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Current treatment approaches of newly graduated, intern dentists and dentists in doctoral and specialty training to teeth with excessive substance loss (cross-sectional study)

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ABSTRACT

Aim: New treatment options have been developed as alternative post-retaining restorations and crowns that preserve remaining tooth tissue in endodontically treated teeth with excessive substance loss. This study, current treatment approaches newly graduated, intern and doctoral or specialist dentists in teeth excessive coronal destruction were evaluated.

Material and Method: This cross-sectional study, online questionnaire consisting of 22 questions, 3 parts was applied. First part consists of demographic information participants, second part consists of questions measuring awareness about preferred indirect restorations, last part consists of current treatment approaches newly graduated, intern and doctoral or specialist dentists. Total 234 voluntary participants questionnaires were evaluated. Obtained data were analyzed with IBM SPSS V23.

Results: In restoration of endodontically treated buccal mesial walls (least 2 mm thick) molars, participants all 3 groups preferred posterior adhesive indirect restorations according to their titles. Considering level of awareness, participants high group preferred posterior adhesive indirect restorations more in restorations endodontically treated buccal lingual walled molar teeth. Participants all 3 groups preferred use fiber under composite strengthen teeth in the restoration of teeth with excessive substance loss.

Conclusion: According to the results, it was determined that awareness and knowledge level of dentists who received specialty or doctoral training about new current treatments was higher than other newly graduated and intern dentists. It was observed that participants group with high level awareness mostly preferred posterior region indirect adhesive restorations such as endocrown and onlay.

Keywords: Doctoral student, dentistry student, endocrown, fiber, onlay

INTRODUCTION

Teeth with excessive substance loss can be treated using direct or indirect methods based on the amount of substance loss (1). The composite resins that are applied with the direct method show sufficient strength against forces due to their force absorption and flexibility properties (2). However, because of the polymerization shrinkage that occurs in the composite resins that are applied using the direct method and water absorption after polymerization may lead to deformation and tooth fractures under forces. As in MOD cavities, as the amount of dental tissue that remains decreases, cavity dimensions increase, the problem of polymerization shrinkage is directly proportional to the amount of the composite resin that needs to be used, and the treatment duration is prolonged with the application of the resin in incremental layers, which causes discomfort in the patient and humidity or saliva contamination in the composite resin (3,4).

Indirect methods can be used in the treatment of teeth that are difficult to restore by direct methods or have substance loss to an extent that cannot be restored. While post and core crown treatments used to be the most frequently performed indirect method in the past, with the advancements in adhesive dentistry, conservative approaches in restorative dentistry have allowed the development of new treatment methods for the restoration of teeth with excessive substance loss (5). In decayed or fractured posterior teeth, in cases where direct restorations are inadequate, restorations such as onlay and endocrown

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restorations can be preferred to achieve the ideal proximal contact and an aesthetic morphology and provide abrasion resistance (5,6). During the preparation of a post chamber in conventional post and core systems, the risk of root perforation can be encountered (7). There is no risk of root perforation or fracture in endocrown, which are adhesive restorations. Additionally, as opposed to conventional crowns, because endocrowns and onlays do not require subgingival placement, they do not lead to gingivitis (8). The endocrown was proposed as a "monoblock technique", and it involves micro retention that is obtained by using the micromechanical retention provided by the opposing axial pulp walls and adhesive cementation (9). Thanks to advanced adhesive techniques, as alternatives to direct restorations and post and core crown applications in teeth with excessive coronal tissue loss, indirect restorations such as inlay, onlay, or endocrown restorations are becoming more prevalent today (1).

Based on studies showing that fiber materials that have been used in dentistry in recent years can be used safely in deep cavities along with composites and increase the strength of teeth, using fiber materials along with composites in the restoration of teeth with excessive substance loss has become an alternative treatment option (10-12).

The purpose of this study is to measure the awareness levels of newly graduated and intern dentists regarding the restoration of teeth with excessive coronal tissue loss and evaluate the current restorative treatment methods they prefer.

