

# Use of Rubber Dam among Dental Students –A Questionnaire Study

S.M. Shabana Khathoon, James D Raj  
*Saveetha Dental College and Hospitals, Chennai*

---

**Abstract:-****Aim:**

The aim of this study was to gather and evaluate information regarding the use of rubber dam among undergraduates dental students.

**Method:-**

Usage of Rubber dam use has been quantified based on questionnaires which were distributed to dental students. 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 question were then collected and evaluated.

**Reason:**

The purpose of the present study is to determine the rubber dam usage among dental students, specifically focusing on endodontic treatment, evaluate the problems they encountered, and gather information about their prospective presumptions about using it in the future.

---

**INTRODUCTION:**

Rubber dam (RD) is considered as an ideal device for tooth isolation. 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 Rubber dam. Because of the obvious merits, majority of dental schools teach that use of Rubber dam is mandatory for certain procedures, e.g. endodontic therapy and adhesive dentistry. In spite of its wide range of functions, Rubber dam is often overlooked by dental practitioners. Rubber dam has long been used in the dental field for its many helpful advantages during operative and endodontic procedures.[1,2] Rubber dam offers an excellent means of infection control during dental treatment by mainly reducing bacterial contamination of any dental preparations or root canal systems.[3,4] Furthermore, rubber dam prevents the transmission of any infectious agents. The rubber dam has been considered as a standard of care during operative and endodontic procedures, because of its many advantages.(5,6) Rubber dam provides an infection control barrier during the dental procedures by reducing the bacterial contamination of any dental preparation and root canal system.(7,8)It also provides an infection control barrier for the dentists and patients by preventing the transmission of any infectious agent between them.

**MATERIALS AND METHODS:**

Questionnaire containing the items about the opinions and attitudes of dentists toward the use of rubber dam, was designed. Then this questionnaire was piloted and distributed to 300 dentists, and informations about the opinions and attitudes of dentists toward the use of rubber dam were collected. 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 finally by organisers. The collected data were statistically analysed. If the questionnaire was not filled completely, it was not excluded as a whole, but only the answer questions were taken into consideration in statistical analysis.

**OPINIONS OF STUDENTS ABOUT THE USAGE OF RUBBER DAM**

1. Do you ask your patients whether they have latex allergy prior to rubber dam use?

<input type="checkbox"/> Yes	52%
<input type="checkbox"/> No	48%
2. Do you use rubber dam in paediatric patients?

<input type="checkbox"/> Yes	5%
<input type="checkbox"/> No	95%
3. Do you use rubber dam during amalgam restorations?

<input type="checkbox"/> Never	5%
<input type="checkbox"/> Rarely	15%
<input type="checkbox"/> Sometimes	20%
<input type="checkbox"/> Always	60%
4. Do you use rubber dam during composite restorations?

<input type="checkbox"/> Never	2%
<input type="checkbox"/> Rarely	35%
<input type="checkbox"/> Sometimes	63%
5. During which stage of endodontic treatment do you use rubber dam?

<input type="checkbox"/> Following anesthesia	2%
<input type="checkbox"/> During access cavity preparation	2%
<input type="checkbox"/> Following identification of root canal orifices	
During root canal shaping	68%
<input type="checkbox"/> During root canal filling	28%

6. Do you think you have been given adequate and satisfactory education regarding rubber dam?  
 Yes 52%  
 No 48%
7. During endodontic treatment of teeth with extensive tissue loss  
 I don't use rubber dam 60%  
 I perform a restoration so that I can place the rubber dam 40%
8. What in your opinion is the greatest advantage offered by the rubber dam?  
 Provision of isolation and an aseptic working area 40%  
 Prevention of swallowing or aspirating instruments 50%  
 Prevention of ingestion of irritants 10%
9. What is the major factor that makes rubber dam application a difficult procedure?  
 Selection of the clamp and its adaptation 80%  
 Placement of the rubber dam 12%  
 Placement of the frame 8%
10. Rubber dam eases the restoration stage  
 I agree 52%  
 I disagree 48%
11. Treatments performed using the rubber dam are more successful than those performed without using it  
 I agree 78%  
 I disagree 22%
12. An adequate isolation cannot be achieved in case rubber dam is not used  
 I agree 71%  
 I disagree 29%
13. Rubber dam eases access to root canals  
 I agree 60%  
 I disagree 40%
14. Rubber dam makes radiograph taking procedure difficult  
 I agree 83%  
 I disagree 17%
15. Rubber dam is difficult to apply  
 I agree 85%  
 I disagree 15%
16. Rubber dam consist of two many components  
 I agree 88%  
 I disagree 12%
17. Rubber dam shortens/ extends treatment plan  
 I agree 91%  
 I disagree 9%
18. Rubber dam is more necessary while working in the  
 Mandible 95%  
 Maxilla 5%
19. Assistance is necessary during rubber dam application  
 I agree 45%  
 I disagree 55%
20. Patient do not like the rubber dam  
 I agree 90%  
 I disagree 10%
21. I use the rubber dam in the clinic, because  
 I strongly believe that it is a helpful tool 25%  
 I only use it because I am obliged to 75%
22. Following graduation  
 I intend to use the rubber dam during all procedures indicated 24%  
 I intend to use it only during restorative procedures 46%  
 I intend to use it only during root canal treatment 30%

