

Article

Oral Health Attitudes and Oral Hygiene Status of First- and Fourth-Year Dental Students at the College of Dentistry, University of Baghdad

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Abstract: Dental students are expected to maintain good oral health and promote preventive oral care among their future patients. Their oral hygiene practices and attitudes are influenced by the education they receive throughout their training. This study evaluated the oral health attitudes and oral hygiene status of first- and fourth-year dental students at the College of Dentistry, University of Baghdad, and compared the findings according to academic year and gender. A cross-sectional study included 50 randomly selected volunteer students (25 from each academic year). Participants completed a questionnaire on oral hygiene practices and underwent clinical examination using the Plaque Index (PI), Gingival Index (GI), and Pocket Depth (PD). Statistical analysis was performed using the independent t-test for PI and GI and the chi-square test for PD. Fourth-year students showed lower plaque and gingival index scores than first-year students, indicating better oral hygiene. Female students generally demonstrated better oral health than male students in both academic years. Most participants had normal pocket depth measurements. However, the differences between groups were not statistically significant. Oral hygiene and oral health attitudes appeared to improve with advancing dental education, and female students demonstrated slightly better oral health than males. Although these differences were not statistically significant, the findings suggest a positive influence of dental education on students' oral health practices.

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1. Introduction

Oral health is an integral part of general health and plays a significant role in maintaining an individual's overall well-being and quality of life. Dentists are responsible not only for treating oral diseases but also for educating patients and encouraging preventive oral health practices. Therefore, developing appropriate knowledge, attitudes, and behaviors toward oral health during undergraduate dental education is essential. Future dentists are expected to serve as role models for their patients by practicing good oral hygiene themselves. Studies have shown that dental education has a positive influence on students' awareness and attitudes, enabling them to motivate patients more effectively while also improving their own oral health practices. [1]–[3] Oral health is influenced by biological, behavioral, environmental, and socioeconomic factors, making prevention and health promotion key components of dental care. [4]–[6]

The perception of oral health and personal oral hygiene practices varies among individuals and is affected by education, culture, and lifestyle. Dental students are expected to demonstrate positive oral health attitudes because they represent future oral health professionals. Previous studies have reported that female students generally

exhibit better oral hygiene practices and greater concern for oral health than males. [7]–[9] However, the effect of dental education on students' oral health behavior remains controversial. While several investigations have reported significant improvements in oral hygiene practices as students progress through their clinical training, others have found little or no change despite increased theoretical knowledge. [3], [10]–[14]

Dental plaque is the primary etiological factor for gingivitis and periodontal disease, making effective plaque control fundamental to maintaining oral health. Mechanical plaque removal through regular tooth brushing and the use of interdental cleaning aids remains the most effective preventive measure against periodontal disease. [16]–[18] Since dental students are expected to educate patients about preventive oral care, assessing their own oral health status and attitudes provides valuable insight into the effectiveness of dental education and highlights areas where further reinforcement may be required.

2. Materials and Methods

Study Design and Participants

A cross-sectional study was conducted at the College of Dentistry, University of Baghdad, involving 50 undergraduate dental students. The participants were randomly selected and equally distributed between the first and fourth academic years, with 25 students from each class. Each group consisted of 15 male and 10 female volunteers. First-year students were designated as Group A, while fourth-year students were designated as Group B.

Clinical Examination

Each participant completed a questionnaire regarding tooth-brushing habits, brushing frequency, use of interdental cleaning aids, previous dental treatment, and relevant medical history before the clinical examination. Oral hygiene status was then assessed by recording the Plaque Index (PI), Gingival Index (GI), and Pocket Depth (PD). All teeth, except third molars, were included in the examination.

The Plaque Index was recorded according to the criteria of Silness and Loe (1964), which evaluates the amount of plaque accumulated on the gingival third of the tooth surface. The Gingival Index was assessed following the method described by Loe (1967) using a blunt periodontal probe to evaluate the severity of gingival inflammation. Pocket depth was measured from the gingival margin to the base of the periodontal pocket without excessive probing force and was categorized as 0–3 mm, 4–5 mm, or ≥ 6 mm.

