ORIGINAL RESEARCH

A Survey on Usage of Rubber Dam during Composite Restorative Procedures by General and Specialist Dental Practitioners in Saudi Arabia

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ABSTRACT

Aim: The purpose of this study was to quantify the usage of rubber dam (RD) among general and specialty dental practitioners during composite restorative procedures in Saudi Arabia.

Materials and methods: A cross-sectional questionnaire-based study was conducted from March to April 2012 in association with Saudi Dental Society on 306 general dental practitioners (GP), dentists specialized in operative dentistry (OD) and other specialty dentists (OSD). The collected data were analyzed using Microsoft Excel 2010 program and descriptive statistics were obtained.

Results: For isolation during composite restorative procedures in anterior teeth, 21.2% of GP, 57.1% of OD and 29.6% of OSD use RD; 77.5% of GP, 42.9% of OD and 68.5% of OSD use cotton rolls and 1.3% of GP and 1.9% of OSD use methods other than RD or cotton rolls. For isolation during composite restorative procedures in posterior teeth, 28.8% of GP, 62.5% of OD and 40.7% of OSD use RD; 68.7% of GP, 35.7% of OD and 57.4% of OSD use cotton rolls and 2.5% of GP, 1.8% of OD and 1.9% of OSD use other methods.

Conclusion: There is under-usage of RD during placement of composite restorations by dentists in the study population. Majority of the dentists practicing RD are those who have specialized in OD.

Keywords: Rubber dam, Composite restoration, Saudi Arabia.

How to cite this article: AlQarni MA. A Survey on Usage of Rubber Dam during Composite Restorative Procedures by General and Specialist Dental Practitioners in Saudi Arabia. J Orofac Res 2013;3(1):1-4.

Source of support: Nil

Conflict of interest: None declared

INTRODUCTION

Rubber dam (RD) is considered as an ideal device for tooth isolation in the practice of adhesive dentistry.[1] A drier field, improved operator visibility and access, increased patient comfort and safety, infection control are some of the many documented benefits of using a RD.[2] Because of the obvious merits, majority of dental schools teach that use of RD is mandatory for certain procedures, e.g. endodontic therapy and adhesive dentistry.[3] In spite of its wide range of functions, RD is often overlooked by dental practitioners.[3] It is a common, although undocumented, belief that few practicing dentists routinely use RD isolation.[4]

Many studies were conducted to quantify the usage of RD within several countries and they documented a low prevalence of usage of RD during endodontic procedures.[5-8] The reported use of RD for operative dentistry (OD) procedures is much lower, as reported by questionnaire surveys and clinical studies.[9] Composite is the most commonly reported restoration to be placed under RD.[6] A 2006 survey of Irish general dentists reported that 59% of dentists never used a RD when placing anterior composite restorations and 52% never used a RD for posterior composite restorations.[10]

Despite the increasing awareness of the need for effective and evidence-based practice, clinical techniques, such as RD use during composite restorative procedures have not been assessed in Saudi Arabia. The aim of this study was to quantify the usage of RD among general and specialty dental practitioners during composite restorative procedures 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 prepiloted questionnaire (Table 1) was distributed to 306 dentists working in government and private dental clinics from 10 geographically diverse regions in the country (Riyadh, Mecca, Madinah, Baha, Hail, Aseer, Jizan, Najran, Eastern and Northern provinces) through electronic services of Saudi Dental Society research unit.

The sample included general dental practitioners (GP), dentists specialized in OD and other specialty dentists (OSD) and was selected by simple random sampling from the Official Register of Saudi Dental Society. The participation of the dentists was voluntary and the electronic questionnaires were 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.

Table 1: Questionnaire

Gender:	☐ Male	☐ Female			
Nationality:	☐ Saudi	☐ Non-Saudi			
Service sector:	☐ Government	☐ Private			
Type of practice:	☐ General dentist	☐ Specialized in operative dentistry		☐ Other speciality dentist	
Region of practice:	☐ Al Baha	☐ Al Madinah	☐ Eastern province	☐ Al Qassim	☐ Riyadh
	☐ Hail	☐ Makkah	☐ Northern province	☐ Jizan	☐ Tabouk
	☐ Al Jouf	☐ Aseer	☐ Najran		
Length of professional career:	☐ Less than 5 years	☐ More than 5 years			
In anterior teeth, which type of isolation do you use while placing composite fillings?	☐ Rubber dam	☐ Cotton rolls	☐ Others	☐ None	
In posterior teeth, which type of isolation do you use while placing composite fillings?	☐ Rubber dam	☐ Cotton rolls	☐ Others	☐ None	

RESULTS

Completed questionnaires were returned by 191 participants, giving a response rate of 62.4%. A total of 51.8% were males and 48.2% were females. The responses to the survey can be summarized as follows: 66% of the respondents were of Saudi nationality, the remaining 34% were non-Saudi. Also, 74.1% worked in government sector and 25.9% were from private sector (Fig. 1).