The hypotheses of this study were determined as follows:

1. The awareness and knowledge levels of newly graduated dentists involved in specialization or doctoral studies (with at most 3 years of professional experience) regarding current treatments are higher in comparison to other newly graduated and intern dentists.
2. Participants with higher levels of awareness and knowledge regarding current treatments prefer newer treatments such as onlay, composite-supported overlay, and endocrown treatments over conventional treatments such as post and core crowns and direct composite restorations.
3. Participants with higher awareness of current methods prefer using fiber materials.

MATERIAL AND METHOD

Before starting this cross-sectional study was carried out with the permission of İstanbul Medipol University Non-Invasive Clinical Studies Ethics Committee (Date: 10.08.2022, Decision No: 697). All procedures were carried out in accordance with the ethical rules and the principles of the Declaration of Helsinki.

Participants and Design

The sample of this survey study consisted of 234 newly graduated and intern dentists, including 156 female and 78 male participants. Among the participants, 26 were newly graduated dentists, 194 were intern dentists, and 14 were dentists who were involved in specialization or doctoral studies. The inclusion criterion was selected as having at most 3 years of professional experience after graduation. Participation in the survey was voluntary, and the identifying information of the participants was kept confidential. The survey form was created on the Google Forms platform, and the link to the form was shared with the participants via social media.

Survey Design

The survey consisted of 3 parts and a total of 22 questions. The first part included questions on the sociodemographic information of the participants such as gender, age group, and title. The sociodemographic and occupational characteristics of the participants are presented in **Table 1**. The second part of the survey included 6 questions that were prepared to assess the knowledge levels of the participants regarding methods of onlay and endocrown preparations and indirect restorations that are preferred in posterior regions. Each question was worth 1 point for the correct answers and 0 points for the incorrect answers, and a participant providing correct answers to all questions would get 6 points. The third and last part of the survey included questions on the views of the participants towards current treatment approaches in posterior teeth with excessive substance loss. The 13 questions in this part evaluated the preferences of the participants among composite-supported overlay, endocrown, post and core crown, direct composite restoration, and onlay options based on the amount of tissue remaining in molar and premolar teeth and the number of intact walls. The last 2 questions on the survey regarding current treatment approaches assessed whether the participants preferred using fiber materials and which types of fiber materials they used.

Table 1. Demographic characteristics

	Frequency (n) / Mean ± (s. deviation)	Frequency (%) / Median (min. - max.)
Score	4.29 ± 1.53	5 (0 - 6)
Knowledge level		
Low	58	24.8
High	176	75.2
Age	23.26 ± 1.58	23 (21 - 30)
Gender		
Male	78	33.3
Female	156	66.7
Title		
Newly graduated dentist	26	11.1
Intern dentist	194	82.9
Dentist involved in specialization or doctoral studies	14	6

Statistical Analysis

The data were analyzed using IBM SPSS V23. The normal distribution of the data was evaluated using the Kolmogorov-Smirnov test and Shapiro-Wilk test. The Kruskal-Wallis H test was used to compare knowledge scores among 3 or more non-normally distributed groups, and multiple comparisons were examined using Dunn's test.

Pearson's chi-squared and Fisher's exact chi-squared tests were used to compare the categorical variables based on titles and knowledge levels, and the multiple comparisons for these tests were examined using Z-tests with Bonferroni correction. The analysis results are presented with mean ± s. deviation and median (minimum – maximum) values for the quantitative variables and frequency (percentage) values for the categorical variables. The level of statistical significance was taken as $p<0.050$.

RESULTS

The distribution of the knowledge levels of the participants regarding current treatment approaches in the restoration of teeth with excessive substance loss is shown in **Table 2**. The mean, minimum, and maximum scores of the participants were 4.29, 0, and 6, respectively. The median knowledge scores of the newly graduated, intern, and doctorate/specialization groups were 5, 4, and 6, respectively. No statistically significant difference was found in the knowledge levels of the participants based on their titles ($p=0.051$).

