

Original Research

Assessment of employing rubber dam for teeth restorative procedures by local dental practitioners

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ABSTRACT:

Background: Restorative dental treatments are used to repair damage to teeth caused by tooth decay or accidents. Creating a physical barrier around a treatment site to reduce contamination of the site with saliva is a common practice. **Aim of the study:** To study asses of employing rubber dam for teeth restorative procedures by local dental practitioners. **Materials and methods:** The study was conducted in the Department of Conservative Dentistry and Endodontics of the Dental institute. For the study, 120 private dental clinics in the state were selected. A pre-framed questionnaire with closed questions (questions with answers to choose from) was selected and mailed to all the selected practitioners. Information related to year of graduation, practice type and gender of the respondents, information related to use of rubber dam in operative and endodontic procedures, information related to the dentist's attitude to the use of rubber dam and information related to dentist's reasons for using or not using rubber dam were sought in the questionnaire. **Results:** The age group of the participants belonged to 25 to 70 years of which most of the participants belonged to age group 30-49 years. There were 34 dentists with age <30 years, 56 with age between 30-60 years and 30 dentists with age > 60 years. 78 participating dentists were males and 42 dentists were females. The results showed that 4 of male dentists and 2 female dentists always used rubber dam; whereas 12 male dentists and 4 female dentists never used rubber dam. **Conclusion:** Within the limitations of the present study, it can be concluded that majority of private practising dentists never use rubber dam in actual practice. So, there is a high need for improving the awareness among private dentist practitioners to use rubber dam to improve quality of treatment provided.

Keywords: Rubber dam, restorative procedure, tooth restoration

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INTRODUCTION

Restorative dental treatments are used to repair damage to teeth caused by tooth decay or accidents. Creating a physical barrier around a treatment site to reduce contamination of the site with saliva is a common practice.^{1,2} Reducing the amount of saliva in the area may enable the materials used for repair to bond together more effectively, improving the performance and reliability of the restoration.

It may also reduce exposure to bacteria in the mouth. A previous study conducted by the former regional Dental Practice-Based Research Network (DPBRN) determined that 44% of general dentists (GDs) reported always using a

RD for RCT procedures.^{3,4} The study also found that the most common alternative isolation methods were cotton rolls and gauze squares. A study of English GDs also reported cotton rolls as an alternative to RD, and found 29% of GDs used cotton rolls alone or with napkins and sponges, while 37% used a RD. The English study found no correlation between use of RD and the dentists' age group, gender, university of qualification. The former DPBRN study also reported the use of Isolite® as a method for achieving isolation.⁵⁻⁷

Hence, the present study was conducted to study asses of employing rubber dam for teeth restorative procedures by local dental practitioners.

MATERIALS AND METHODS

The study was conducted in the Department of Conservative Dentistry and Endodontics of the Dental institute. For the study, 120 private dental clinics in the state were selected. A pre-framed questionnaire with closed questions (questions with answers to choose from) was selected and mailed to all the selected practitioners. Information related to year of graduation, practice type and gender of the respondents, information related to use of rubber dam in operative and endodontic procedures, information related to the dentist's attitude to the use of rubber dam and information related to dentist's reasons for using or not using rubber dam were sought in the questionnaire. The questionnaires were collected a week after reaching the participant. Data obtained from the questionnaire were collected and stored. The statistical analysis of the data was done using SPSS version 11.0 for windows. Chi-square and Student's t-test were used for checking the significance of the data. A p-

value of 0.05 and lesser was defined to be statistical significant.

