DonnishJournals

Donnish Journal of Dentistry and Oral Hygiene
Vol. 7(7) pp. 078-086 December 2021.
http://www.donnishjournals.org/djdoh
ISSN: 2984-8806

Original Research Paper

To Repair or Replace the Defective Direct Composite Restorations? A Survey among Riyadh-based Dentists

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Accepted 10th October, 2021.

Introduction: Dental caries continues to be an extremely prevalent disease involving a large part of the worldwide population, especially those more disadvantaged. A huge need for restorative procedures in clinical dentistry is still seen, with placement (and replacement) of restorations being one of the most widespread dental procedures constituting for a substantial part of the dentists' clinical practice. Materials and methods: This is a cross-sectional study conducted among the dental professionals in Riyadh using an online survey. Dental clinics and hospitals in Riyadh were contacted and participants were requested to fill up the survey. Results: 46% of females were in the favor of giving marginal restoration instead of repair in cases with marginal failure as compared to 30% males (p-value: .000). When faced with a fracture adjacent to a restoration, 42% of females chose to repair the anterior tooth if the fracture was involving the incisal region as compared to 33% of males (p-value: .012). Conclusion: Female dentists were in the favor of repairing as compared to males.

Keywords: repair, replace, defective restoration.

INTRODUCTION

Dental caries continues to be an extremely prevalent disease involving a large part of the worldwide population, especially those more disadvantaged. A huge need for restorative procedures in clinical dentistry is still seen, with placement (and replacement) of restorations being one of the most widespread dental procedures constituting for a substantial part of the dentists' clinical practice. Since their induction, composite resins have achieved recognition as restorative materials, especially due to their aesthetic properties and being conservative in natural tissue removal. Constant advancement in composites' technology has also transpired in the previous years. Presently, composite resin is the first-choice material to repair anterior and posterior teeth (Hamburger et al., 2011; Mesko et al., 2016).

After a restoration is placed, it commences to interact with the oral atmosphere. Erosive forces result from the mechanical chewing and biting process and biochemical interactions of metabolites from the biofilm adhered to the surface, which may initiate fluctuations in surface roughness within only 30 days of exposure. Also, the roughness of the surface of restorations apparently correlates with its hardness. Composite resin surfaces with greater roughness have shown lower hardness and faced fractures. These fractures may either be repaired or replaced. A few studies have reported a long-term survival rate of composite restorations that are being repaired (Estay et al., 2017; Kanzow et al., 2018).

Studies indicate that when it comes to composite restorations, usually dentists replace them so as to obtain a precise color shade to match the patient's teeth. In regard to posterior teeth, there are numerous risk factors for repairing the restoration such as endodontic involvement and denture care. Due to the positive outcomes of both repairing and replacing restorations, it eventually comes down to a patient-to-patient basis. Dental professionals must also take into attention risk factors that the patient may appear with, cost association, and patients' choice (Brown & Augustus, 2019; Arthun & Tuncer, 2018).

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Dentists spend much time replacing flawed restorations. This takes up a bigger portion than the filling of primary carious lesions and is expensive for patients having no medical coverage. Moreover, replacement of fillings constantly goes along with loss of hard tissue. Causes of restoration fracture are numerous. They range from flawed margins of the fillings, fractures, or secondary caries up to the entire loss of a restoration. Other probable explanations are periodontal irritations, management of primary carious lesions at the restrictive tooth, washed-out fillings, and esthetic features especially at the anterior teeth (Krisch et al., 2016).

A few studies have been conducted in different parts of the world to determine the dentists' choice and preference of repair or replacement. An investigation in Norway revealed that primary caries is the most common cause for operative treatment, however, repair of old restorations constituted nearly one-fourth of the daily operative job. The involved dentists in the study seem to choose repair over replacement and by this means understand the sound principles of minimal intervention dentistry by concentrating on oral health and tooth conservation.

