ABSTRACT

Aim: The purpose of this study was to assess the knowledge and practices of Saudi dentists in finishing and polishing composite restorations.

Materials and methods: A cross-sectional questionnaire-based study was conducted among 306 Saudi dentists from March to April 2012. The collected data were analyzed using Microsoft Excel 2010 program and descriptive statistics were obtained.

Results: Completed questionnaires were returned by 191 participants, giving a response rate of 62.4%. 115 (65.7%) respondents are using fine diamond finishing burs for finishing occlusal surfaces, 82 (48%) used fine aluminum oxide finishing discs for finishing facial surfaces, 130 (76%) used diamond finishing strips for finishing interproximal surfaces. 121 (63.4%) respondents were of the view that the type of filler content has a major influence in providing color stability to the composite restoration and 137 (72.1%) believed nano-composites provided enhanced color stability.

Conclusion: Dentists in Saudi Arabia are aware of the benefits of proper finishing and polishing of composite restorations. They however need to use finishing and polishing burs, disks, strips and pastes in a sequential series. Usage of composite polishing pastes and composite surface sealants should be emphasized in undergraduate curriculum.

Keywords: Composite restoration, Finishing, Dentists, Saudi Arabia.

INTRODUCTION

Unesthetic teeth due to hypoplasia, fluorosis, fractures, caries and developmental disturbances can be treated using various esthetic techniques such as bleaching, aesthetic contouring, composite restorations, porcelains and composite laminate veneering. Increasing demand for aesthetic dentistry has been coupled with a rapid rate of development of new restorative resin-based materials.1

One of the most important steps in successfully creating bonded restorations is contouring, finishing and polishing.2 Proper finishing and polishing are important procedures that improve esthetics, maximize patients’ oral health and increase the longevity of restoration.2,3 Staining or discoloration is one of the most common reasons for replacement of composite restorations4 and most of the published reports document that the finish, surface roughness and surface integrity of the restoration, as well as the physicochemical properties of the material itself can influence plaque adhesion and retention and staining of the composite resin.5,6

The dental practitioners’ knowledge and attitudes toward the oral health care provide the frame work for their professional work.7 Dentists’ treatment decisions are influenced by their knowledge toward care options, and assessing these is worthwhile.8 Composite resins like elsewhere are the most popular and commonly used esthetic restorative materials in Saudi Arabia and the key to beauty and biologic integrity of these long-term restorations lies in the final steps of the procedure. The aim of this study was to assess the knowledge and practices of general dentists and specialists in finishing and polishing composite restorations in Saudi Arabia.

MATERIALS AND METHODS

This cross-sectional questionnaire-based study of dentists was conducted from March to April 2012 in association with Saudi Dental Society. A prepiolated Questionnaire (Table 1) consisting of 17 questions was distributed among 306 dentists working in government and private dental clinics from ten geographically diverse regions of the country (Riyadh, Mecca, Madeena, Baha, Hail, Aseer, Jizan,
<table>
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<th>Questionnaire</th>
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<tr>
<td>1.</td>
<td>Gender:</td>
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<td>2.</td>
<td>Nationality:</td>
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<td>4.</td>
<td>Type of practice:</td>
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<td>5.</td>
<td>Region of practice:</td>
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<td>6.</td>
<td>Length of professional career:</td>
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<td>7.</td>
<td>Is color stability of significant concern while providing composite restorations?</td>
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<td>8.</td>
<td>Do you replace composite restorations due to color change solely?</td>
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<td>9.</td>
<td>Does the polishing and finishing procedure play a crucial role in colour stability of composite restorations?</td>
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<td>10.</td>
<td>What is your method of choice in finishing occlusal surfaces?</td>
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<td>11.</td>
<td>What is your method of choice in finishing facial surfaces?</td>
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<td>13.</td>
<td>Is it essential to use composite polishing paste?</td>
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<tr>
<td>14.</td>
<td>Is it essential to use composite surface sealants?</td>
</tr>
<tr>
<td>15.</td>
<td>In your opinion does the type of composite play a vital role in color stability?</td>
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<td>16.</td>
<td>Which of the following factors has a major influence in providing color stability?</td>
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<tr>
<td>17.</td>
<td>Regarding filler type, which type provides enhanced color stability?</td>
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</table>

Najran, Eastern and Northern provinces) through electronic services of Saudi Dental Society research unit.

The sample was selected by simple random sampling from the Official Register of Saudi Dental Society and included general dentists as well as specialists. The participation of the dentists was voluntary and the electronic questionnaire was filled anonymously.

The participants were given a time frame of 4 weeks to reply and no attempt was made to send any reminder mails. The collected data were analyzed using Microsoft Excel.
2010 program and descriptive statistics were obtained. If the questionnaire was not filled completely, it was not excluded as a whole, but only the answered questions were taken into consideration in statistical analysis.