The views of the participants towards current approaches in the treatment of teeth with excessive substance loss varied based on their titles and awareness levels. The distribution of the current treatment options preferred by the participants based on their titles is given in **Table 3**. The participants in all 3 title groups mostly preferred direct composite restorations following Class 2 cavity preparations in molar and premolar teeth. Regarding the restorations of molar teeth that have undergone endodontic treatment, have no intact walls, and have margins on the gingival level, while most of the participants in the newly graduated group preferred post and core crown restorations, most of those in the doctorate/specialization group preferred endocrown restorations. Regarding the restorations of molar teeth that have undergone endodontic treatment, have no intact walls, and have margins 2 mm above the gingival level, most of the participants in the doctorate/specialization group preferred endocrown restorations. For the restorations of molar teeth that have undergone endodontic treatment and have only the buccal wall intact (intact and at least 2-mm-thick), while most participants in the newly graduated and intern groups preferred post and core crown restorations, those in the doctorate/specialization group mostly preferred endocrown restorations. In the restorations of molar teeth that have undergone endodontic treatment and have their buccal and lingual walls intact (intact and at least 2-mm-thick), the newly graduated participants mostly preferred endocrown restorations, whereas the intern dentist participants mostly preferred post and core crown restorations. The participants who were involved in specialization or doctoral studies mostly preferred composite-supported overlay restorations, while none of them preferred direct composite restorations. Regarding the restorations of molar teeth that have undergone endodontic treatment and have their buccal and mesial walls intact (intact and at least 2-mm-thick), the participants in all 3 groups preferred onlay, overlay, and endocrown restorations over post and core crown restorations.

For the restorations of premolar teeth that have undergone endodontic treatments, have no intact walls, and have margins 2 mm above the gingival level, most of the newly graduated participants preferred post and core crown restorations, whereas the participants involved in doctoral/specialization studies mostly preferred composite-supported overlay restorations. Regarding the restorations of premolar teeth that have undergone endodontic treatment and have their 2 walls (buccal-lingual or buccal-mesial) intact (at least 2-mm-thick), the participants in all groups mostly preferred posterior adhesive indirect restorations.

The distributions of the preferences of the participants regarding fiber material use and the types of fiber materials they used are presented in **Table 4**. The participants in all 3 groups preferred to use fiber under composites to strengthen the teeth in the restoration of teeth with excessive substance loss. While the newly graduated group preferred everX Posterior, the intern group preferred Ribbond fiber. Those in the doctorate/specialization group had close rates of preference for the two materials.

The distributions of the current treatment approach preferences of the participants based on their awareness and knowledge levels are shown in **Table 5**. In the two groups with low and high levels of awareness, the most frequently preferred type of restoration following Class 2 cavity preparation in molar and premolar teeth was direct composite restoration. Regarding the restorations of molar teeth that have undergone endodontic treatment and have their 2 walls (buccal-lingual or buccal-mesial) intact, while the participants in the group with low levels of awareness mostly preferred direct composite restorations, those in the group with high levels of awareness mostly preferred

posterior adhesive indirect restorations (endocrown, onlay, composite-supported overlay). For the restorations of premolar teeth that have undergone endodontic treatment and have their 2 walls (buccal-lingual or buccal-mesial) intact, the participants in both the groups with low and high levels of awareness preferred posterior adhesive indirect restorations (endocrown, onlay, composite-supported overlay) more. The participants in both groups preferred using fiber material under composite material in the restoration of teeth with excessive substance loss to strengthen the tooth.

Table 2. Comparison of knowledge scores and levels based on titles.