Most dentists opted well-recognized pretreatment choices like macro mechanical preparation and bonding procedures when repairing composites. No discrepancy regarding treatment choices was noted based on gender, but experienced dentists seem to be slightly more conservative as they preferred repair considerably more often than younger dentists (Staxrud et al., 2016).

Another study done among the dentists of Oceania reported that repair of Direct Composite Restorations seems to be a feasible option to replacement, which is vigorously trained within Oceania. Benefits consist of it being minimally invasive, protecting tooth structure, and time and money saving. Though standardized regulations and recommendations need to be established and additional clinical long-term studies ought to be carried out (Brunton et al., 2017).

STUDY HYPOTHESES

Dentists in Riyadh prefer repair rather than replacement of direct composite restorations.

AIMS OF THE STUDY

- To determine the preference of dentists towards the repair or replacement of direct composite restorations.
- To list down factors and reasons behind their preference.
- To compare the preference among the dentists on the basis of gender and experience.

MATERIALS AND METHODS

Study Design

This is a cross-sectional study conducted among the dental professionals in Riyadh using an online survey.

Study Sample

Dental clinics and hospitals in Riyadh were contacted and participants were requested to fill up the survey.

Study Instrument

Online questionnaire was constructed consisting of questions related to personal and demographic data followed by questions linked to their preference, associated factors, and related points.

Instrument Validity and Reliability

A pilot study was conducted by sending the survey to 20 participants and the data will be inserted in SPSS version 22 to determine the reliability by using Cronbach's coefficient alpha. Validity of the questionnaire was tested by sending it to experienced researchers in REU but no changes were made.

Statistical Analysis

Collected data was analyzed using SPSS version 22, where descriptive as well as inferential statistics was conducted. Comparisons between groups were made with the value of significance kept under 0.05.

RESULTS

Reliability of the questionnaire was calculated using Cronbach's alpha in SPSS version 22 and a value of 0.724 was achieved, which is acceptable to carry out the study. Moreover, power of sample was calculated and a power of 0.71 was retrieved, which is also acceptable. A total of 414 dental professionals participated in this study, with 46% males and 54% females. 67% were general practitioners and 33% had postgraduate certification, 65% had less than 5 years of experience and 35% had more than 5 years. Finally, the participants were divided according to their workplace and it was observed that 66% worked in the private sector and 34% in government.

Table 1 shows the frequencies of responses recorded by the study participants in general. 58% of the dental professionals chose tooth substance preservation as the main indicator of repairing rather than replacing. 18.8% agreed on replacing a restoration if the composite restoration failure was marginal. The most common clinical scenario where dentists chose to repair rather than replace was Anterior Tooth (Tooth Fracture from the Incisal Region), which was 37.7%.

Table 2 shows the comparison of survey responses on the basis of gender, with a few statistically significant differences observed. 46% of females were in the favor of giving marginal restoration instead of repair in cases with marginal failure as compared to 30% of males (p-value: .000). When faced with a fracture adjacent to a restoration, 42% of females chose to repair the anterior tooth if the fracture was involving the incisal region as compared to 33% of males (p-value: .012).

Table 3 shows the comparison of survey responses on the basis of qualification, which revealed no statistically significant difference when inquired about the repair of composite restorations with marginal as well as general failure. However, a significant difference was observed when inquired about composite restoration failure due to discoloration, with 29% of the masters/board qualified dentists opting for repairing proximal surfaces as compared to 12% of BDS qualified (p-value: .000).

Table 4 shows the comparison of survey responses on the basis of work experience, which showed that 37% of dentists with less than 5 years of experience preferred repairing a composite restoration with partial loss as compared to 10% dentists having more experience (p-value: .000).

