

## Abstract

### **Investigating common errors during restoration and its occurrence rate in the Faculty of Dentistry of Ardabil University of Medical Sciences in the first half of 1401-1402: a qualitative-quantitative study.**

**Introduction:** Evaluation of restoration treatment errors made by dental students is necessary to highlight learning problems that need improvement; Therefore, the current study was conducted with the aim of investigating the common errors during restoration from the point of view of professors and its occurrence rate in Ardabil University of Medical Sciences in the first semester of 1401-1402: a qualitative-quantitative study.

**Materials and methods:** The present study was of a mixed type (qualitative-quantitative) which was conducted in two phases as follows: in the first phase, a two-stage Delphi method was used, and the second phase of the study was carried out cross-sectionally. In the first phase, three professors determined the areas of possible errors using Delphi. Next, these areas and demographic information were provided to 20 students with high and low GPAs (10 students each) and they were asked what errors they have in the mentioned areas. Students mentioned errors for each field and finally 39 items (errors) were identified in 10 investigated fields. The detected errors were placed in a checklist and again given to 20 students with upper and lower limit scores to give a score between 1 and 10 based on the importance of the errors, the cases where the average score was below 5.5, was removed and finally 15 error items were considered as high importance errors. Based on the 15 identified errors, the second questionnaire was designed so that the students of the last 3 semesters (45 students) answered the designed questionnaire and determined the amount of errors made in the operative department. After collecting the questionnaires, it was analyzed using independent t-test and one-way analysis of variance between groups using SPSS version 26 software.

**Results:** The results of the investigation showed that out of 39 errors presented by experts in the quality section, errors: 1- Improper insulation using rubber dam (not replacing the torn rubber dam or not punching the band correctly (size-location) or in going or breaking the clamp ), 2- Pouring amalgam in the patient's mouth, 3- Improper reconstruction of the anatomy of composite restorations (open contact - over contour - under contour) and 4 - leaving the bonding bottle and composite tube open were among the 4 high priority errors. Among the highest percentage of errors that were reported by the students in most cases, respectively, they include the use of a defective turbine or bur (24.4%), pouring amalgam into the patient's mouth (26.7%), leaving the bonding bottle and tube open. composite (20 percent) and direct light radiation of the unit to the composite during work (28.9 percent). Also, the results showed that there was no significant difference between male and female students in most of the mentioned errors ( $P < 0.05$ ), and the student's grade point average had no effect on the occurrence of errors ( $P < 0.05$ ).

**Conclusion:** Dental students of Ardabil University of Medical Sciences had errors in the restoration department, which can be reduced with careful planning.

**Keywords:** medical errors, operative dentistry, Delphi technique.