

Frequency of Periodontal Therapy Re-evaluation and Maintenance by the Students at Riyadh Elm University, Saudi Arabia - A Retrospective Study

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Abstract

Introduction: The importance of re-evaluation and maintenance in periodontal therapy is essential to the success of any treatment modality. And this retrospective study aimed to shed light on the adherence to re-evaluation and maintenance in periodontal therapy and monitor the overall performance frequency of these procedures by undergraduate and postgraduate students.

Materials and Methods: The study was conducted in the Riyadh Elm University's clinics in Riyadh, Saudi Arabia. Screening the electronic filing system used by the university to record treatment procedures; the study sample consisted of male and female undergraduate dental students, alongside postgraduate students in the Periodontics masters and Saudi board programs. Statistical testing was done using both SPSS™ version 22 and Microsoft Excel™ and the descriptive statistics were used to summarize all variables and presented as modes and percentages.

Results: The total number of files that fit the inclusion criteria was 2371 in all the clinical compounds. Periodontal re-evaluation done in the male undergraduate clinics was (3%) of all cases, and in the female undergraduate clinics it was slightly higher at (4.5%), and finally in the postgraduate clinics it was much higher than both the undergraduate clinics at (54.6%). The maintenance visits done in male undergraduate clinics was (1.3%) of all cases, and in the female undergraduate clinics it was slightly lower at (0.8%), and finally in the postgraduate clinics it was higher than both the undergraduate clinics at (20.3%). The differences between all the groups in both reevaluation and maintenance was statistically significant ($p < 0.05$).

Conclusion: Efforts should be made toward raising the importance of re-evaluation and maintenance among undergraduate students, educating patients and encourage their compliance in this matter would have a positive effect over the periodontal prognosis of the population in the coming years.

Keywords: Periodontal Therapy; Re-Evaluation; Maintenance; Periodontics; Dental Education; Frequency; Riyadh; Saudi Arabia

Introduction

Periodontal disease is a chronic destructive condition that affects a large portion of the population and it's one of the major causes of tooth loss in Adults [1]. Proper diagnosis is essential for a good treatment outcome, therefore assessment of periodontal treatment is a combination of analysis of history and evaluation of clinical signs and symptoms as well as a result of different clinical tests like the gingival index, probing depth, mobility assessment, radiographic examination, etc [2].

On the other hand re-evaluation of periodontal status after phase I therapy is no less important than the initial examination itself, re-evaluation plays a crucial rule in decision-making and measuring the response toward conventional periodontal treatment [3].

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Periodontal maintenance which is a part of the periodontal treatment starts after completion of periodontal therapy and continues at varying intervals of dental life determined by the dental practitioner for each individual case and encompasses a lot of objectives in periodontal therapy as to prevent or reduce tooth loss and minimize recurrence and progression of periodontal disease [4].

In a study conducted in Sweden and US in 1970 patients making more frequent visits between 2 weeks to 3 months showed an improvement in their periodontal condition compared with those who didn't attend, which indicates that periodontal maintenance is mandatory for long-term periodontal stability [5]. Speculation of tooth loss during a minimum of 5 years of periodontal maintenance after undergoing a periodontal therapy has been studied by the university of Sao Paulo, school of dentistry. And the study indicated that long-term periodontal therapy maintenance could decrease the levels of tooth loss. Furthermore, long term maintenance results in maintaining periodontal health as well as preventing tooth loss in most patients [6].

Two important points to be considered in periodontal maintenance, the first is that the participation of the patient in the overall process by controlling the dental biofilm accumulation, and the other is to show full commitment towards the maintenance appointments [7].

Unfortunately, many practitioners override the importance of these steps and eventually it goes over-looked, the aim of this study is to detect the frequency of which the undergraduate and postgraduate dental students in the Riyadh Elm University perform the phase I re-evaluation and maintenance throughout their periodontal treatment.

Materials and Methods

The retrospective study was conducted in multiple clinical compounds associated with the Riyadh Elm University after the IRB approval (RC/IRB/2019/7) was obtained from the Research Center at the aforementioned institute. Approval was granted to access the patients' files and screen the procedures that were done throughout the treatment of each patient.