Table 1: Power of sample

Cronbach's alpha: 0.724

Mean	2.44
Std Deviation	1.30
Sample size	414
Alpha	0.05
Sample mean	2.58
Standard Error of Mean	0.06
Critical Value	2.55
Beta	0.29
Power	**0.71**

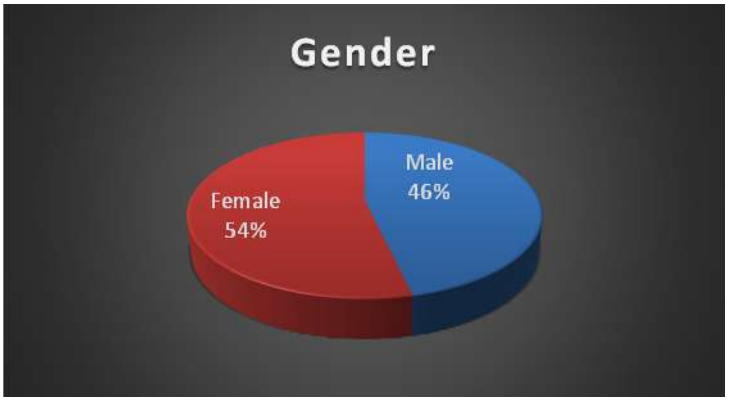

Figure 1: Gender ratio of study participants

Figure 2: Qualifications of study participants

Figure 3: Work experience of study participants

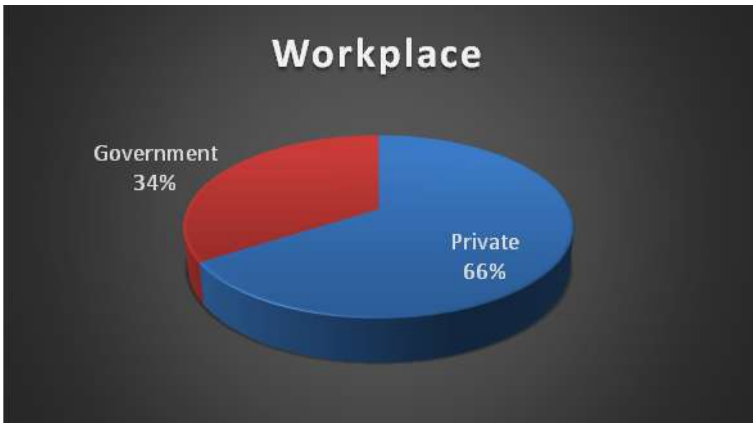

Figure 4: Workplace of study participants

Table 1: Response frequencies of survey questions from the study participants

Survey Questions	Response Frequencies
Indications for REPAIRING rather than REPLACING direct composite restorations:	Tooth substance preservation: 58% Reduced Risk of Harmful Effects on the Pulp: 26.1% Reduced Costs to the Patient: 10.1% Reduced Treatment Time: 5.8%
Restoration-related failures that were considered appropriate for REPAIR rather than REPLACEMENT of direct composite restorations (Marginal)	Marginal defects: 42.8% Marginal restoration: 38.4% Replace: 18.8%
Restoration-related failures that were considered appropriate for REPAIR rather than REPLACEMENT of direct composite restorations (General)	Partial loss of restoration: 27.5% Superficial or Surface Color Correction: 31.9% Secondary Caries: 26.1% Surface Wear: 9.4% Replace: 5.1%
Restoration-related failures that were considered appropriate for REPAIR rather than REPLACEMENT of direct composite restorations (Restoration discoloration)	Labial or buccal: 29% Cervical: 15.9% Occlusal: 18.1% Proximal: 17.4% Involving more than one surface: 14.5% Replace: 5.1%
Restoration-related failures that were considered appropriate for REPAIR rather than REPLACEMENT of direct composite restorations (Bulk Fracture)	Labial or buccal: 13.8% Cervical: 18.8% Occlusal: 26.8% Proximal: 14.5% Involving more than one surface: 8% Replace: 18.1%
Clinical scenarios involving a tooth fracture adjacent to an existing direct composite restoration that were considered appropriate for REPAIR rather than REPLACEMENT of direct composite restorations.	Anterior Tooth (Tooth Fracture from the Incisal Region): 37.7% Anterior Tooth (Tooth Fracture from the Proximal-Incisal Region): 23.2% Posterior Tooth (Cusp Fracture): 19.6% Anterior Tooth (Tooth Fracture from the Proximal Region): 10.9% Posterior Tooth (Cracked Tooth): 8.7%
Surface treatment techniques, materials and finishing techniques used for the repair of direct composite restorations (Surface Treatment Techniques).	Mechanical roughening of existing composite with removal of exposed surface: 50.7% Acid etching with phosphoric acid: 19.6% Cleaning with slurry of pumice: 10.9% Aluminum oxide air abrasion: 9.4% Acid etching with hydrofluoric acid: 5.8% No mechanical surface treatment: 3.6%
Surface treatment techniques, materials and finishing techniques used for the repair of direct composite restorations (Materials).	Adhesive bonding agent: 26.1% Hybrid resin-based composite: 17.4% Nanohybrid composite: 15.9% Flowable composite: 29.7% Silane coupling agent: 7.2% Glazing resin: 3.6%
Surface treatment techniques, materials and finishing techniques used for the repair of direct composite restorations (Finishing Techniques).	Finishing disks: 34.8% Composite polishing points: 8% Diamond finishing instruments: 21% Tungsten carbide finishing instruments: 17.4% Composite polishing paste: 18.8%

