Original Article

A retrospective evaluation of restorations performed at the restorative dental treatment clinic of the dentistry faculty in Adiyaman university

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Abstract

Aim: The study aims to retrospectively evaluate the distribution of the restorations performed at the Restorative Dental Treatment Clinic of the Dentistry Faculty in Adiyaman University between 2016 and 2019 in terms of age, gender and teeth groups.

Materials and Methods: In order to examine the distribution of the restorations according to age groups, 5 different age groups were formed as 16-25, 26-35, 36-45, 46-55, and 56 and above. The distribution of the restorations according to teeth groups was evaluated in groups of incisor teeth, premolar teeth and molar teeth. The data obtained were expressed numerically (percentages), and bilateral comparison between the groups were made through Chi-Square (χ2) test.

Results: In the study, 9,720 restorations performed on 4,530 patients were examined. 5,951 (59%) of the restorations were performed on females, while 3,769 (41%) of the restorations were applied to male patients. The group that received the most restorations was 16-25 age groups, whereas the least restorations were performed on the age group of 56 and above. When the distribution of the restorations was examined in terms of teeth groups, it was determined that molars were the teeth group which were restored the most, which were followed by incisor teeth group and premolar teeth group, respectively.

Conclusion: When the restorations performed at the restorative dentistry were examined in terms of age, gender and teeth groups, it was determined that the need for dental treatment was the most in the young population and females. When it is considered that it was the molar teeth that needed the most treatment, it can be concluded that this situation should be evaluated in the practices of public oral and dental health and preventive dentistry.

Keywords: Age groups; dental caries; gender; molar teeth

INTRODUCTION

Oral and dental diseases are among the prevalent health problems observed in our country and all over the world. Of these diseases, one of the most prevalent ones is dental caries(1) Dental caries is defined as the destruction caused by the acids formed by cariogenic bacteria on tooth hard tissue. Some basis factors such as bacteria plaque, diet, host and duration as well as indirect and secondary factors such as age, gender, saliva, oral hygiene and socio-economic status can be effective in cavity formation and prevalence.

In order to protect oral and dental health, which is indispensable for a health and quality life, it is necessary to make preventive treatment widespread and to treat those in need of treatment through appropriate methods (2). Therefore, evaluation of patients in terms of cavity potential is of great importance in increasing preventive measures in the society. Especially the individual's past cavity and restoration experience can be a significant parameter for identifying caries risk. For this reason, identification of present cavity lesions, the teeth where these lesions occur and/or restored teeth are very important for assessing dental caries risk (3).

Today it is possible to restore disrupted oral and dental health due to cavity, wearing, trauma and similar reasons by using restorative materials. For this purpose, a variety of filling materials such as amalgam, composite and glass ionomer cements have been developed and frequently used from past to present (4). In choosing the ideal material among different varieties of restorative filling materials with different features, the areas where the restorative material will be used, its advantages and disadvantages are important factors that should be considered (5). Dentistry faculty clinics, public hospitals and private clinics offer services for eliminating oral and dental health problems. However, in a study conducted

on this issue, it was determined that the success rate of the treatments performed at university dental hospitals is much higher in comparison to other clinics (6). In this study, we aim to examine the distribution of restorations performed at the restorative dental clinic of the Dentistry Faculty in Adıyaman University in terms of age, gender and teeth groups.

MATERIALS and METHODS

The study was designed on the retrospective evaluation of the data obtained from the patients who presented to Adıyaman University Dentistry Faculty Restorative Dental Treatment Department between 2016 and 2019 and received tooth filling treatment. Prior to the study, ethical committee approval was obtained from Adıyaman University's non-invasive clinical research ethical committee with the decision numbered 2020/1-18. The restorations performed were evaluated according to gender, age groups and teeth groups. As patients above 16 years of age receive treatment from our clinic, 5 different age groups were formed as 16-25, 26-35, 36-45, 46-55 and 56 and above. The distribution of the restorations in terms of teeth groups was evaluated in three groups as incisor teeth, premolar teeth and molar teeth.

Statistical Analysis

The number of restorations (percentage) was used for the qualitative data obtained from the study. Variables among the groups were tested through Chi-Square (χ2) test.

RESULTS

In the study, 9,720 restorations on 4,539 patients were evaluated. The distribution of all restorations by gender and age groups are presented in Table 1. Of the evaluated restorations, 5951 (59%) belonged to female patients, while 3,769 (41%) were performed on male patients (Figure 1). When gender distribution was examined, it was seen that female patients received more restorations in total and in all age groups compared to male patients (p<0.0001).