	Newly Graduated	Intern	Doctorate/Specialization	Total	Test stat.	p
Knowledge score	5 (2- 6)[ab]	4 (0- 6)[b]	6 (4- 6)[a]	5 (0- 6)	17.239	<0.001*
Knowledge level					6.814	0.051**
Low	4 (15.4)	54 (27.8)	0 (0)	58 (24.8)		
High	22 (84.6)	140 (72.2)	14 (100)	176 (75.2)		

*Kruskal-Wallis H test, **Pearson's chi-squared test, a-b: There is no significant difference between titles with the same letter.

Table 3. Comparison of treatment preferences based on titles

Treatment preferences: (Assuming that considered walls were intact and at least 2-mm-thick)	Newly Graduated	Intern	Doctorate/ Specialization	Total	Test stat.	p*
Molar with no intact wall, above the gingival level: 1					27.936	0.002
Direct Composite Restoration	1 (3.8)[a]	19 (10.1)[a]	0 (0)	20 (8.8)		
Endocrown	13 (50)[ab]	62 (33)[a]	10 (76.9[b]	85 (37.4)		
Composite-Supported Overlay	3 (11.5)[a]	46 (24.5)[a]	3 (23.1)[a]	52 (22.9)		
Onlay	3 (11.5)[a]	32 (17)[a]	3 (23.1)[a]	38 (16.7)		
Post + Crown	16 (61.5)[a]	92 (48.9)[a]	1 (7.7)[b]	109 (48)		
Molar with intact buccal wall: 1					27.936	0.002
Direct Composite Restoration	1 (3.8)[a]	19 (10.1)[a]	0 (0)	20 (8.8)		
Endocrown	13 (50)[ab]	62 (33)[a]	10 (76.9)[b]	85 (37.4)		
Composite-Supported Overlay	3 (11.5)[a]	46 (24.5)[a]	3 (23.1)[a]	52 (22.9)		
Onlay	3 (11.5)[a]	32 (17)[a]	3 (23.1)[a]	38 (16.7)		
Post + Crown	16 (61.5)[a]	92 (48.9)[a]	1 (7.7)[b]	109 (48)		
Molar with intact buccal and lingual walls: 1					18.052	0.054
Direct Composite Restoration	6 (23.1)	48 (26.2)	0 (0)	54 (24.3)		
Endocrown	10 (38.5)	40 (21.9)	2 (15.4)	52 (23.4)		
Composite-Supported Overlay	5 (19.2)	55 (30.1)	7 (53.8)	67 (30.2)		
Onlay	7 (26.9)	59 (32.2)	5 (385)	71 (32)		
Post + Crown	8 (30.8)	63 (34.4)	1 (7.7)	72 (32.4)		
Molar with intact buccal and mesial walls: 1					6.240	0.795
Direct Composite Restoration	6 (24)	39 (21.3)	2 (15.4)	47 (21.3)		
Endocrown	7 (28)	41 (22.4)	3 (23.1)	51 (23.1)		
Composite-Supported Overlay	5 (20)	42 (23)	4 (30.8)	51 (23.1)		
Onlay	8 (32)	62 (33.9)	5 (38.5)	75 (33.9)		
Post + Crown	8 (32)	68 (37.2)	1 (7.7)	77 (34.8)		
Premolar with intact buccal and lingual walls: 1					16.674	0.082
Direct Composite Restoration	7 (26.9)	57 (30.8)	1 (7.7)	65 (29)		
Endocrown	8 (30.8)	52 (28.1)	1 (7.7)	61 (27.2)		
Composite-Supported Overlay	4 (15.4)	40 (21.6)	7 (53.8)	51 (22.8)		
Onlay	8 (30.8)	47 (25.4)	4 (30.8)	59 (26.3)		
Post + Crown	10 (38.5)	60 (32.4)	2 (15.4)	72 (32.1)		
Premolar with intact buccal and mesial walls: 1					17.424	0.065
Direct Composite Restoration	11 (42.3)	57 (30.6)	2 (15.4)	70 (31.1)		
Endocrown	6 (23.1)	43 (23.1)	1 (7.7)	50 (22.2)		
Composite-Supported Overlay	7 (26.9)	44 (23.7)	7 (53.8)	58 (25.8)		
Onlay	4 (15.4)	53 (28.5)	4 (30.8)	61 (27.1)		
Post + Crown	11 (42.3)	63 (33.9)	1 (7.7)	75 (33.3)		

*Pearson's chi-squared, 1Multiple choices were allowed, a-b: There is no significant difference between titles with the same letter on the same row.

