Impact of dental study on oral health behavior, oral hygiene and gingival health status of Iraqi dental students

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Abstract

The aim of the present study is to determine the impact of dental study on oral health behavior, oral hygiene and gingival health status of dental student as they graduated in their study. The sample was consist of 150 dental students, all of them were healthy and of comparable ages. They were chosen on a random basis and allocated into five groups according to their level of study. They were clinically examined for GI & PLI and filled a questionnaires specially designed for this study. Results of this research indicates an acceptable improvement in all parameters that have been used and the positive effect of dental health education had been proved again, but continuous renewal of the dental health education curricula is still mandatory.

Key words: Oral hygiene. Dental students. Health behavior. Gingival. Periodontal.

Introduction

Prevention of dental and periodontal disease is considered by many to be the primary aim of dental health education, and its effectiveness in achieving this aim was a subject for a large number of studies. [1,-6] In general health education is an aspect of health promotion and one of its roles is to provide people with information, skills and experiences through which they can exercise a great degree of control on their own health. [7]

An important point need to be considered in this area is the great differences between information and education. Individuals who are informed about dental health are aware of the consequences of specific health practice, but they may be involved in an unsound course of action. In contrast the persons who are educated are not only well informed, but also use this information in their daily life ideally. [8] From the previously mentioned facts one can conclude that the most vital point in relation to the dental health education is the translation of knowledge into action.

Dental students –because of their study- are logically expected to be extensively involved in dental health education and more liable to be

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affected by the considerable attention that paid to this subject as they graduated in their study. This fact seems to be quite true at least from the outsider point of view. However oral health educational programs have been reported to have a variable impact on the oral health status of program participants. [9]

Although informal and formal components of dental health education are not completely separated entities, [10] but they often perceived simultaneously and both of them were practically being practiced by the dental student through out their graduation in dental study, but many studies revealed that even some dental students, who should know the direct relationship between bacterial plaque and periodontal diseases and should be better motivated than the others, failed to demonstrate effective oral hygiene. So it is difficult to expert an improvement of patient oral hygiene, when the patients have been motivated by students who are unable to perform satisfactory personal oral hygiene themselves. [11]

The previously mentioned fact had necessitated a true demand for a continuous renewal of the dental health curricula implemented for dental students as a part of their study. In this field a new methods of dental health education have been investigated such as Virtual Learning Environment (VLE), [12] which is a web-based database application where the learner uses free text communication on the screen to interact with patient data and a Computer-Aided Learning (CAL), [13] which allows students to work in their own time and pace. Results from these studies had reflected a positive effect of these new approaches in dental health education.

The aim of the present study is to determine the impact of dental study on oral health behavior, oral hygiene and gingival health status of dental student as they graduated in their study.

Material and method

Permission was taken from appropriate authorities to conduct this study on dental students in the University of Al-Mustansiria / college of dentistry. The sample was consist of 150 dental students, all of them were healthy and of comparable ages. They were chosen on a random basis and allocated into five groups according to their level of study. Each group consists of 15 males and 15 females.

The students were examined for Silness & Loe Plaque Index (PLI), 1964 and Loe & Silness Gingival Index (GI), 1967. All present teeth were examined and a mean score per person then calculated for each index. The clinical examinations were conducted on a dental chair by using 30 examination sets consisting of plane dental mirrors and color coded WHO probes. These instruments were properly sterilized and prepared before each examination. All examinations were conducted by a well trained and calibrated professional dentist.

At the time of the clinical examination suitable questionnaires designed specially for this research were filled by the examined students. These questionnaires were designed to estimate the oral health behavior including the self performed plaque control measures as tooth brushing and its frequency and using of different types of interdentally cleaning means.

The statistical methods that used for the analysis of the results of this research include: means, standard deviation and T- comparative significance test.

Results

Results of the present study can be mentioned under two headings; results of the questionnaire and results of the clinical examination. The comparison in these results will always be made between the first three and last two years.

The results of the questionnaire revealed that the number of the students who claimed that they brush their teeth on a regular basis was 88.9% (80 out of 90) in the first three years, while all the students in the last two years were brush their teeth daily on a regular basis as shown in table (1).

