased stress that are to undergo in the pre-final and final years. A study performed by Dr. Shashidhar Acharya has shown significantly higher stress levels in the final year than in the other years [9]. The article also explains pertaining to the decreased interest in taking care of oneself as the academic years progresses. Argy polychronopoulos et al [10] has also explained the decreased anxiety levels in the first years, and concomitant with that Rajat et al [11] and Acharya et al [12] have also emphasised on the increasing stress levels in the clinical years involving patient management stress and academic stress. Even though Group 2 shows a significantly higher Oral Hygiene Index, Gingival Index was not significantly different from group 1. This could be possibly due to the action of stress hormones reducing inflammation. Even though catecholamines, the main stress hormone has an anti-inflammatory effect, the literature shows conflicting results where academic stress has shown increased gingival inflammation. [13] This can be due to the reduced oral hygiene and other habits seen in association with stress and also elevated levels of pro-inflammatory cytokines. [14]

If stress was the contributing factor to the poorer oral hygiene status in clinical undergraduates then it could be proved by performing a longitudinal study in the preclinical undergraduate population when they step into the clinical years, and the results could be compared with their current values. This would help in a better understanding as to whether, it was the increasing stress factor in the clinical academic years that has caused the decreased oral hygiene.

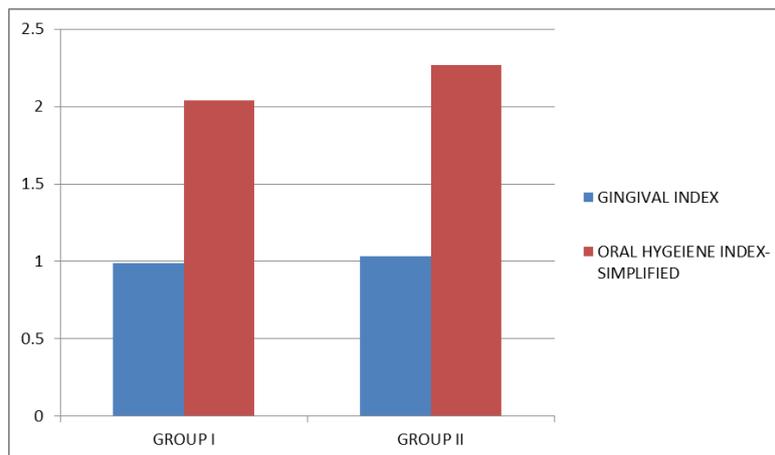
Table 1

GROUP	Number of study participants(n)	SEX(%)		BRUSHING HABITS (%)		USE OF AUXILLARY AIDS(%)	Gingival Index(GI)	Simplified Oral Hygiene Index(OHI-S)
		Male	female	Once	twice			
PRECLINICAL UNDERGRADUATE GROUP(GROUP 1)	146	14.31	85.69	25.22	74.77	26.77	0.990±0.457	2.037±0.513
CLINICAL UNDERGRADUATE GROUP(GROUP 2)	146	14.4	85.59	27.07	72.92	26.88	1.035±0.528	2.266±0.428

Table 2: student t-test for simplified oral hygiene index and gingival index

STUDY GROUP	INDEX	MEAN AND STANDARD DEVIATION	STATISTICAL SIGNIFICANCE(P)
GROUP 1	GINGIVAL INDEX	0.990±0.457	P=0.4370
GROUP 2	GINGIVAL INDEX	1.035±0.528	
GROUP 1	ORAL HYGIENE INDEX SIMPLIFIED	2.0370±0.513	P<0.001
GROUP 2	ORAL HYGIENE INDEX SIMPLIFIED	2.2666±0.428	

Figure 1



CONCLUSION

From the present study it can be concluded that both the preclinical and clinical undergraduates had good oral hygiene habits, but their oral hygiene status was comparatively poorer than their western counterparts. On comparison between the groups, the preclinical undergraduate group had a better oral hygiene status than the clinical undergraduates. The reason behind this result can be proved by further longitudinal studies.

REFERENCES

[1] Petersen, Poul Erik, and Michael A. Lennon. "Effective use of fluorides for the prevention of dental caries in the 21st century: the WHO approach." *Community dentistry and oral epidemiology* 32.5 (2004): 319-321.

[2] Lang, N. P., B. R. Gumming, and H. A. Loe. "Oral hygiene and gingival health in Danish dental students and faculty." *Community dentistry and oral epidemiology* 5.5 (1977): 237-242.

- [3] Greene, John G., and Jack R. Vermillion. "The simplified oral hygiene index." *The Journal of the American Dental Association* 68.1 (1964): 7-13.
- [4] Löe, Harald. "The gingival index, the plaque index and the retention index systems." *Journal of periodontology* 38.6 Part II (1967): 610-616.
- [5] Yildiz, Sinem, and Basak Dogan. "Self reported dental health attitudes and behaviour of dental students in Turkey." *European journal of dentistry* 5.3 (2011): 253.
- [6] Sharda, Archana J., and Srinath Shetty. "A comparative study of oral health knowledge, attitude and behaviour of first and final year dental students of Udaipur city, Rajasthan, India." *International journal of dental hygiene* 6.4 (2008): 347-353.
- [7] Ohshima, Mitsuhiro, et al. "Comparison of periodontal health status and oral health behavior between Japanese and Chinese dental students." *Journal of oral science* 51.2 (2009): 275-281.
- [8] Dagli, Rushabh J., et al. "Self reported dental health attitude and behavior of dental students in India." *Journal of oral science* 50.3 (2008): 267-272.
- [9] Acharya, Shashidhar. "Factors affecting dental anxiety and beliefs in an Indian population." *Journal of oral rehabilitation* 35.4 (2008): 259-267.
- [10] Polychronopoulou, Argy, and Kimon Divaris. "Perceived sources of stress among Greek dental students." *Journal of dental education* 69.6 (2005): 687-692.
- [11] Rajab, L. D. "Perceived sources of stress among dental students at the University of Jordan." *Journal of dental education* 65.3 (2001): 232-241.
- [12] Acharya, S. "Factors affecting stress among Indian dental students." *Journal of dental education* 67.10 (2003): 1140-1148.
- [13] Deinzer, Renate, et al. "Increase in gingival inflammation under academic stress." *Journal of clinical periodontology* 25.5 (1998): 431-433.
- [14] Maes, Michael, et al. "The effects of psychological stress on humans: increased production of pro-inflammatory cytokines and Th1-like response in stress-induced anxiety." *Cytokine* 10.4 (1998): 313-318