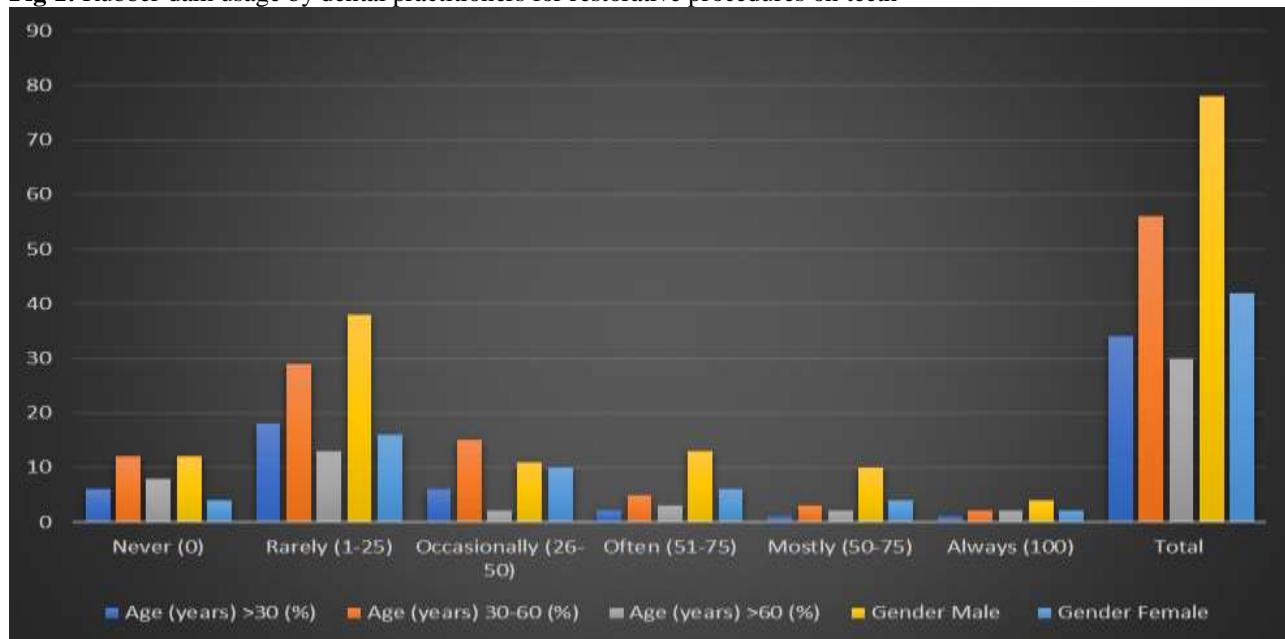
RESULTS

For the study, 120 questionnaires were mailed to private dental clinics in the district. The age group of the participants belonged to 25 to 70 years of which most of the participants belonged to age group 30-49 years. There were 34 dentists with age <30 years, 56 with age between 30-60 years and 30 dentists with age > 60 years. 78 participating dentists were males and 42 dentists were females. The results showed that 4 of male dentists and 2 female dentists always used rubber dam; whereas 12 male dentists and 4 female dentists never used rubber dam. The highest frequency of dentists was seen in group who rarely use rubber dam to perform restorative procedures on the teeth. On comparing the results, it was found to be statistically significant.

Table 1: Rubber dam usage by dental practitioners for restorative procedures on teeth

Rubber dam used for restorative procedures for anterior teeth	Age (years)			Gender	
	<30 (%)	30-60 (%)	>60 (%)	Male	Female
Never (0)	6	12	8	12	4
Rarely (1-25)	18	29	13	38	16
Occasionally (26-50)	6	15	2	11	10
Often (51-75)	2	5	3	13	6
Mostly (50-75)	1	3	2	10	4
Always (100)	1	2	2	4	2
Total	34	56	30	78	42

Fig 1: Rubber dam usage by dental practitioners for restorative procedures on teeth



DISCUSSION

The use of rubber dam by private dental practitioners is very low as indicated by present study. The use of rubber dam during restorative procedures has a number of benefits like infection control, patient safety and mediological concerns but due to some factors most of the practitioners prefer to treat the patient without rubber dam. This might be possible because most of the participants think that they can get proper isolation for a procedure with cotton rolls only and do not need rubber dam. Al-Sabri FA et al evaluated the general attitude of undergraduate dental students toward rubber dam use, specifically focusing on operative procedures before starting to serve community. Questionnaires were distributed to undergraduate clinical years' students of two private colleges; Al-Farabi Dental College, Riyadh, KSA and Buraidah Private Colleges, Qassim, KSA. Questions were asked about areas where the students used rubber dam in operative procedures, in which types of caries classes, and in which type of restoration they frequently used the rubber dam. They found that students of both private dental colleges agreed with the opinions that proper isolation cannot be achieved for the restoration of operative procedures without using rubber dam and restoration placed under rubber dam have a greater longevity than those placed without. Within the limitations of their study, it can be concluded that the perceptions of dental students on rubber dam need to be improved and strategies should be developed so that this valuable adjunct will comprise one of the indispensable elements of dental care. Tanalp J et al evaluated the general attitude of senior dental students towards rubber dam use, specifically focusing on endodontic practices prior to starting to serve community. Questionnaires were distributed to senior year students of a private school and a state school in Istanbul. Questions were asked about areas where the students used rubber dam, its advantages and difficulties, and whether they agreed or disagreed with some aspects of the rubber dam. The private school students rated isolation whereas those of the state school selected prevention of aspiration which the top advantage rubber dam provides. Students of the state school agreed with the opinion that isolation cannot be achieved without rubber dam and it extended the procedure with a significantly higher ratio compared to the private school. Within the limitations of this study, it can be concluded that the perceptions of dental students on rubber dam needs to be improved and strategies should be developed so that this valuable adjunct will comprise one of the indispensable elements of dental care.^{7,8}