Table 4. Comparison of fiber preferences based on titles

	Newly Graduated	Intern	Doctorate/ Specialization	Total	Test stat.	p*
Prefers using fiber: 1					1.509	0.470
Yes	23 (88.5)	171 (91)	13 (100)	207 (91.2)		
No	3 (11.5)	17 (9)	0 (0)	20 (8.8)		
Types of fiber preferred: 1					8.510	0.075
everX Posterior	16 (64)	81 (46)	6 (46.2)	103 (48.1)		
Ribbond	10 (40)	113 (64.2)	7 (53.8)	130 (60.7)		

*Pearson's chi-squared, 1Multiple choices were allowed, a-b: There is no significant difference between titles with the same letter on the same row.

Table 5. Comparison of treatment preferences based on awareness and knowledge levels

Treatment preferences:	Low	High	Total	Test stat.	p
Molar with no intact wall, above the gingival level: 1				11.264	0.046*
Direct Composite Restoration	9(16.4)[a]	11(6.4)[b]	20(8.8)		
Endocrown	18(32.7)[a]	67(39)[a]	85(37.4)		
Composite-Supported Overlay	11(20)[a]	41(23.8)[a]	52(22.9)		
Onlay	14(25.5)[a]	24(14)[b]	38(16.7)		
Post + Crown	23(41.8)[a]	86(50)[a]	109(48)		
Molar with intact buccal wall: 1				11.264	0.046*
Direct Composite Restoration	9(16.4)[a]	11(6.4)[b]	20(8.8)		
Endocrown	18(32.7)[a]	67(39)[a]	85(37.4)		
Composite-Supported Overlay	11(20)[a]	41(23.8)[a]	52(22.9)		
Onlay	14(25.5)[a]	24(14)[b]	38(16.7)		
Post + Crown	23(41.8)[a]	86(50)[a]	109(48)		
Molar with intact buccal and lingual walls: 1				4.825	0.438*
Direct Composite Restoration	16(29.6)	38(22.6)	54(24.3)		
Endocrown	10(18.5)	42(25)	52(23.4)		
Composite-Supported Overlay	15(27.8)	52(31)	67(30.2)		
Onlay	14(25.9)	57(33.9)	71(32)		
Post + Crown	14(25.9)	58(34.5)	72(32.4)		
Molar with intact buccal and mesial walls: 1				16.847	0.005*
Direct Composite Restoration	19(35.2)[a]	28(16.8)[b]	47(21.3)		
Endocrown	6(11.1)[a]	45(26.9)[b]	51(23.1)		
Composite-Supported Overlay	9(16.7)[a]	42(25.1)[a]	51(23.1)		
Onlay	20(37)[a]	55(32.9)[a]	75(33.9)		
Post + Crown	16(29.6)[a]	61(36.5)[a]	77(34.8)		
Premolar with intact buccal and lingual walls: 1				4.148	0.528*
Direct Composite Restoration	18(33.3)	47(27.6)	65(29)		
Endocrown	11(20.4)	50(29.4)	61(27.2)		
Composite-Supported Overlay	9(16.7)	42(24.7)	51(22.8)		
Onlay	14(25.9)	45(26.5)	59(26.3)		
Post + Crown	19(35.2)	53(31.2)	72(32.1)		
Premolar with intact buccal and mesial walls: 1				1.730	0.885*
Direct Composite Restoration	15(27.3)	55(32.4)	70(31.1)		
Endocrown	10(18.2)	40(23.5)	50(22.2)		
Composite-Supported Overlay	15(27.3)	43(25.3)	58(25.8)		
Onlay	13(23.6)	48(28.2)	61(27.1)		
Post + Crown	18(32.7)	57(33.5)	75(33.3)		
Prefers using fiber: 1				----	0.070**
Yes	46(0.9)	161(0.9)	207(0.9)		
No	8(0.1)	12(0.1)	20(0.1)		
Types of fiber preferred: 1				0.133	0.936*
everX Posterior	25(49)	78(47.9)	103(48.1)		
Ribbond	32(62.7)	98(60.1)	130(60.7)		