#### RESULTS:

The greatest advantage offered by Rubber dam, provision of isolation and an aseptic field was the top ranked benefit. As for the most difficult stage of rubber dam application, clamp placement seemed to be the predominant answer (80%). Most of the students agreed with the opinion that treatments performed using the rubber dam were more successful than those where it was not used (80%). Most students also shared the opinion that adequate isolation cannot be achieved without rubber dam (71%). On the other hand, students rather disagreed with the opinion that rubber dam use would ease access to root canals (60%). The majority of students thought rubber dam usage posed difficulty in taking radiographs (83%). Most students also shared the opinion that application of the dam was difficult and it consisted of too many components (88% and 12% resp.). The majority also thought that rubber dam use would increase the duration of the procedure (91%). The mandible was ranked as the jaw where rubber dam placement was more necessary by most students (95%). The students generally thought that assistance was not required for the placement of the dam. A high proportion of the respondents agreed that patients disliked the rubber dam (90%). A higher proportion (88%) indicated that they use the rubber dam at the students clinic because they were obliged to, compared to the 12% who really believed in its usefulness. 25.2% of the students declared they would never use a rubber dam after graduation where as 25.2% Indicated that they would use it when necessary. The majority of the remaining students(49%) indicated that they would use the rubber dam only for endodontics. When the students who would not use rubber dam were questioned about the reasons, consumption of more time for its placement, , difficulty in placing , and patients' dislike were declared as factors for such a decision.

**DISCUSSION:-**

Rubber dam is mostly used for root canal treatment and for the placement of composite fillings (9, 10). The use of rubber dam in the treatment of children is limited appreciably by the children's poor cooperation (11). More than half of the regular rubber dam users do not use it when treating children. The frequency of rubber dam usage increases significantly with increasing percentage of direct payments. Dentists are forced or motivated more to use rubber dam as a quality standard method of operation field isolation in treatment. Barriers for the use of rubber dam apparently include lack of experience, underestimation of its benefits and a lack of motivation (12). Another reason is that the amount of time required to place rubber dam is often overestimated (13). Furthermore, dentists are often concerned that patients will not tolerate rubber dam (14). If instructed properly, most patients tolerate rubber dam very well; many of them even find treatment with rubber dam more comfortable and bearable (15). Another disadvantage of rubber dam has been reported as the difficulty of mounting radiographs in the proper position with the dam in place. On the other hand, removal of the dam during radiography cannot be accepted as this step is specifically performed with an instrument within the root canal to determine the working length. During this step, the patient is generally left alone at the radiography site and there is no possibility of intervention in case hazards occur. Therefore, radiographs should definitely be taken with the rubber dam placed in position. In other countries like Belgium, 64.5% of practitioners did not use rubber dam routinely while only a very minor proportion (3.4%) believed rubber dam to be a standard procedure (16). Whitworth et al. stated that the negative perception regarding patients' dislike towards rubber dam may be related more strongly to practitioner attitude. Stewardson and McHugh also indicated that the experience of the dentist and their level of skill influence the patient's opinion and suggested that proficiency regarding the utilization of rubber dam must be gained through frequent usage. In general, presence of latex allergy was not asked to the patients by almost half of the students, higher than the ratio reported by Mala et al. This result may suggest that more attention must be directed towards the possibility of latex allergy prior to application of the rubber dam considering some cases published (17). The high percentage of students who did not use rubber dam for child patients (89.1%) also exceeded the ratio (68%) reported by Mala et al. [2]. This issue however needs to be considered from a pedodontic standpoint, probably in a future study focusing on this group of patients. Percentages of students with this opinion were higher than those reported by Mala et al. [2]. Recently, there has been increasing effort to implement a malpractice law in the country, encompassing all healthcare givers. This will necessitate taking more intensive measures by both practitioners as well as authorities for the provision of patient. Unlike the reasons cited by Marshall and Page (1990) in their study, [9] for not using rubber dam, the main reasons mentioned in our survey by the private practitioners in the UAE were patient discomfort. minutes. (18). In addition, the extra time spent in placing the dam is more

than compensated with better working conditions offered by the dam including controlling the saliva contamination and eliminating the need to frequently change cotton rolls as well as limiting the movements of the patient's tongue and lips. As it is already evident that rubber dam may reduce the incidence of post-treatment disease during root canal treatment, (19). Results show that almost 50% of the respondents were confident that root canal fillings placed in the absence of rubber dam were just as successful as those placed with a rubber dam. The use of rubber dam in root canal procedures is considered the minimum safety standard of care. (20). The importance of the safety of the rubber dam is highlighted by the list of endodontic instruments that have been ingested or inhaled. Despite this, performing endodontic treatment without the rubber dam risks harming the patient and is considered legally indefensible (21).