Table 2: Comparison of survey responses on the basis of Gender

Survey Questions	Males	Females	p-value
Indications for REPAIRING rather than REPLACING direct composite restorations:	No statistically significant association		.402
Restoration-related failures that were considered appropriate for REPAIR rather than REPLACEMENT of direct composite restorations (Marginal)	Marginal defects: 53% Marginal restoration: 30% Replace: 17%	Marginal defects: 34% Marginal restoration: 46% Replace: 20%	.000
Restoration-related failures that were considered appropriate for REPAIR rather than REPLACEMENT of direct composite restorations (General)	Partial loss of restoration: 34% Superficial or Surface Color Correction: 30% Secondary Caries: 23% Surface Wear: 9% Replace: 3%	Partial loss of restoration: 22% Superficial or Surface Color Correction: 34% Secondary Caries: 28% Surface Wear: 9% Replace: 7%	.036
Restoration-related failures that were considered appropriate for REPAIR rather than REPLACEMENT of direct composite restorations (Restoration discoloration)	No statistically significant association		.085
Restoration-related failures that were considered appropriate for REPAIR rather than REPLACEMENT of direct composite restorations (Bulk Fracture)	Labial or buccal: 16% Cervical: 11% Occlusal: 28% Proximal: 22% Involving more than one surface: 9% Replace: 14%	Labial or buccal: 12% Cervical: 26% Occlusal: 26% Proximal: 8% Involving more than one surface: 7% Replace: 22%	.000
Clinical scenarios involving a tooth fracture adjacent to an existing direct composite restoration that were considered appropriate for REPAIR rather than REPLACEMENT of direct composite restorations.	Anterior Tooth (Tooth Fracture from the Incisal Region): 33% Anterior Tooth (Tooth Fracture from the Proximal-Incisal Region): 23% Posterior Tooth (Cusp Fracture): 17% Anterior Tooth (Tooth Fracture from the Proximal Region): 16% Posterior Tooth (Cracked Tooth): 11%	Anterior Tooth (Tooth Fracture from the Incisal Region): 42% Anterior Tooth (Tooth Fracture from the Proximal-Incisal Region): 23% Posterior Tooth (Cusp Fracture): 22% Anterior Tooth (Tooth Fracture from the Proximal Region): 7% Posterior Tooth (Cracked Tooth): 7%	.012
Surface treatment techniques, materials and finishing techniques used for the repair of direct composite restorations (Surface Treatment Techniques).	Mechanical roughening of existing composite with removal of exposed surface: 48% Acid etching with phosphoric acid: 17% Cleaning with slurry of pumice: 14% Aluminum oxide air abrasion: 9% Acid etching with hydrofluoric acid: 5% No mechanical surface treatment: 6%	Mechanical roughening of existing composite with removal of exposed surface: 53% Acid etching with phosphoric acid: 22% Cleaning with slurry of pumice: 8% Aluminum oxide air abrasion: 9% Acid etching with hydrofluoric acid: 7% No mechanical surface treatment: 1%	.030
Surface treatment techniques, materials and finishing techniques used for the repair of direct composite restorations (Materials).	No statistically significant association		.373
Surface treatment techniques, materials and finishing techniques used for the repair of direct composite restorations (Finishing Techniques).	Finishing disks: 39% Composite polishing points: 6% Diamond finishing instruments: 27% Tungsten carbide finishing instruments: 13% Composite polishing paste: 16%	Finishing disks: 31% Composite polishing points: 9% Diamond finishing instruments: 16% Tungsten carbide finishing instruments: 22% Composite polishing paste: 22%	.004