*Pearson's chi-squared, **Fisher's exact chi-squared, 1Multiple choices were allowed, a-b: There is no significant difference between knowledge levels with the same letter on the same row

DISCUSSION

There is no single ideal treatment method for the restoration of teeth with excessive substance loss (13). Nowadays, depending on the amount of substance loss in the treatment of teeth with excessive substance loss, in addition to conventional post and core crowns, there has been an increasing usage of onlay, composite-supported overlay, endocrown, and fiber-reinforced direct composite restorations, which are based on a conservative approach, as treatment options (14,15). It was reported that surveys are an effective method for evaluating the awareness levels and education statuses of participants (16). In this survey study, we also measured the education statuses and awareness levels of 234 participants consisting of newly graduated dentists, intern dentists, and dentists involved in doctoral or specialization studies regarding the restoration of teeth with excessive substance loss. A statistically significant difference was found in the median knowledge scores of the participants based on their titles ($p<0.001$). This difference was among all groups.

As a consequence of the developments in materials that are used in dentistry for the restoration of teeth, adhesive procedures, and cementation systems, the prognosis of inlay, onlay, and endocrown restorations has become highly favorable (17). These restorations, which have a monoblock structure, are suitable for conservative treatment because they protect dental tissue, and thus, their long-term prognosis is also positive (18). Fildisi et al. (6) designed overlays applied onto teeth that were build up by composite material and endocrowns that directly reached the pulp chamber. They examined the fracture strength values of the group with the composite-supported overlay and the group with the endocrown. Biacchi et al. (19) compared the fracture strength of conventional post and core crowns and monoblock endocrowns extending up to canal ends in the pulp chamber. In this survey study, for treatment methods that could be preferred in the restorations of posterior teeth, we determined the options of composite-supported overlay, endocrown, onlay, post and core crown, and direct composite restorations.

In our study, it was observed that the participants who were involved with doctoral or specialization studies preferred endocrown restorations more than those who were interns did. In the study in which they designed overlays applied onto teeth that were build up by composite material and endocrowns that directly reached the pulp chamber, Fildisi et al. (6) found higher fracture strength values in the overlay restorations, while both the overlay and endocrown groups showed fractures at force values higher than the maximum chewing forces in the oral environment. Other in vitro studies have also shown that molar teeth restored with endocrowns can endure physiological chewing forces without fractures (20,21). In present study, endocrown restorations reaching the pulp chamber were preferred by both the groups with low and high levels of knowledge regarding the restoration of molar teeth with a history of endodontic treatment, no intact walls, and margins 2 mm above the gingival level. In the study where they compared the fracture strength values of conventional post and core crowns and endocrowns, Biacchi et al. (19) found higher fracture strength values in the endocrowns that had support from the pulp chamber. In our study, for the restorations of molar teeth that have undergone endodontic treatment and have their buccal and lingual walls intact (intact and at least 2-mm-thick), the participants who were involved in doctoral or specialization studies mostly preferred endocrown restorations.