The data was collected using the electronic dental filling system, the Dentoplus® system, which is used for recording dental procedures performed by all the dental practitioners in the Riyadh Elm University's clinics. The studied data was randomly selected using the random convenient sampling method of patients that were treated from the 30th of June 2017 to the 30th of June 2018 in the University's Clinical compounds. The study sample consisted of male and female undergraduate dental students, and postgraduate students in the Periodontics masters and Saudi board programs.

The three University Clinical compounds were located in the north-east and the middle parts of Riyadh city. The first clinical compound is assigned to the male undergraduate students, the second is assigned to the female undergraduate students, and the third is assigned to the postgraduate students of both genders.

The Dentoplus® system uses the codes system to document the procedures. The files were screened one at a time and all the codes encoded in each file were searched. The re-evaluation procedure after the phase I periodontal therapy has the code 628 in the system, and the maintenance visit after the completion of the periodontal therapy has the code 620 in the system. The data was encoded in a specially designed template on Microsoft Excel to be processed. For the file to be included the patient must have had a definitive treatment plan formulated and approved by the clinical supervisors and the patient had undergone periodontal treatment. Files for patients that underwent emergency treatments only, patients that refused to undergo certain treatment options, and patients that asked for only their chief complaint to be treated were excluded from this study.

As a pilot study to measure the reliability of the proposed methodology and to measure the intra-examiner and the inter-examiner reliability of the collected data, readings following the described outlines for 5 files were taken before the data collection step by three examiners and then taken again after 1 week, then Cohen's Kappa test was used to measure the agreement between the readings. The values for the various readings ranged between 0.84 to 0.90, which is interpreted as a "very good" strength of agreement [8] and an "almost perfect agreement" [9].

SPSS™ version 22 and Microsoft Excel™ were used to perform the statistical test on the data. Descriptive statistics were used to summarize all variables and presented as modes and percentages. Correlations between the groups was tested using SPSS™ version 22 via the chi-square test. Values were considered statistically significant when P-value was < 0.05.

Results

The total number of files screened was 9351 in all the clinical compounds, after the exclusion of the files that didn't meet the inclusion criteria; the final number of included files was 2371 in all the clinical compounds. 959 files were in the male undergraduate students clinics, 969 were in the female undergraduate students clinics, and 443 were in the postgraduate clinics.

The number of cases that had periodontal re-evaluation done in the male undergraduate clinics was 29 out of 959 (3%) files, and in the female undergraduate clinics it was slightly higher at 44 out of 969 (4.5%) files, and finally in the postgraduate clinics it was much higher than both the undergraduate clinics at 242 out of 443 (54.6%) files. The differences between all the groups was statistically significant (p < 0.05). (Table 1 and 3).

	Total	Did Re-Evaluation		Didn't Do Re-Evaluation	
		n	%	n	%
Male Undergraduate Students	959	29	3%	930	97%
Female Undergraduate Students	969	44	4.5%	925	95.5%
Postgraduate Students	443	242	54.6%	201	45.7%

Table 1: Frequency of the re-evaluation in the 3 clinical compounds.

And the number of maintenance visits done in male undergraduate clinics was 12 out of 959 (1.3%) files, and in the female undergraduate clinics it was slightly lower at 8 out of 969 (0.8%) files, and finally in the postgraduate clinics it was higher than both the undergraduate clinics at 90 out of 443 (20.3%) files. The differences between all the groups was statistically significant (p < 0.05) (Table 2 and 3).

	Total	Did Maintenance		Didn't Do Maintenance	
		n	%	n	%
Male Undergraduate Students	959	12	1.3%	947	98.7%
Female Undergraduate Students	969	8	0.8%	961	99.2%
Postgraduate Students	443	90	20.3%	353	79.7%

Table 2: Frequency of the maintenance in the 3 clinical compounds.