A total of 42.4% were GP, 29.3% were OD and 28.2% were OSD (Fig. 2).

A total of 63.5% of them had more than 5 years of working experience and 36.5% had less than 5 years. Dentists from all the 10 geographically diverse regions in the country participated in the study (Fig. 3).

For isolation during composite restorative procedures in anterior teeth, 21.2% of GP, 57.1% of OD and 29.6% of OSD use RD; 77.5% of GP, 42.9% of OD and 68.5% of OSD use cotton rolls and 1.3% of GP and 1.9% of OSD use methods other than RD or cotton rolls (Fig. 4).

For isolation during composite restorative procedures in posterior teeth, 28.8% of GP, 62.5% of OD and 40.7% of OSD use RD; 68.7% of GP, 35.7% of OD and 57.4% of OSD use cotton rolls and 2.5% of GP, 1.8% of OD and 1.9% of OSD use other methods (Fig. 5).

DISCUSSION

This is the first national study among the dentists in the Kingdom of Saudi Arabia to quantify the usage of RD among general and specialty dental practitioners during composite restorative procedures in Saudi Arabia.

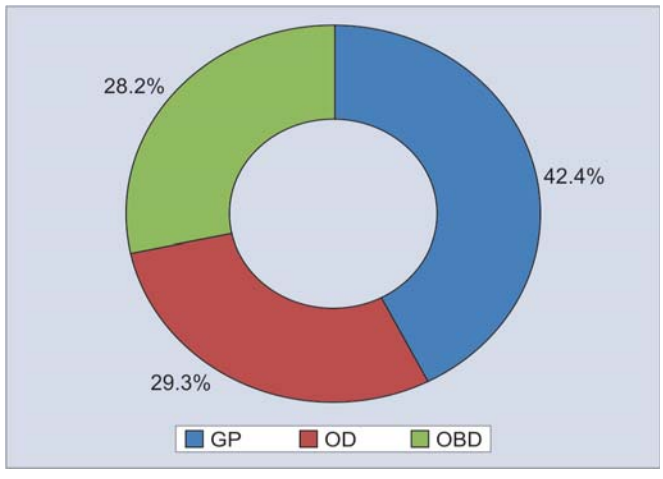

Fig. 2: Sample distribution

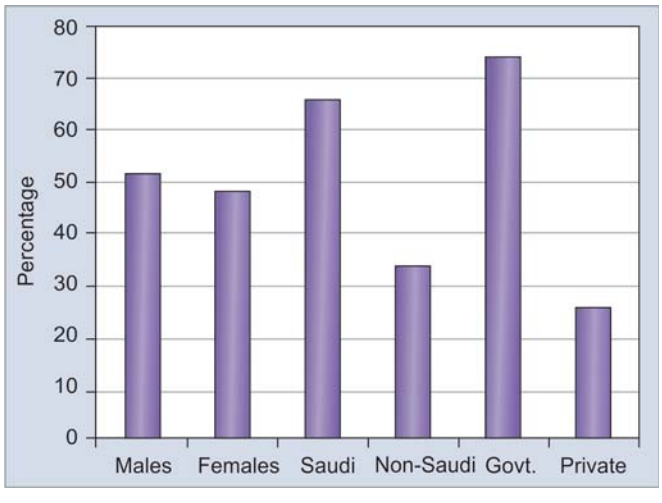

Fig. 1: Demographic details of the respondents

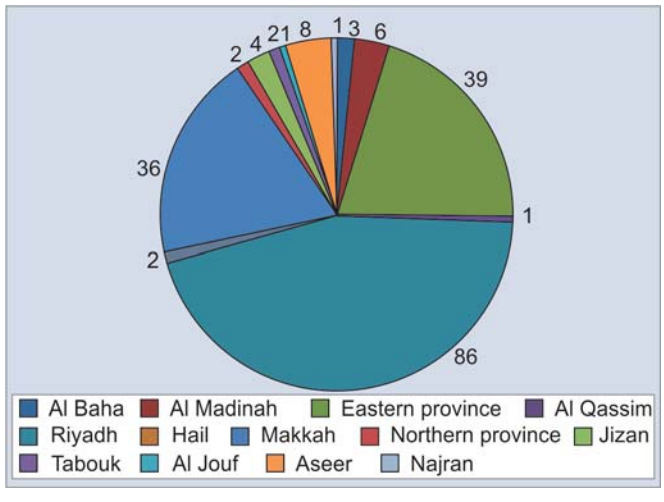

Fig. 3: Distribution of participants region-wise

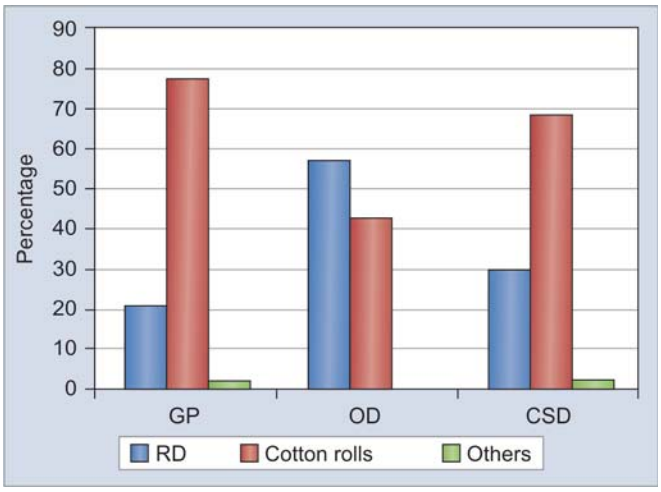

Fig. 4: Isolation methods used for anterior composite restorations

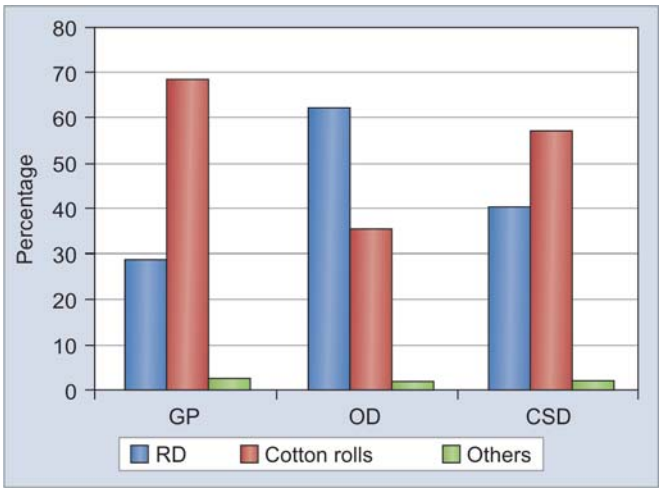

Fig. 5: Isolation methods used for posterior composite restorations

A total of 63.5% of them had more than 5 years of working experience and 36.5% had less than 5 years. In the recent past the curriculum in Saudi Dental Schools has been updated and dentists who have passed out recently may have better understanding of the use of RD. Dentists from all the 10 geographically diverse regions in the country participated in the study (Fig. 3). This ensured that graduates from all Saudi Universities participated in the study. The choice of RD was not of significance as we were primarily concerned about RD usage.

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 usage of RD by dental practitioners during composite restorative procedures in the kingdom.

Previous studies have reported under-usage of RD,[6-15] a similar finding to this study. RD has been available since 1864 and is considered an ideal device for tooth isolation in restorative dentistry. Despite their acknowledged advantages to the operator and patient (Table 2); they have not been universally adopted for various procedures requiring isolation.

Table 2: Advantages of rubber dam

- Moisture-free operating field
- Improved access
- Protection and retraction of soft tissues
- Improved patient comfort
- Minimized procedural time
- Reduced risk of inhalation or ingestion of small instruments or debris
- Minimized mouth breathing (especially useful when inhalation sedation is being administered)
- Cross infection control is achieved by minimization of aerosol spread of microorganisms

This universal underutilization of RD, was recognized by Silversin et al[16] who observed the widespread disregard for RD. The reported use of RD for OD procedures is lower, as compared to endodontic therapy[11] and composite is the most commonly reported restoration to be placed under RD.[6,15]

In the present study, dentists in government sector used RD more often than those working in the private sector. This is in accordance with Udoye and Zafarzadeh[7] who reported a similar finding in Nigeria. It may be that, in Saudi Arabia, dentists in private sector are working under greater time constraints than their counterparts in government sector.

