

Evaluation of the Relationship between the Pre-Clinical and Clinical Courses Grades of Dental Students in Tabriz University of Medical Sciences

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Abstract

Aims: The present study was carried out to evaluate the relationship between the grades of pre-clinical and clinical courses of endodontics, fixed prosthodontics and restorative dentistry achieved by dental students entering Tabriz Faculty of Dentistry in 2009, 2010 and 2011.

Materials and methods: The subjects in this retrospective cross-sectional study consisted of dental students entering Tabriz Faculty of Dentistry in 2009, 2010 and 2011 (n=48 students each year). The grades of the students in restorative dentistry, fixed prosthodontics, endodontics I (pre-clinic) and endodontics II (clinic) courses were recorded by referring to the Archives of the Education Office of the Faculty. The means and standard deviations of the grades were calculated. T-test was used to compare the means and standard deviations with SPSS. Statistical significance was set at $P < 0.05$.

Results: There were significant differences in all the grades between the clinical and pre-clinical lessons ($P < 0.05$). In relation to the operative dentistry and endodontics courses, the clinical courses grades were significantly lower than those in the pre-clinic courses ($P < 0.05$). However, in relation to the practical fixed prosthodontics courses, the grades in clinical courses were significantly higher than those in the pre-clinical courses ($P < 0.05$).

Conclusion: Under the limitations of the present study, of all the grades in the clinical courses, the grades in the practical fixed prosthodontics courses were higher than those in the pre-clinical courses.

Keywords: Endodontics, restorative dentistry, fixed prosthodontics, pre-clinic, clinic.

I. Introduction

Promotion of the quality of education requires continuous evaluation of educational status of university students during the whole study period and comparison of their grades at different stages of education (1). Dentistry is a combination of art and science. A harmony between what is learned and what is applied in the clinic is of utmost importance (2). Professors should provide a situation so that as the students learn the theoretical lessons, they can gain skills in the clinic, too (3). Keeves and Larkin (1966) carried out a super analysis of the projects that have evaluated the relationship between the final progress in learning with the initial progress and reported that the final progress in learning has a significant relationship with the initial progress (4).

In addition, Danesh Kazemi et al (2014) carried out a study to evaluate the correlation between the grades in theoretical and practical lessons of restorative dentistry in dental students in Yazd University of Medical Sciences and reported a significant correlation between the grades in all the theoretical and practical lessons of restorative dentistry (5). However, Adhami et al (2012) did not report a significant correlation between the correlation coefficients of the grades in practical and theoretical lessons in pharmacology students in Kerman University of Medical Sciences (6). In the field of dental education, the transition from the pre-clinical period to the clinical period is very sensitive because the students have to attend the clinic and render services to patients. Evaluation and comparison of the grade achieved during these two periods might reveal the weak and strong points of students in learning the practical aspects of the related lessons. In addition, such comparison might create the proper conditions in which the professors can adapt the pre-clinical lessons to the needs of students in the clinic so that the scientific knowledge of students can be improved. Furthermore the

university can determine its and the professors' strong and weak points and prepare proper guidelines for the promotion of the quality of education (7–9).

No studies to date have compared the relationship between the pre-clinical and clinical grades of dental students. The aim of the present study was to compare the grades in the pre-clinical and clinical courses of endodontics, fixed prosthodontics and restorative dentistry achieved by dental students entering Tabriz Faculty of Dentistry in 2009, 2010 and 2011.

II. Methods

The subjects in the present retrospective cross-sectional study consisted of dental students entering Tabriz Faculty of Dentistry in 2009, 2010 and 2011 (n=48 students each year). The lessons and courses evaluated were endodontics, fixed prosthodontics and restorative dentistry (both pre-clinical and clinical). The students' grades in these lessons were extracted from the Archives of the Evolution Office of the Faculty. The means and standard deviations of the grades were calculated for each lesson. T-test was used to compare the mean grades between the pre-clinical and clinical units in each field for all the students with SPSS. Statistical significant was defined at $P < 0.05$.