Table 3: Comparison of survey responses on the basis of Qualification

Survey Questions	BDS	Masters/Board	p-value
Indications for REPAIRING rather than REPLACING direct composite restorations:	Tooth substance preservation: 68% Reduced Risk of Harmful Effects on the Pulp: 18% Reduced Costs to the Patient: 8% Reduced Treatment Time: 6%	Tooth substance preservation: 38% Reduced Risk of Harmful Effects on the Pulp: 42% Reduced Costs to the Patient: 16% Reduced Treatment Time: 4%	.000
Restoration-related failures that were considered appropriate for REPAIR rather than REPLACEMENT of direct composite restorations (Marginal)	No statistically significant association		.104
Restoration-related failures that were considered appropriate for REPAIR rather than REPLACEMENT of direct composite restorations (General)	No statistically significant association		.239
Restoration-related failures that were considered appropriate for REPAIR rather than REPLACEMENT of direct composite restorations (Restoration discoloration)	Labial or buccal: 33% Cervical: 17% Occlusal: 17% Proximal: 12% Involving more than one surface: 15% Replace: 5%	Labial or buccal: 20% Cervical: 13% Occlusal: 20% Proximal: 29% Involving more than one surface: 13% Replace: 4%	.000
Restoration-related failures that were considered appropriate for REPAIR rather than REPLACEMENT of direct composite restorations (Bulk Fracture)	No statistically significant association		.314
Clinical scenarios involving a tooth fracture adjacent to an existing direct composite restoration that were considered appropriate for REPAIR rather than REPLACEMENT of direct composite restorations.	Anterior Tooth (Tooth Fracture from the Incisal Region): 38% Anterior Tooth (Tooth Fracture from the Proximal-Incisal Region): 27% Posterior Tooth (Cusp Fracture): 19% Anterior Tooth (Tooth Fracture from the Proximal Region): 6% Posterior Tooth (Cracked Tooth): 10%	Anterior Tooth (Tooth Fracture from the Incisal Region): 38% Anterior Tooth (Tooth Fracture from the Proximal-Incisal Region): 16% Posterior Tooth (Cusp Fracture): 20% Anterior Tooth (Tooth Fracture from the Proximal Region): 20% Posterior Tooth (Cracked Tooth): 7%	.000
Surface treatment techniques, materials and finishing techniques used for the repair of direct composite restorations (Surface Treatment Techniques).	Mechanical roughening of existing composite with removal of exposed surface: 52% Acid etching with phosphoric acid: 16% Cleaning with slurry of pumice: 14% Aluminum oxide air abrasion: 8% Acid etching with hydrofluoric acid: 8% No mechanical surface treatment: 3%	Mechanical roughening of existing composite with removal of exposed surface: 49% Acid etching with phosphoric acid: 27% Cleaning with slurry of pumice: 4% Aluminum oxide air abrasion: 13% Acid etching with hydrofluoric acid: 2% No mechanical surface treatment: 4%	.001
Surface treatment techniques, materials and finishing techniques used for the repair of direct composite restorations (Materials).	No statistically significant association		.060
Surface treatment techniques, materials and finishing techniques used for the repair of direct composite restorations (Finishing Techniques).	No statistically significant association		.128