Re-Evaluation			
	Male Undergraduate Students	Female Undergraduate Students	Postgraduate Students
Male Undergraduate Students	-	.000	.000
Female Undergraduate Students	.000	-	.000
Postgraduate Students	.000	.000	-
Maintenance			
	Male Undergraduate Students	Female Undergraduate Students	Postgraduate Students
Male Undergraduate Students	-	.000	.000
Female Undergraduate Students	.000	-	.000
Postgraduate Students	.000	.000	-

Table 3: Comparison of re-evaluation and maintenance between the three different groups.

The number of re-evaluation was higher than the number of maintenance visits for the male undergraduate students, female undergraduate students, and postgraduate students. The postgraduate students had higher numbers for both re-evaluation and maintenance visits than the two undergraduate groups (Figure 1 and 2).

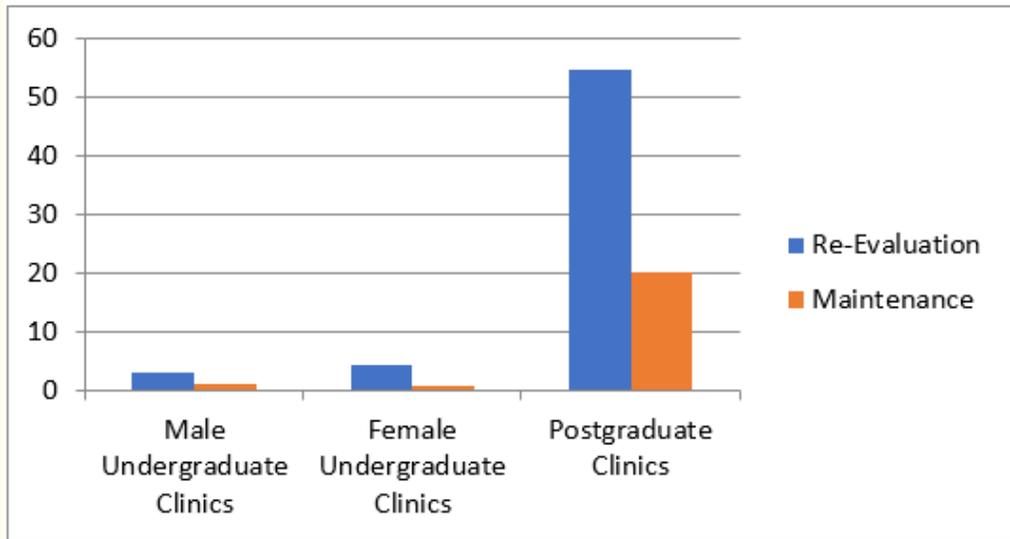


Figure 1: Comparison of the re-evaluation and maintenance between the 3 clinical compounds.