Table 1. Distribution of evaluated restorations by gender and age group

| Age groups | All Restorations | | | |
| | Total number of patients | | Total number of teeth | |
	Female	Male	Female	Male
16-25	769	643	1818	1307
26-35	648	396	1394	759
36-45	604	355	1376	671
46-55	391	257	808	520
>55	242	225	555	512
Total	2654	1876	5951	3769

A statistically significant difference was determined in terms of the distribution of restorations by age groups (p<0.00001). The highest number of restorations (32.1%) was performed on the patients in 16-25 age group, which was followed by 26-35 age group with 22.1%, 36-45 age

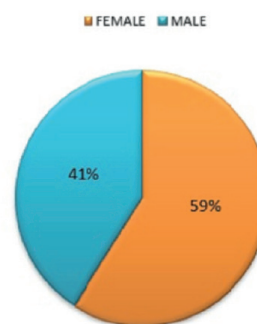group with 21%, 46-55 age group with 13.6% and 56 and above age group with 11%., respectively.

Figure 1. Distribution of treated patients by gender

In the distribution or restorations by teeth groups, a statistical significance was determined (p<0.0001). The teeth group that was restored the most was the molars (38.2%), while the premolar teeth group was the least restored (25.2%). When the restored teeth groups were examined according to age distribution, in all age groups excluding 56 and above, the most restored teeth were the molars, whereas premolar teeth were the least restored group (Figure 2). In the patients at the age of 56 and above, the most restored teeth were the incisor teeth, while the molars were the least restored (Table 2).
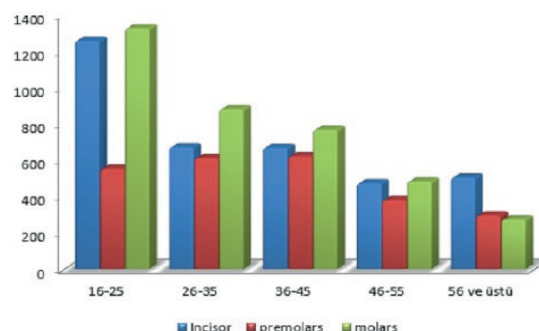

Figure 2. Distribution of restorations by age and tooth groups

Table 2. Distribution of restorations to tooth groups by age

Age groups	Incisors	Premolars	Molars
16-25	1254	550	1321
26-35	668	608	877
36-45	665	618	764
46-55	470	378	480
>55	502	294	271
Total	3559	2448	3713

When the distribution of the restorations by maxilla and mandibula, it was determined that significantly higher number of restorations were performed on maxilla (62%) compared to mandibular bone (38%) (p< 0.0001).

When the distribution of restorations on the jaw by teeth groups was evaluated, it was identified that significantly higher number of restorations were applied on maxillar incisor and premolar teeth in comparison to mandibular incisor and premolar teeth, while more restorations were performed on molars in the mandibular bone compared to maxillary teeth (Figure 3).
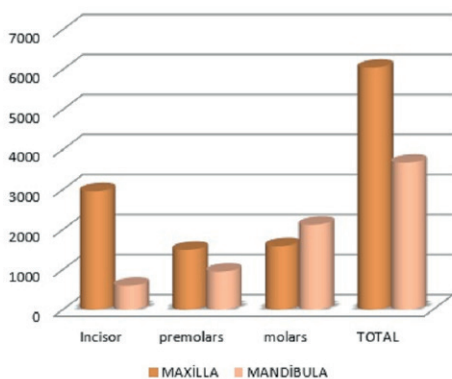

Figure 3. Distribution of restorations by jaw and tooth groups

Finally, among all the teeth, mandibular first molars were the teeth that were subjected to the highest number of restorations (15.3% - 1488 teeth).

DISCUSSION

The collection and analysis of data regarding the caries status and treatment needs in our country will contribute to determining health policies, spreading preventive methods and formation of objectives that will be taken as a basis for the delivery of treatment services. While the studies concentrated on measuring the prevalence and severity of cavities in the literature in the past, in recent years studies have focused on measuring the need for treatment (7). For this purpose, we aimed to evaluate the distribution of the restorations performed on patients receiving dental treatment in our clinic between 2016 and 2019 in terms of gender, age intervals and teeth groups.