III. Results

Table 1 presents the means and standard deviations of the lessons evaluated, separately for students in each year. In all the three groups of students and in all the lessons, there were significant differences between the pre-clinical and clinical grades ($P < 0.05$). In relation to the grades in restorative dentistry and endodontics, the grades in the clinical lessons were significantly lower than those in the pre-clinical lessons ($P < 0.05$). However, in relation to the fixed prosthodontics, in all the three student groups, the grades in the clinic were higher than those in the pre-clinic ($P < 0.05$) (Table 1).

IV. Discussion

The present study was undertaken to determine the correlation coefficients between the grades in the restorative dentistry, endodontics and fixed prosthodontics lessons in the clinical and pre-clinical courses of students in the Faculty of Dentistry, Tabriz University of Medical Sciences.

Overwhelming evidence indicates that an educational system is able to fulfill its responsibility and achieve its aim only if it enjoys good educational quality (10–12). A review of the current trends in higher education systems shows that higher education should focus on the preservation of and improvements in the quality of education concomitant with attention to the crisis of an increase in quantity and financial restraints (13–17).

The results of the present study showed that the mean grades of the dental students in operative dentistry and endodontics units in the clinic were less than those achieved in the pre-clinic, which might be attributed to the weakness of students that have lingered on from the restorative dentistry and endodontics in the practical lessons of the pre-clinical period, which are manifested during the stages of diagnosis and treatment planning for the patients in the clinic. Another reason for the significant differences in the students grades in the restorative dentistry and endodontics between the clinical and pre-clinical units might be the fact that the endodontics lessons are not presented simultaneous with restorative dentistry lessons and students are engaged in the practical courses at a time when they might not have studied the relevant theoretical lessons and might not be completely familiar with what is discussed in the practical lessons. Therefore it is suggested that at the beginning of the practical courses, the students take an exam as a prerequisite for the practical course to motivate the students for taking part in the practical courses. Other reason for the difference between the grades of the lessons evaluated in the present study might be related to the professors teaching the relevant course and the techniques used to teach or organize them, students' interests in the relevant lessons, the students' self-confidence to render treatment to patients in the clinic and how they establish a relationship with the patients and the patients' cooperation, the harmony between the pre-clinical and clinical programs and finally the effect of the activities carried out in the pre-clinic on the skills and expertise of students in the clinic.

Keeves (1986) is recognized as a researcher who has tried for many years to determine factors affecting institutional learning. Keeves published an analytical report entitled performance cycle, reporting that the initial progress directly affects the final progress (18). Keeves and Larkin (1996), too, carried out a super analysis on projects evaluating the relationship between the final progress in learning with initial progress and reported a significant relationship between the final progress and the initial progress (19).

It is obvious that the students' knowledge level is one of the factors affecting the harmony between the theoretical and clinical education (20–24). The American Supreme Council of Nursing has reported that in order to improve the performance of students in the clinic, there should be a harmony between the theoretical and practical lessons; therefore, there are specific standards that determine the presence of harmony between the practical and theoretical lessons' hours (25).

V. Conclusion

Generally, in the field of medical education, with the dental field being no exception, performance in the clinic is very important. In this context, the bulk of such expertise is achieved in the pre-clinic. Therefore, attention to this period and high-level simulation of working in the clinic can help students promote their clinical performance.

Table 1 The means and standard deviations of the students' grades in the lessons evaluated

Lesson unit Entrance year	Practical restorative dentistry I	Practical restorative dentistry II	Practical endodontics I	Practical endodontics II	Practical fixed prosthodontics I	Practical fixed prosthodontics II
2009	16.62±3.19	16.11±0.74	17.53±1.60	15.90±1.37	16.86±1.49	17.68±1.04
2010	15.93±4.15	15.14±1.32	16.93±1.25	15.68±1.41	15.1±2.02	16.58±2
2011	16.12±1.30	15.53±0.79	16.17±1.41	14.16±1.41	14.19±2.5	17.24±1.74

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