The restoration process for teeth in the posterior area also varies based on the tooth that will be treated (22). It was stated that the performance of endocrown restorations in posterior teeth under axial and lateral forces during functioning is directly proportional to the size of the pulp chamber (23). In our survey study, in the part of questions on the preferred treatment approaches of the participants, there were 6 questions on their preferences in the restoration of molar teeth with excessive substance loss and 5 questions on their preferences in the restoration of premolar teeth with excessive substance loss. This way, the approaches of the participants towards the restorations of premolar and molar teeth with different pulp chamber dimensions were evaluated. In the study where they evaluated the performance of endocrowns in premolars and molars, Bindl et al. (24) observed that premolars showed more failure in comparison to molars due to adhesive breaks. In current study, the participants preferred endocrown restorations more frequently in the context of molar teeth in comparison to premolar teeth regarding the restoration of endodontically treated teeth without any intact walls and with margins 2 mm above the gingival level.

Other factors that are effective in the planning of posterior tooth restorations are the remaining coronal tooth structure and functional requirements. Which tubercle remains and the rate of the remaining tubercle are also important criteria affecting the restoration to be made. While the loss of buccal and lingual tubercles creates both retention and strength problems, the loss of mesial and distal tubercles creates only retention problems (25). In previous studies, it has been recommended to use indirect onlays following at least 1.5-2 mm of cusp reduction to protect the remaining dental structure and increase fracture strength in MOD cavities with excessive substance loss (8,26). In our survey study, we investigated the restoration preferences of the participants based on

different awareness levels with the consideration of intact walls remaining on teeth (thicker than 2 mm). For the restoration of molar and premolar teeth that have undergone endodontic treatment and have their buccal and lingual walls intact (intact and at least 2-mm-thick), both groups with low and high awareness levels preferred posterior adhesive indirect restorations (onlay, endocrown, overlay) more frequently. In the comparisons based on the titles of the participants, while the intern dentist participants mostly preferred post and core crown restorations in the restoration of molar and premolar teeth that have undergone endodontic treatment and have their 2 walls (buccal-lingual or buccal-mesial) intact, the total number for the preference of posterior adhesive indirect restorations was higher than that for post and core crowns.

Garoushi et al. (15) who investigated the effects of fiber materials that are used in dentistry, found that everX Posterior raised fracture strength values. In their studies on the effects of polyethylene fiber use in premolar teeth with MOD cavities on fracture strength and modes of failure, Belli et al. (11) and Hshad et al. (12) reported that Ribbond usage noticeably improved fracture strength values. In our study, in the questions on fiber material preferences, we determined the Ribbond and everX Posterior fiber materials as options. The vast majority of the participants in both the groups with high and low awareness levels preferred using fiber material under composite material in the restoration of teeth with excessive substance loss to strengthen the tooth. While the participants who were intern dentists mostly preferred Ribbond as a fiber material, those who were newly graduated mostly preferred everX Posterior.

CONCLUSION

According to the results of the survey that was conducted in our study, the participants who were involved in doctoral or specialization studies have higher levels of awareness and knowledge regarding current treatment methods in comparison to those who were newly graduated or interns.

In our study, it was observed that posterior adhesive restorations such as endocrown and onlay restorations were preferred more frequently due to the education system in the university environment where each department specialized in its own field, and conservative treatments were preferred, as well as the broad opportunities available to students and practitioners. The newly graduated participants preferred post and core crown restorations more frequently. It is thought that newly graduated dentists and intern dentists will also adopt current treatment approaches such as endocrown and onlay restorations when their participation in training programs, conferences, and seminars focused on current treatments increases. The participants in the group with high awareness levels regarding current treatments in this study were found to prefer using fiber materials. The information in the relevant literature shows that the use of both types of fiber material provides successful outcomes. As a limitation of this study, because the number of dentists who were interns or newly graduated dentists was higher than the number of those who were involved in doctoral or specialization studies, the participants mostly consisted of newly graduated and intern dentists.

ETHICAL DECLARATIONS

Ethics Committee Approval: The study was carried out with the permission of İstanbul Medipol University Non-Invasive Clinical Studies Ethics Committee (Date: 10.08.2022, Decision No: 697).

Informed Consent: All patients signed the free and informed consent form.

Referee Evaluation Process: Externally peer-reviewed.

Conflict of Interest Statement: The authors have no conflicts of interest to declare.

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