Clinical examinations were performed using a mouth mirror, explorer, tweezers, periodontal probes (Michigan O and Williams), cotton rolls, and standard infection-control materials, including gloves, masks, alcohol disinfectant, and sterilized instruments. After completion of the examination, all students received oral hygiene instructions and motivation regarding proper plaque control.

3. Results

Table 1 summarizes the descriptive statistics for fourth-year dental students. Male students showed a mean Plaque Index (PI) of 0.9354 compared with 0.7878 among females. The mean Gingival Index (GI) was 1.0616 for males and 0.8799 for females, indicating slightly better oral hygiene among female students.

Table 1. Summarizes the descriptive statistics for fourth-year dental students

Variable	Male	Female
PI Mean	0.9354	0.7878
PI SD	0.304703	0.453882
GI Mean	1.0616	0.8799

GI SD	0.081902	0.273057
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Table 2 presents first-year students. Male students had higher PI (1.095067) than females (0.7917). GI values were similar between sexes (1.056933 vs 1.0421).

Table 2. Summarizes the descriptive statistics for first-year dental students

Variable	Male	Female
PI Mean	1.095067	0.7917
PI SD	0.185361	0.446307
GI Mean	1.056933	1.0421
GI SD	0.075845	0.048354

Comparison between academic years showed lower PI and GI values in fourth-year students, although independent t-tests demonstrated no statistically significant differences for either sex.

Table 3. Comparison between academic according to PI and GI values

Variable	Male	Female	Significance
PI p	0.104	0.988	NS
GI p	0.888	0.095	NS

Pocket depth findings revealed a higher proportion of Score 1 among fourth-year students.

Table 4. Pocket depth findings

Group	Male S1	Male S2	Female S1	Female S2
4th	15	0	9	1
1st	12	3	8	2

Chi-square analysis demonstrated a significant difference in pocket depth among male students ($P=0.049$), whereas the difference among females was not significant ($P=0.531$).

4. Discussion

The present study demonstrated that fourth-year dental students had better oral hygiene than first-year students, as evidenced by lower Plaque Index and Gingival Index scores and a greater proportion of normal periodontal pocket depths. Although these differences were not statistically significant for most variables, the findings suggest that clinical education and increased exposure to preventive dentistry may positively influence students' oral health practices. Similar improvements in oral hygiene behavior among senior dental students have been reported by Cortes et al. [3] and by La et al., Cavaillon et al., and Yildiz et al., who found that oral health awareness and self-care improved as students advanced through their dental education. [10]–[12]

Female students generally demonstrated better oral hygiene than male students, showing lower plaque accumulation and gingival inflammation in both academic years. These findings are consistent with previous studies that reported greater interest in oral health and more favorable oral hygiene behaviors among female dental students. [7]–[9] However, the absence of statistically significant differences between most study groups may be related to the relatively small sample size, which could have limited the statistical

power of the analysis. Similar findings were reported by Ayser N. Mohammad among Iraqi dental students, who concluded that although female students exhibited better oral health practices, both male and female students still required improvement to become effective role models for their patients. [14]–[18]

Overall, the results emphasize the importance of strengthening preventive oral health education, particularly during the preclinical years, to encourage lifelong positive oral hygiene behaviors.

5. Conclusion

The findings of this study indicate that fourth-year dental students had better oral hygiene than first-year students, as demonstrated by lower Plaque Index and Gingival Index scores and generally healthier periodontal conditions.

Female students also showed slightly better oral health practices than male students. Although most differences were not statistically significant, the results suggest that clinical dental education has a positive influence on students' oral health behavior. Greater emphasis should be placed on preventive oral health education during the preclinical years to encourage lifelong oral hygiene practices and prepare future dentists to serve as positive role models for their patients.

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