Ryan W et al evaluated the attitude of undergraduate students towards the use of the rubber dam and elucidate if the negativity towards its use is evident in undergraduate clinics. A structured questionnaire was developed, which sought to establish current perceptions of the use of the rubber dam in adults and children, and circulated to the current fourth and final year clinical undergraduate class in

the Dublin Dental Hospital. Isolation was identified as the main advantage of using a rubber dam and difficulty to place the main disadvantage. Some 98.5% of students believed they had received adequate training in rubber dam use for adults. While 72% of students were confident in placing a rubber dam for children, 38% felt that more training was necessary. The most commonly cited difficulty in placing a rubber dam was tight contacts. Most students are confident regarding which clamps to use. The majority of students (61%) believe that patients, especially children, prefer treatment without rubber dam isolation and that adequate isolation can be achieved without using a rubber dam. The average time spent placing the rubber dam was eight minutes for children and five minutes for adults. The students are more predisposed to using the rubber dam on adults than children for the same procedure. They concluded that undergraduate students are not convinced that the use of a rubber dam is effective and efficient except for endodontic therapy. Students already believe that patients, both adults and children, would prefer their treatment to be conducted without a rubber dam. Teaching efficient methods of placing the rubber dam may improve students' confidence and reduce placement time so that the students will be more likely to use the rubber dam after graduation. Gilbert GH et al quantified how commonly the rubber dam is used during operative dentistry procedures and to test the hypothesis that certain dentist, restoration and patient-level factors are associated with its use. A total of 229 dentist practitioner-investigators in The Dental Practice-Based Research Network (DPBRN) participated. DPBRN comprises five regions of the USA: Alabama/Mississippi, Florida/Georgia, Minnesota, Permanente Dental Associates and Scandinavia. Practitioner-investigators collected data on 9,890 consecutive restorations done in previously unrestored tooth surfaces from 5,810 patients. Most dentists (63%) did not use a rubber dam for any restoration in this study. A rubber dam was used for only 12% of restorations, 83% of which were used in one DPBRN region. With regions accounted for, no other dentist characteristics were significant. A multi-level multiple logistic regression of rubber dam use was done with restoration and patient-level variables modeled simultaneously. In this multi-variable context, these restoration-level characteristics were statistically significant: tooth-arch type, restoration classification and reason for placing the restoration. These patient-level characteristics were statistically significant: ethnicity, dental insurance and age. These results, obtained from actual clinical procedures rather than questionnaires, document a low prevalence of usage of the rubber dam during operative dentistry procedures. Usage varied with certain dentist, restoration and patient-level characteristics.^{9,10}

CONCLUSION

Within the limitations of the present study, it can be concluded that majority of private practising dentists never use rubber dam in actual practice. So, there is a high need for improving the awareness among private dentist practitioners to use rubber dam to improve quality of treatment provided.

REFERENCES

1. MA Cochran, CH Miller, MA Sheldrake. The efficacy of rubber dam as a barrier to the spread of microorganisms during dental treatment. *J Am Dent Assoc.* 1989;119:141–5.
2. J Goultschin, B Heling. Accidental swallowing of an endodontic instrument. *Oral Surg Oral Med Oral Pathol Oral Radiol Endod.* 1971;32:621–2.
3. T Lambrianidis, P Beltes. Accidental Swallowing of endodontic instruments. *Endod Dent Traumatol.* 1996;12:301–4.
4. Savani GM, Sabbah W, Sedgley CM, Whitten B. Current trends in endodontic treatment by general dental practitioners: report of a United States national survey. *J Endod.* 2014;40:618–624.
5. Anabtawi MF, Gilbert GH, Bauer MR, Reams G, Makhija SK, Benjamin PL, Dale Williams O National Dental Practice-Based Research Network Collaborative Group. Rubber dam use during root canal treatment: findings from The Dental Practice-Based Research Network. *J Am Dent Assoc.* 2013;144:179–186.
6. Palmer NO, Ahmed M, Grieveson B. An investigation of current endodontic practice and training needs in primary care in the north west of England. *Brit Dent J.* 2009;206:E22. discussion:584–585.
7. Al-Sabri FA, Elmarakby AM, Hassan AM. Attitude and knowledge of isolation in operative field among undergraduate dental students. *Eur J Dent.* 2017;11(1):83–88. doi:10.4103/ejd.ejd_191_16
8. Tanalp J, Kayataş M, Can ED, Kayahan MB, Timur T. Evaluation of senior dental students' general attitude towards the use of rubber dam: a survey among two dental schools. *ScientificWorldJournal.* 2014 Mar 3;2014:290101. doi: 10.1155/2014/290101. eCollection 2014.
9. Ryan W, O'Connell A. The attitudes of undergraduate dental students to the use of the rubber dam. *J Ir Dent Assoc.* 2007 Summer;53(2):87-91.
10. Gilbert GH, Litaker MS, Pihlstrom DJ, Amundson CW, Gordan VV; DPBRN Collaborative Group. Rubber dam use during routine operative dentistry procedures: findings from the Dental PBRN. *Oper Dent.* 2010 Sep-Oct;35(5):491-9. doi: 10.2341/09-287C.