Table 4: Comparison of survey responses on the basis of work experience

Survey Questions	Less than 5 years	More than 5 years	p-value
Indications for REPAIRING rather than REPLACING direct composite restorations:	No statistically significant association		.115
Restoration-related failures that were considered appropriate for REPAIR rather than REPLACEMENT of direct composite restorations (Marginal)	No statistically significant association		.170
Restoration-related failures that were considered appropriate for REPAIR rather than REPLACEMENT of direct composite restorations (General)	Partial loss of restoration: 37% Superficial or Surface Color Correction: 31% Secondary Caries: 19% Surface Wear: 9% Replace: 4%	Partial loss of restoration: 10% Superficial or Surface Color Correction: 33% Secondary Caries: 40% Surface Wear: 10% Replace: 6%	.000
Restoration-related failures that were considered appropriate for REPAIR rather than REPLACEMENT of direct composite restorations (Restoration discoloration)	No statistically significant association		.125
Restoration-related failures that were considered appropriate for REPAIR rather than REPLACEMENT of direct composite restorations (Bulk Fracture)	Labial or buccal: 19% Cervical: 17% Occlusal: 24% Proximal: 11% Involving more than one surface: 4% Replace: 17%	Labial or buccal: 4% Cervical: 23% Occlusal: 31% Proximal: 21% Involving more than one surface: 4% Replace: 17%	.000
Clinical scenarios involving a tooth fracture adjacent to an existing direct composite restoration that were considered appropriate for REPAIR rather than REPLACEMENT of direct composite restorations.	No statistically significant association		.105
Surface treatment techniques, materials and finishing techniques used for the repair of direct composite restorations (Surface Treatment Techniques).	No statistically significant association		.275
Surface treatment techniques, materials and finishing techniques used for the repair of direct composite restorations (Materials).	Adhesive bonding agent: 27% Hybrid resin-based composite: 17% Nanohybrid composite: 11% Flowable composite: 33% Silane coupling agent: 8% Glazing resin: 4%	Adhesive bonding agent: 25% Hybrid resin-based composite: 19% Nanohybrid composite: 25% Flowable composite: 23% Silane coupling agent: 6% Glazing resin: 2%	.005
Surface treatment techniques, materials and finishing techniques used for the repair of direct composite restorations (Finishing Techniques).	Finishing disks: 36% Composite polishing points: 9% Diamond finishing instruments: 24% Tungsten carbide finishing instruments: 19% Composite polishing paste: 12%	Finishing disks: 33% Composite polishing points: 6% Diamond finishing instruments: 15% Tungsten carbide finishing instruments: 15% Composite polishing paste: 31%	.000

Table 5: Comparison of survey responses on the basis of work sector

Survey Questions	Private	Government	p-value
Indications for REPAIRING rather than REPLACING direct composite restorations:	Tooth substance preservation: 56% Reduced Risk of Harmful Effects on the Pulp: 26% Reduced Costs to the Patient: 9% Reduced Treatment Time: 9%	Tooth substance preservation: 62% Reduced Risk of Harmful Effects on the Pulp: 26% Reduced Costs to the Patient: 13% Reduced Treatment Time: 0%	.002
Restoration-related failures that were considered appropriate for REPAIR rather than REPLACEMENT of direct composite restorations (Marginal)	Marginal defects: 38% Marginal restoration: 38% Replace: 23%	Marginal defects: 51% Marginal restoration: 38% Replace: 11%	.004