**CONCLUSION:**

It may be necessary to increase the awareness of private practitioners to the benefits of rubber dam use by means of continuing education and stressing its importance in undergraduate studies. Rubber dam is mostly used for endodontic treatment and for the placement of composite fillings. Rubber dam 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.

**REFERENCES :**

- Hill ee, Rubel BS Do Dental educators Need to Improve Their Approach to Teaching Rubber Dam Use? *Journal of Dental education* 2008; 72: 1177-81
1. Ahmad IA. Rubber dam usage for endodontic treatment: A review. *International endodontic Journal* 2009; 42: 963-72
- European Society of endodontology. Quality guidelines for endodontic treatment: consensus report of the european Society of endodontology. *International endodontic Journal* 2006; 39: 921-30.
- Filipović J, Jukić S, Miletić I, Pavelić B, Malčić A, Anić I. Patient's Attitude to Rubber Dam Use. *Acta Stomatologica Croatica* 2004; 38: 319-22.
- Gergely eJ. Desmond greer Walker Award. Rubber dam acceptance. *British Dental Journal* 1989; 167: 249-52
- Rule RW (1931) Rubber dam: its use and adjustment *Pac Dent Gas* 39, 541-556.
- Ireland L (1962) The rubber dam. Its advantages and application. *Tex Dent J* 80, 6-15.
- Rugg-Gunn AJ, Welbury RR, Toumba J (2001) British Society of Paediatric Dentistry: a policy document on the use of amalgam in paediatric dentistry. *Int J Paediatr Dent* 11, 233-238.
- Fayle SA, Welbury RR, Roberts JF (2001) British Society of Paediatric Dentistry: a policy document on management of caries in the primary dentition *Int J Paediatr Dent* 11, 153-157
- S. Mala, C. D. Lynch, F. M. Burke, and P. M. H. Dummer, "Attitudes of final year dental students to the use of rubber dam," *International Endodontic Journal*, vol. 42, no. 7, pp. 632-638, 2009.
- M. Kapit' an and Z. Sustov' a, "The use of rubber dam among Czech dental practitioners," *Act Medica*, vol. 54, no. 4, pp. 144-148, 2011.
- K. Iwatani, K. Matsuo, S. Kawase, N. Wakimoto, A. Taguchi, and T. Ogasawara, "Effects of open mouth and rubber dam on airway patency and breathing," *Clinical Oral Investigations*, vol. 17, no. 5, pp. 1295-1299, 2013.
- I. A. Ahmad, "Rubber dam usage for endodontic treatment: a review," *International Endodontic Journal*, vol. 42, no. 11, p 963-972, 2009
- G. Slaus and P. Bottenberg, "A survey of endodontic practice amongst Flemish dentists," *International Endodontic Journal*, vol. 35, no. 9, pp. 759-767, 2002.

15. B.H.Whitten,D.L.Gardiner,B.G.Jeansonne,and R.R.Lemon, "Current trends in endodontic treatment: report of a national survey," *Journal of the American Dental Association*, vol. 127, no. pp. 1333–1341, 1996
16. J. M. Whitworth, G. V. Seccombe, K. Shoker, and J. G. Steele, "Use of rubber dam and irrigant selection in UK general dental practice," *International Endodontic Journal*, vol. 33, no. 5, pp.436–441, 2000
17. B.H.Whitten,D.L.Gardiner,B.G.Jeansonne,and R.R.Lemon, "Current trends in endodontic treatment: report of a national survey," *Journal of the American Dental Association*, vol. 127, no.9, pp. 1333–1341, 1996
18. D.J.Kleier and K.Shibilski, "Management of the latex hypersensitive patient in the endodontic office," *Journal of Endodontics*, vol. 25, no. 12, pp. 825–828, 1999.
19. E.Kosti and T.Lambrianidis, "Endodontic treatment in cases of allergic reaction to rubber dam," *Journal of Endodontics*, vol.28,no. 11, pp. 787–789, 2000
20. Soldani F, Foley J. An assessment of rubber dam usage amongst specialists in paediatric dentistry practising within the UK. *Int J Paediatric Dent* 2007;17:50-56
21. Kapitan M, Sustova Z. The use of rubber dam among Czech dental practitioners. *Acta Medica* 2011;54(4):144-48.