In the same table the results also revealed that 56.25% of the students (45 out of 80) in the first three years were brush their teeth once a day, 33.75% (27 students) brush their teeth twice a day, 3.75% (3 students) were brush their teeth three times a day and 6.25% (5 students) brush their teeth less than one time a day.

In the last two years, 96.88% of the students (58 out of 60) were brush their teeth once and twice a day at equal proportions and only 3.32% (two students) brush their teeth three times a day.

Table 2. shows that 76.67% of the students (69 out of 90) in the first three years did not use any type of interdental cleaning measures compared to 23.33% (21 students) who said that they use these measures as a daily routine in the cleaning of their teeth.

In more details; 80.95% (17 students) of those who used these measures were used the dental floss and the rest 19.05% (four students) were used tooth picks for this purpose.

In the final two years 51.67% of the students (31 out of 60) were found to be use the interdental cleaning aids, most of them 90.32% (28 students) were used the dental floss and the rest 9.68% (three students) were used the tooth picks.

Results of the clinical examination revealed that positive differences were recorded for both PLI & GI scores with the graduation of the dental students in their study as shown in Figure 1.

In more details the data related to PLI showed that these positive differences were significant between first & second, highly significant between second & third, also highly significant between third & fourth years and non significant between fourth and fifth years as shown in table 3.

Results related to GI appear to be similar to that of PLI with an exception; the differences of the GI scores between the first and second years were found to be non significant as that of the PLI . And significant between third & fourth year

Discussion

This research can be considered as another application of the knowledge-attitude-behavior model of the dental health education and its results came to support the large number of studies that used this model to demonstrate the effectiveness of dental health education in the improvement of the oral health behavior and status. The dramatic improvement that achieved in all parameters used in this study clearly reflects the positive effect of dental study on oral health behavior and status of dental student as they graduated in their study. The resultant fact that the maximum improvement were achieved when the students were graduated to the fourth year can be simply attributed to the implementation of the course of Periodontology and community dentistry in this year

according to the dental curriculum that been followed in Iraq.

Students in the last two years were found to be strongly affected by the large number of information and documented facts related to the nature, structure and effect of the microbial dental plaque on oral tissues and its direct relation to the initiation and progression of dental and periodontal diseases. This is why the comparison in this research always conducted between the first three and last two years. Also at these years the dental students will be in direct contact with dentally and periodontally ill patients throughout their clinical course in the diagnosis and treatment of those patients. So the students become more familiar with the hazardous effects of microbial dental plaque on oral health status and they see these effects on reality.

This finding came in agreement with other study which suggested that regular patient contact influences the personal attitude toward oral hygiene, and that professional activity and emphasis on different aspects of the curriculum may be reflected in the attitude of health professionals toward oral health.(14)

Using of dental floss and tooth picks still being the most popular method for cleaning the interdental areas while other measures as interdental brush and irrigators were not recorded in this research even among students of the fifth year who were well informed about such measures. This finding pointed clearly to the fact mentioned previously about the differences between information and education.

Brushing teeth twice a day seems to be the most brushing frequency used by majority of the students in all years. This can be explained by the availability of time to perform such oral health measure at the morning and evening, while it is difficult for them to do this action at the day time because they are almost busy with their study. Although the achieved positive changes in both GI & PLI scores is high at the final year in comparison to the first three years, but it was non significant in relation to that of fourth year. This finding can be explained by the other shortcoming of dental health education which states that the effect of education may result in a strong alert by the informed person who tend to perform a suitable preventive action, but unfortunately this action may not last for along period of time. For this reason a continuous repetition and renewal of dental health education approaches is mandatory.

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Table 1. Tooth brushing ant its frequency among dental students at different study levels.

Stage	Tooth brushing		Frequency			
	Yes	No	Less than one /day	Once /day	Twice / day	Three times / day
	No (%)	No (%)	No (%)	No (%)	No (%)	No (%)
First	30	0	0	19	10	1
Second	26	4	2	11	12	1
Third	24	6	3	15	5	1
Total	80 (88.9)	10 (11.1)	5 (6.25)	45 (56.25)	27 (33.75)	3 (3.75)
Fourth	30	0	0	9	21	0
Fifth	30	0	0	20	8	2
Total	60 (100)	0	0	29 (48.34)	29 (48.34)	2 (3.32)

Table 2. Using and types of interdental cleaning measures among dental students at different study levels.