Restoration-related failures that were considered appropriate for REPAIR rather than REPLACEMENT of direct composite restorations (General)	No statistically significant association		.363
Restoration-related failures that were considered appropriate for REPAIR rather than REPLACEMENT of direct composite restorations (Restoration discoloration)	Labial or buccal: 32% Cervical: 20% Occlusal: 11% Proximal: 20% Involving more than one surface: 12% Replace: 5%	Labial or buccal: 23% Cervical: 9% Occlusal: 32% Proximal: 13% Involving more than one surface: 19% Replace: 4%	.001
Restoration-related failures that were considered appropriate for REPAIR rather than REPLACEMENT of direct composite restorations (Bulk Fracture)	No statistically significant association		.320
Clinical scenarios involving a tooth fracture adjacent to an existing direct composite restoration that were considered appropriate for REPAIR rather than REPLACEMENT of direct composite restorations.	Anterior Tooth (Tooth Fracture from the Incisal Region): 43% Anterior Tooth (Tooth Fracture from the Proximal-Incisal Region): 23% Posterior Tooth (Cusp Fracture): 14% Anterior Tooth (Tooth Fracture from the Proximal Region): 10% Posterior Tooth (Cracked Tooth): 10%	Anterior Tooth (Tooth Fracture from the Incisal Region): 28% Anterior Tooth (Tooth Fracture from the Proximal-Incisal Region): 23% Posterior Tooth (Cusp Fracture): 30% Anterior Tooth (Tooth Fracture from the Proximal Region): 13% Posterior Tooth (Cracked Tooth): 6%	.001
Surface treatment techniques, materials and finishing techniques used for the repair of direct composite restorations (Surface Treatment Techniques).	Mechanical roughening of existing composite with removal of exposed surface: 49% Acid etching with phosphoric acid: 21% Cleaning with slurry of pumice: 10% Aluminum oxide air abrasion: 10% Acid etching with hydrofluoric acid: 4% No mechanical surface treatment: 5%	Mechanical roughening of existing composite with removal of exposed surface: 53% Acid etching with phosphoric acid: 17% Cleaning with slurry of pumice: 13% Aluminum oxide air abrasion: 9% Acid etching with hydrofluoric acid: 9% No mechanical surface treatment: 0%	.031
Surface treatment techniques, materials and finishing techniques used for the repair of direct composite restorations (Materials).	Adhesive bonding agent: 26% Hybrid resin-based composite: 15% Nanohybrid composite: 14% Flowable composite: 35% Silane coupling agent: 7% Glazing resin: 2%	Adhesive bonding agent: 26% Hybrid resin-based composite: 21% Nanohybrid composite: 19% Flowable composite: 19% Silane coupling agent: 9% Glazing resin: 6%	.006
Surface treatment techniques, materials and finishing techniques used for the repair of direct composite restorations (Finishing Techniques).	No statistically significant association		.137

The former group also reported to have used flowable composite (33%) to repair composite restorations as compared to 23% dentists with more experience (p-value: .005). Finally, table 5 shows the comparison on the basis of the working sector, whether private or government. We observed majority of the differences being statistically significant. It was interesting to note that 23% of private practitioners were in the favor of replacing a composite restoration instead of repairing as compared to 11% of government employees (p-value: .004). 32% of private practitioners reported to have repaired labial or buccal composite restoration with failure associated with discoloration as compared with 23% of government dentists (p-value: .001). Moreover, 35% of the private practitioners reported to have used flowable composite as a surface treatment material of choice as compared to 19% dentists working in the government sector (p-value: .006).