RESULTS

Completed questionnaires were returned by 191 participants, giving a response rate of 62.4%. 99 (51.8%) were males and 92 (48.2%) were females. The demographic data of the respondents can be summarized as follows – 126 (66%) of the respondents were of Saudi nationality, the remaining 65 (34%) were non-Saudi. 140 (74.1%) worked in government sector and 49 (25.9%) were from private sector. 80 (42.4%) were general practitioners, 111 (57.6%) were specialists. 120 (63.5%) of them had more than 5 years of work experience and 69 (36.5%) had less than 5 years. Dentists from all the ten geographically diverse regions in the country voluntarily participated in the study (Table 2).

The respondents expressed their opinions on color stability of composite restorations and usage of polishing paste and surface sealants (Table 3).

A total of 115 (65.7%) respondents are using fine diamond finishing burs for finishing occlusal surfaces (Graph 1), 115 (48%) are using fine aluminum oxide finishing disks for finishing facial surfaces (Graph 2), 130 (76%) are using diamond finishing strips for finishing interproximal surfaces (Graph 3).

When asked, which factor has a major influence in providing color stability to the composite restoration; 121 (63.4%) respondents felt it to be type of filler content, 56 (29.3%) of them felt it to be resin chemical composition and 14 (7.3%) respondents felt it was intensity of polymerization light. When asked, which type of fillers provide enhanced colour stability; 137 (72.1%) respondents felt it be nano-composites, 44 (23.2%) of them felt it be conventional microhybrid composites and 9 (4.7%) of them voted for other types.
This is the first national study among the dentists in the Kingdom of Saudi Arabia to assess the knowledge and practices of dentists in finishing and polishing composite restorations. In interpreting the findings of the present study, it is important to acknowledge the possible limitations. As this is a self-reporting study, we could not determine whether reported practices reflected actual clinical practices and the cross-sectional data that is presented does not allow investigation of potential links between level of knowledge and attitude, to the practices used by dentists. The sample size was not as large as desired and was limited to Saudi Dental Society members. Despite these limitations, our results have important implications, since this is the first national study and the findings provide valuable baseline data about the knowledge and practices of dentists in finishing and polishing composite restorations in the kingdom.

Proper contouring, finishing, and polishing of anterior restorations is a key component to the long-term success of bonded restorations and is important for several reasons (Table 4).

Color stability of the composite resin materials is related to the type of composite resin and polishing procedures. Manufacturers provide a variety of instruments to accomplish finishing and polishing, such as diamond rotary cutting instruments, carbide burs, abrasive-impregnated rubber cups and points, abrasive disks and polishing pastes. Different types of composites call for different polishing techniques and various studies have reported that dedicated polishing systems and procedures are needed to create the kind of surface smoothness that prevents early discoloration. A total of 115 (65.7%) respondents are using fine diamond finishing burs for finishing occlusal surfaces (Graph 1), 115 (48%) are using fine aluminum...
oxide finishing disks for finishing facial surfaces (Graph 2), 130 (76%) are using diamond finishing strips for finishing interproximal surfaces (Graph 3).

In the present study, 109 (62.6%) and 106 (61.3%) respondents felt it is not essential to use polishing paste and surface sealants (Table 3). Sen et al. reported that the polishing pastes provided a smoother surface effectively and it has been reported that use of polishing paste after the use of polishing disks significantly decreased staining in comparison to the use of polishing disks alone, for all types of composites. Although long-term studies are not currently available to discuss the efficacy of composite surface sealants, short-term studies have shown that microcracks caused by the trauma of finishing procedures are ressealed. Microcracks particularly at the cavosurface margins can propagate overtime, hence it is logical that the use of surface sealants postoperatively decrease the surface wear and increase the longevity of direct resin restorations.

CONCLUSION

It is a positive finding to observe that dentists are aware of the benefits of proper finishing and polishing of composite restorations. Within the limitations of the present study, the following recommendations are put forth:

1. Need of continuing education programs and workshops to train the dentists in the use of a sequential series of finishing and polishing burs, disks, strips and pastes.
2. Usage of composite polishing pastes and composite surface sealants to be introduced at undergraduate level and emphasize on their importance.

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REFERENCES


ABOUT THE AUTHORS

Mohammed Ali AlQarni (Corresponding Author)
Assistant Professor, Department of Restorative Dental Sciences, King Khalid University College of Dentistry, Abha, Saudi Arabia. Phone: +966-554155126, e-mail: dr.m.alqarni@hotmail.com

Rafi A Togoo
Associate Professor, Department of Preventive Dental Sciences, King Khalid University, College of Dentistry, Abha, Saudi Arabia.

Ibrahim Al Shahrani
Associate Professor, Department of Preventive Dental Sciences, King Khalid University, College of Dentistry, Abha, Saudi Arabia.

CR Sumanth Phani
Assistant Professor, Department of Restorative Dental Sciences, King Khalid University, College of Dentistry, Abha, Saudi Arabia.