Stage	Interdental means		Types of interdental measures	
	Yes	No	Dental floss	Tooth picks
	No (%)	No (%)	No (%)	No (%)
First	5	25	4	1
Second	7	23	6	1
Third	9	21	7	2
Total	21 (23.33)	69 76.67)	17 (80.95)	4 (19.05)
Fourth	13	17	12	1
Fifth	18	12	16	2
Total	31 (51.67)	29 (48.33)	28 (90.32)	3 (9.68)

Figure 1. Means of PLI & GI according to the level of study

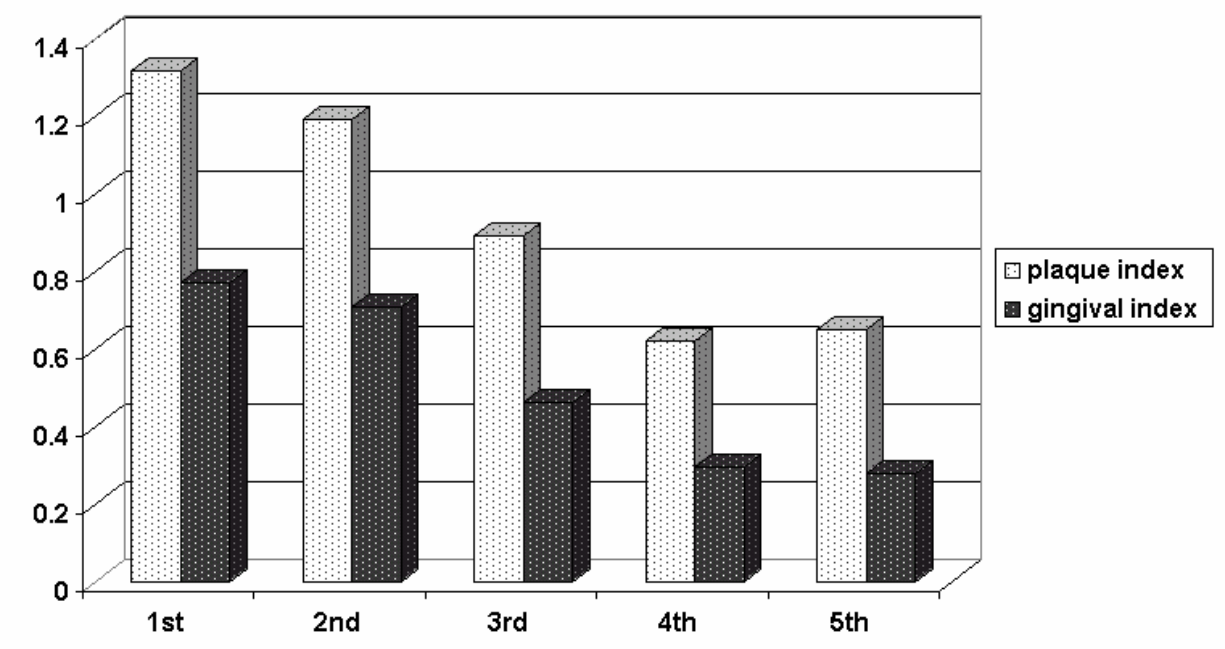

Table 3. Comparative differences of PLI with the graduation of dental students

STAGES	Mean	Std. Deviation	STAGES	Mean	Std. Deviation	P-value	Significance
FIRST	1.3310	.3085	SECOND	1.1963	.1648	.025	S*
SECOND	1.1963	.1648	THIRD	.9269	.3612	.000	HS
THIRD	.9269	.3612	FORTH	.6217	.2233	.000	HS**
FORTH	.6217	.2233	FIFTH	.6490	.2443	.567	NS***

* S = Significant ** HS = Highly significant *** NS = Non significant

Table 4. Comparative differences of GI with the graduation of dental students

STAGES	Mean	Std. Deviation	STAGES	Mean	Std. Deviation	P-value	Significance
FIRST	.7696	.3126	SECOND	7094	.2289	.405	NS
SECOND	.7094	.2289	THIRD	.4615	.3552	.000	HS**
THIRD	.4615	.3552	FORTH	.2961	.2100	.026	S*
FORTH	.2961	.2100	FIFTH	.2778	.1885	.671	NS***

* S = Significant ** HS = Highly significant *** NS = Non significant