DISCUSSION

This study aimed to determine the preference of Saudi dental professionals when it comes to repairing or restoring a faulty composite restoration. Various notable findings were observed whenthe results were compared on the basis of gender, qualification, work experience, and working sector of the dental professionals. It was retrieved from the findings that majority of the study participants opted for flowable composite and adhesive as the materials of choice to be used for repairing the faulty composite. A study conducted by Aquino et al., (2020)

revealed that the use of adhesive alone is not a good option for the repair of the majority types of composite restorations. Aging was the important factor mentioned by them as adhesives tend to fail over a period of time. This can be controlled by the use of aluminum oxide blasting, which showed better results. However, the use of aluminum oxide blasting was reported to be lower among our study participants. Its use was only reported significantly higher by the dentists having post-graduate qualifications.

Regarding the repair of aged faulty composite restoration, several materials give an option to the practitioner. Among these, phosphoric acid, hydrofluoric acid, adhesives, and cleaning with pumice to name a few. A study conducted by Ayar et al., (2019) investigated the effect of different surface treatments. They suggested that a combination of hydrofluoric acid with adhesives provides a strong foundation when used with composite resin when repairing posterior restorations. However, our study participants reported a very low practice towards the use of hydrofluoric acid and the number was less than 6%.

CONCLUSION

Female dentists were in the favor of repairing as compared to males.

CONFLICT OF INTEREST

There is no conflict of interest among the authors regarding the publication.

REFERENCES

1. Aquino, C., Mathias, C., Barreto, S.C., Cavalcanti, A.N., Marchi, G.M. and Mathias, P., 2020. Repair Bond Strength and Leakage of Non-Aged and Aged Bulk-fill Composite. Oral Health Prev Dent, 18, pp.783-792.
2. Arhun, N. and Tuncer, D., 2018. Repair of direct resin composite restorations. In Dental composite materials for direct restorations (pp. 245-267). Springer, Cham.
3. Ayar, M.K., Guven, M.E., Burduroglu, H.D. and Erdemir, F., 2019. Repair of aged bulk-fill composite with posterior composite: Effect of different surface treatments. Journal of Esthetic and Restorative Dentistry, 31(3), pp.246-252.
4. Brown, J.M. and Augustus, C.S., 2019. To Repair or Replace: That is the Restorative Question.
5. Brunton, P.A., Ghazali, A., Tarif, Z.H., Loch, C., Lynch, C., Wilson, N. and Blum, I.R., 2017. Repair vs replacement of direct composite restorations: a survey of teaching and operative techniques in Oceania. Journal of dentistry, 59, pp.62-67.
6. Estay, J., Martín, J., Vildosola, P., Mjor, I.A., Oliveira Jr, O.B., Andrade, M.F., Moncada, G., Gordan, V.V. and Fernández, E., 2017. Effect of refurbishing amalgam and resin composite restorations after 12 years: Controlled clinical trial. Operative Dentistry, 42(6), pp.587-595.
7. Hamburger, J.T., Opdam, N.J., Bronkhorst, E.M., Kreulen, C.M., Roeters, J.J. and Huysmans, M.C., 2011. Clinical performance of direct composite restorations for treatment of severe tooth wear. J Adhes Dent, 13(6), pp.585-93.
8. Kanzow, P., Wiegand, A., Goestemeyer, G. and Schwendicke, F., 2018. Understanding the management and teaching of dental restoration repair: systematic review and meta-analysis of surveys. Journal of Dentistry, 69, pp.1-21.
9. Kirsch, J., Tchorz, J., Hellwig, E., Tauböck, T.T., Attin, T. and Hannig, C., 2016. Decision criteria for replacement of fillings: a retrospective study. Clinical and experimental dental research, 2(2), pp.121-128.
10. Mesko, M.E., Sarkis-Onofre, R., Cenci, M.S., Opdam, N.J., Loomans, B. and Pereira-Cenci, T., 2016. Rehabilitation of severely worn teeth: A systematic review. Journal of dentistry, 48, pp.9-15.
11. Staxrud, F., Tveit, A.B., Rukke, H.V. and Kopperud, S.E., 2016. Repair of defective composite restorations. A questionnaire study among dentists in the Public Dental Service in Norway. Journal of dentistry, 52, pp.50-54.