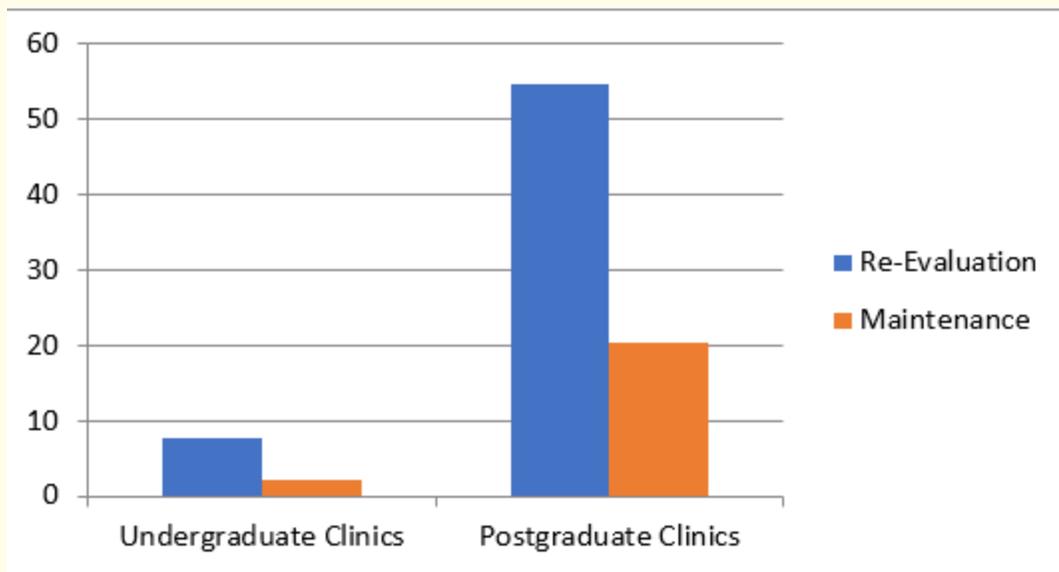


Figure 2: Comparison of the re-evaluation and maintenance between the undergraduate and postgraduate students.

Taking a closer look at the re-evaluation and maintenance between the three groups, it shows the maintenance numbers being lower than the re-evaluation by more than 50%. As the reduction in the male undergraduate students group was 56.6%, and it was 82.2% in the female undergraduate students group, and even for the postgraduate group the reduction was 62.8%. With the differences between all the groups being statistically significant ($p < 0.05$) (Table 4).

	Reduction	Pearson Chi-Square	df	Sig.
Male Undergraduate Students	56.6%	389.704	1	.000
Female Undergraduate Students	82.2%	169.582	1	.000
Postgraduate Students	62.8%	93.811	1	.000

Table 4: Comparison between re-evaluation and maintenance within the same group.

Discussion

The importance of the re-evaluation and maintenance visits are evident in the literature, with higher success rates of conventional and surgical treatment modalities, higher esthetics outcomes, lower incidences of tooth loss, and lower recurrence of the periodontal diseases [4-6,10].

In the current study, one may notice a much higher frequency of re-evaluation in the postgraduate students clinics with almost half of the patient whom undergone the phase I periodontal therapy had also gone through the re-evaluation process, whereas in the undergraduate students clinics for both males and females the frequency was very minimal being less than 5%. This could be attributed to the fact that the periodontal postgraduate students are required to follow-up their treatment in order to either report a successful treatment or schedule the patient for further advanced treatment, while the undergraduate students tend to focus on completing the restorative, endodontic and prosthetic treatments in order to complete their clinical requirements. The same findings were reported by Sang E Park and Nadeem Y Karimbux [11] where the re-evaluation of the periodontal procedures was low when a numerical procedures requirements was followed, and it increased when the switch toward case completion was implemented as a method of grading the clinical performance of the students.

In regard to maintenance, one fifth of the patients treated in the postgraduate students clinics had gone through the maintenance process. While on the other hand 1 in 100 of the treated patients by the undergraduate students for both males and females had gone through the maintenance process. The low frequency in the undergraduate clinics could be attributed to the same reason as the low frequency of re-evaluation. And these findings are in accordance with the reports in the literature, with the addition of the lack of the patients' compliance with the assigned maintenance schedule which hindered the students ability to perform proper periodontal care [12].

But the maintenance numbers dropped significantly from the re-evaluation numbers in the periodontal postgraduate clinics, this could be either due to the negligence of the postgraduate students to follow-up with their patients, or it could be due to the patients' own carelessness in following the maintenance schedule designated by the postgraduate students after the completion of the clinical procedures. The same drop in the patients' adherence to the maintenance schedule was reported in the literature [13] and it was stated that the dentist should adapt various behavioral technique in order to motivate the patient to follow the maintenance schedule and educate them of its importance in the success of the treatment.

No previous researches in the literature has focused on both re-evaluation and maintenance frequencies among dental students and therefore the lack of knowledge in this regard is apparent. And since this study took place in one dental school and with practitioners from one geographic area, the results may not be generalizable beyond this study. It's highly recommended to raise the importance of

re-evaluation and maintenance in the overall treatment sequence of the patients attending the dental students clinics and specially the undergraduate clinics, and the patients should be educated on the importance of the maintenance visits to the success of the treatment.

Conclusion

The frequency of re-evaluation and maintenance is low amongst all the dental students, and it's significantly lower in the undergraduate clinics. Efforts should be made toward raising the importance of re-evaluation and maintenance among the students in the coming years.

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