In current study, GP reported that, 78.7% of them never use RD for anterior composite and 71.3% never use RD for posterior composite restorations. They use cotton rolls for isolation in either anterior teeth (77.5%), or posterior teeth (68.8%). This finding suggests a high level of under-utilization of RD by GP in Saudi Arabia, when compared to the findings of previous studies, where 45% of American GP never used a RD for anterior composites and 39% never used RD for posterior composites;[4] 59% of Irish GP never used RD when placing anterior composite restorations and 52% never used a RD for posterior composite restorations[10] and 63% of British GP never used RD for any restoration.[9] The findings of the present study reveal disappointing results which indicate that majority of GP in this country who have been trained in using RD continue to ignore RD for composite restorative procedures. This is consistent with

the results of study of Mala et al,[17] who showed that 62% of students believed that their overall usage of RD would decrease when they start their own practice. This may be a reflection of how dental schools teach RD technique and usage. The undergraduate dental educators have to consider making necessary changes in the curriculum to reduce the discrepancy between what is taught and what is practiced and lay emphasis on promoting critical thinking skills.

Among the dentists specialized in OD, 57.1% use RD and 42.9% use cotton rolls for isolation in anterior composite restorations and 62.5% use RD and 35.7% use cotton rolls for posterior composite restorations. Among OSD, 29.6% use RD and 68.5% use cotton rolls for anterior composite restorations and 40.7% use RD and 57.4% of them use cotton rolls for posterior composite restorations. This is in accordance with the findings of Joynt et al,[11] who observed that specialists and general dentists with postgraduate training had a much higher frequency of RD usage.

Majority of the participants seldom use other methods for isolation (for example: High volume suction/saliva ejector/gauze/napkin tissue). The present study highlights the need for further educational opportunities for RD placement and more awareness programs to sensitize the dentists to the many advantages of RD.

CONCLUSION

RD makes dentistry easier, faster, safer and more satisfying for the operator. It allows the practitioner to deliver a better quality of care and improved patient comfort.

The present study concludes that:

1. There is under-usage of RD during placement of composite restorations by dentists in the study population.
2. Majority of the dentists practicing RD are those who have specialized in OD.

On the basis of the present findings, the authors would like to recommend that:

1. There is need for further educational opportunities for RD placement to increase the usage of RD.
2. Changes in the undergraduate dental curriculum are suggested to focus on the scientific basis and safety merits of RD usage.

REFERENCES

1. Terry DA. An essential component to adhesive dentistry: The rubber dam. Pract Proc Aesthetic Dent 2005;17:106-08.
2. Small BW. The rubber dam: A step toward clinical excellence. Compendium Continuing Educ Dent 2002;23:276-80.
3. Ahmad IA. Rubber dam usage for endodontic treatment: A review. Int Endod J 2009;42:963-72.
4. Hill EE, Rubel BS. Do dental educators need to improve their approach to teaching rubber dam use? J Dent Educ 2008;72:1177-81.
5. Al-Fouzan KS. A survey of root canal treatment of molar teeth by general dental practitioners in private practice in Saudi Arabia. Saudi Dent J 2010;22:113-17.
6. Soldani F, Foley J. An assessment of rubber dam usage amongst specialists in paediatric dentistry practising within the UK. Int J Paediatr Dent 2007;17:50-56.
7. Udoye CI, Jafarzadeh H. Rubber dam use among a subpopulation of Nigerian dentists. J Oral Sci 2010;52:245-49.
8. Whitworth JM, Seccombe GV, Shoker K, Steele JG. Use of rubber dam and irrigant selection in UK general dental practice. Int Endod J 2000;33:435-41.
9. Gilbert GH, Litaker MS, Pihlstrom DJ, Amundson CW, Gordan VV. Rubber dam use during routine operative dentistry procedures: Findings from the dental PBRN. Oper Dent 2010;35:491-99.
10. Lynch CD, McConnell RJ. Attitudes and use of rubber dam by Irish general dental practitioners. Int Endod J 2007;40:427-32.
11. Joynt RB, Davis EL, Schrier PJ. Rubber dam usage among practising dentists. Oper Dent 1989:14;176-81.
12. Hagge MS, Pierson WP, Mayhew RB, Cowan RD, Duke ES. Use of rubber dam among the general dentists in the United States Air Force dental service. Oper Dent 1984;9:122-29.
13. Marshall K, Page J. The use of rubber dam in the UK. A survey. Br Dent J 1990;169:286-91.
14. Pitt Ford TR, Stock CJR, Loxley HC, Watson RMG. A survey of endodontics in general practice in England. Br Dent J 1983;154:222-24.
15. Kapitan M, Sustova Z. The use of rubber dam among Czech dental practitioners. Acta Medica 2011;54(4):144-48.
16. Silversen B, Shafer M, Sheiham A, Smales FC. The teaching and practice of some clinical aspects of endodontics in Great Britain. J Dent 1975;3:77-80.
17. Mala S, Lynch CD, Burke FM, Dummer PMH. Attitudes of final year dental students to the use of rubber dam. Int Endod J 2009;42:632-38.

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