Although it may not be possible to determine a correlation between oral and dental health problems and gender, in various epidemiological studies, it has been reported that females are faced with caries risk more than males and need more dental treatment. Among the reasons that have been reported for this situation are such factors as early development of teeth in females, their spending more time in environments such as the kitchen that would lead to cariogenic exposure, and the change in the flow rate and content of saliva that is caused by changing hormonal balance during pregnancy (8-10). It has also been reported that females having more dental restorations compared to males may stem from the fact that females pay more attention to oral and dental health, that they have more aesthetic concerns, that they are more interested in personal care, and that they benefit more from dental treatment services (11). Similar to the literature, we also identified in the study that females (59%) presented more to our clinic than males (41%) and therefore received a higher number of restorations.

In epidemiological research conducted on oral and dental health, there are certain key age groups determined by the World Health Organization, which are 5, 12, 15, 35-44, and 65-74 age groups (7). Since our clinic offers services to 16 years of age and above, we formed 5 age groups as 16-25, 26-35, 36-45, 46-55, and 56 and above. According to the restorations data obtained in the study, it was determined that the highest number of restorations were performed on 16-25 age group, while the least number of restorations were made in the 56 and above age group. In their study in which they evaluated the patients in need of dental treatment according to age groups, Demirci et al. (12) reported that the highest number of patients was in the 12-24 age groups, whereas the patients who needed the least number of dental treatment were in the 55 and above age group. Ince et al. (13) reported, similarly to our study the most restoration is made 16-25 years age group, while the least restoration 56 and above age group. The high incidence of cavity in young individuals, the increasing resistance of teeth against caries with aging, the decrease in the number of teeth to be restored due to teeth loss in older ages was shown as possible reasons for these results (14-16). In their study where they examined the prevalence of cavity in the first molars of young adults, Unlu et al. (3) reported that molars are under a high risk of cavity in young ages. Similarly, in their study, Demirci et al. (12) demonstrated that the highest number of cavity indications was related to the first molar teeth, which were followed by anterior teeth. Sert et al. (17) reported in their study that the first molars received the highest number of endodontic treatments in young ages, while in older ages, anterior teeth were restored more. Similarly, we determined in the study that the teeth group that received the highest number of restorations was the molars, which were followed by incisor teeth and premolar teeth, respectively. In a similar study they conducted on oral and dental health, Yucel et al. reported that molars decayed the most, which were followed by premolar teeth and incisor teeth respectively. The differentiation here can be attributed to the fact that as a result of development of filling materials in the color of teeth and their being commonly used today, incisor teeth are treated more due to trauma and aesthetic concerns as well as decays.

Another remarkable finding in the study was that the number of restorations on molars decreases with age, while along with aging, incisor teeth are treated more in comparison to molars. This situation is attributed to the fact that since molars develop in early ages and their morphological structure is suitable for bacteria plaque to attach, they are exposed to decay risk starting from young ages. Furthermore, the increase in the molar loss in parallel with old age can be shown as a reason for the increased number of incisor teeth restorations in older individuals (16).

When we examined the distribution of restorations according to jaws, it was found that maxillary tooth restorations (62%) were significantly higher than mandibular restorations (38%). Yucel et al. (18) stated

that the cavities and restorations on the maxillar teeth were higher in number compared to the teeth on the mandibula. Similarly, in their study on the distribution of endodontic treatments in terms of teeth groups, Sert et al. (17) reported that more teeth with endodontic treatment were on the maxilla in comparison to mandibula, which they attributed to the higher washing effect of saliva on the mandibular teeth. In the same way, Cobankara and Orucoglu (19) and Ucok et al. (20) reported a higher number of restorations on the maxillar teeth compared to the mandibular teeth.

Finally, in the study, it was identified that among all teeth, molars were the teeth that were restored the most (15.3%-1,488 teeth). This finding we obtained is consistent with many studies in the literature (13,14,20,).

CONCLUSION

As a result of many epidemiological researches, it is seen that the majority of the individuals in the society are experiencing oral and dental health problems starting from early ages. In order to reduce these problems, the results of the studies which examine the distribution of the society's need for dental treatment according to demographic properties such as age and gender should be considered, and rather than a treatment approach, the preventive measures that should be taken should be emphasized. Therefore, it is of great importance to give priority to education about oral and dental health and preventive measures against diseases.

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