

# An Evaluation of Rubber-Dam Acceptability by Dental Practitioners in RAKCODS

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## Introduction

A dental rubber-dam is a thin sheet of latex rubber which isolates the operative site from the rest of the mouth. The rubber-dam has been the most useful way of care when performing operative and root canal treatment. Rubber-dam is an excellent mean of providing infection control during dental procedure.

It is used to prevent saliva from contaminating the work field and to keep the operation field dry as well as stopping the dental material to be inhaled by the patient.

Yet it is not always used. In this research we are going to gather information and see why dentists think its very time consuming or is it because patients don't accept it or is it both. Isolation is the adjunct for the success of dental treatment in its various fields and aspects. It can be achieved by different means. For example, the direct methods which are (rubber-dam, cotton rolls, retraction cord and suction devices) also indirect methods are available such as local anesthesia and drugs. But among them all, the rubber is said to be the most successful and effective method<sup>1,2</sup>.

Rubber-dam is being used in dentistry since it was invented in 1986 by Sanford Christie Barnum, and it's considered by countless textbooks to be the standard of care in dental practice<sup>3</sup>. The rubber-dam has many components such as

## Abstract

To evaluate the prevalence of usage and reasons why rubber-dam used and not being used as well as the patients concerns and to determine if rubber-dam does improve the quality of care or no. It was an Observational study. This study was conducted at RAKCODS clinics, UAE. A paper-based questionnaire was distributed to 120 candidate of 4th, 5th year clinical students and inters in RAKCODS clinics. The data collected were statistically analyzed. A low 26% of the responders answered that they always use rubber when compared to other studies done by National Dental Practice-Based Research Network which had 44% of practitioners always use rubber-dam. Patients who refuse the application of rubber-dam claimed that it is harder for them to breath, painful, lack of communication with the dentist and that they are terrified. A 90% of participants answered that the rubber-dam improved the success rate of the treatments. The study showed that rubber-dam usage in RAKCODS clinic is less than it should be. Hence promotion of rubber-dam usage must be done more effectively in pre-clinical. Solutions should be provided to eliminate the discomfort while using rubber-dam.

**Keywords:** Rubber-dam, RAKCODS, Dental practitioners, Dentistry

sheets which varies in thickness size and color, retainers (clamps) which anchors the tooth and retracts gingiva and have different types, Holder (frame) which maintains the rubber-dam borders in position (they are available for children and adults) as well as punch, clamp forceps, dental floss, scissors and lubricant<sup>4,5,8</sup>.

The rubber-dam offers the dentist and the patient a variety of advantages such as isolation of the operative area, provision of aseptic field, prevention of infection transfer, prevent ingestion or aspiration of instruments, tooth debris, hemorrhage and materials or irrigants. as well as protection and retraction of soft tissue during operative procedures, minimizes patient conversation during treatment hence reduces the need for frequent rinsing. However, there are some factors limiting the application such as patient's asthma, mal positioned teeth, third molars and teeth that have not erupted sufficiently<sup>4,6,7</sup>.

With all these advantages as well as legal point of view favoring the rubber-dam, the use of rubber-dam there still seems to be ignored by practitioners and dental students. This issue has been drawing attention by authors who determined a significant underuse in general practice<sup>8,9</sup>. It has been indicated that dentists believe that rubber-dam is too time consuming and patients do not accept the rubber-dam

experience. Many patients are afraid of the rubber-dam because they think that they won't be able to breath, there are limited clamp sizes and unlimited tooth shapes. If the dentist chooses the wrong size the clamp it can damage the gingiva<sup>8-10</sup>.

The aim of this study was to determine the attitude of a group of clinical year's students and interns in RAK College of Dental Science (RAKCODS) towards rubber-dam application specifically focusing on endodontic and operative aspect of dentistry.

### Objectives

- 1-Prevalence of rubber-dam usage and reasons for it being used and not used.
- 2-To interpret the reasons why the practitioners claim that patients do not accept rubber-dam.
- 3-To evaluate the treatment outcome with rubber-dam according to the students and interns.

### Methodology

This study was performed through a paper-based questionnaire, given to 120 candidates from the 4th and 5th year BDS program and interns at RAKCODS, during March 20th 2017 to September 2017. The study included questions about the usage of Rubber-dam and the reasons for it being used or not being used. This study focused on establishing the number of dental students using who actually use the rubber-dam and why they use it and why they don't and

provide solutions for the problems they face. The data were entered and analyzed in SPSS version 20. The frequency and distribution of the data were analyzed using Chi square tests. According to inclusion criteria the 4th and 5th year BDS program and interns at RAKCODS were eligible to participate in the study. Exclusion criteria was non clinical year students and 3rd year students.

### Results

After collecting 90 responses from 4th - 5th year students and interns, data was analyzed.

**Table 1:** Shows the Frequency of use of rubber-dam in RAKCODS clinic and the reasons why they use it and the reasons why it's been ignored in percentage. A statistical significance was found in the frequency of usage as the majority of participants often use rubber and a very low proportion rarely and never use it. Students and interns are aware of the advantages of rubber-dam and the table below shows the reasons why they use it. The reasons to refuse the rubber-dam was mostly because it is very difficult to take x-rays as the patients are not trained to hold the film and students take extra radiation just to make sure of the quality of the images and to make it less time consuming and less exposure to the patient. A significance was found because of low percentage of responders to point that cost is a reason to ignore rubber-dam.

		Proportion	P-value	Significance
Frequency of Use	Always	26%	0.00	Significance
	Often	41%		
	Occasionally	29%		
	Rarely	4%		
	Never	0%		
Reason (yes)	Minimize patient conversation	15%	0.0965	Not Significance
	Retraction of soft tissue	17%		
	Isolation and provision of a septic field	25%		
	Prevention of infection transfer	20%		
	Prevention of material aspiration	23%		
Reason (No)	Difficult to use	16%	0.0001	Significance
	Time consuming	26%		
	Patient discomfort	22%		
	Difficult when taking X-ray	29%		
	Cost	7%		

Fig (1). shows whether the patients accept or refuse rubber-dam according to the students and interns in percentage. (53%) Accepted and (47%) Refused and the reasons will be shown in Fig (2).

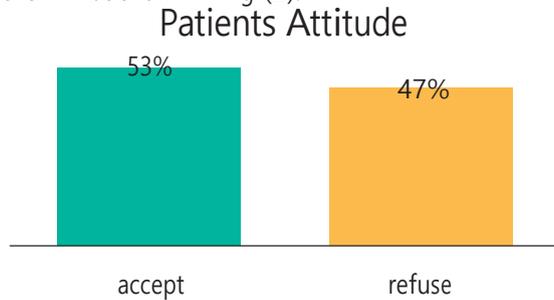


Fig (2). Shows the reasons behind patient's refusal and the percentages of each.(27%) of patients says it's painful because each tooth is different than the other and the clamps do not fit all the time so pain can be felt from the pressure on the gingiva. (31%) said lack of communication as they cannot tell their doctor what they are feeling and if they want to ask or recommend something. (25%) Difficulty in breathing, especially in mouth breathers were the sheet covers the mouth and sometimes the doctors extend the sheet to cover the nose. (17%) are terrified as they are not introduced to the rubber-dam earlier and about its advantages, but they only see the sheet, frame clamp and clamp holder going into their mouth and on the tooth which makes them anxious and think that the doctor might extract the tooth without telling the patient.

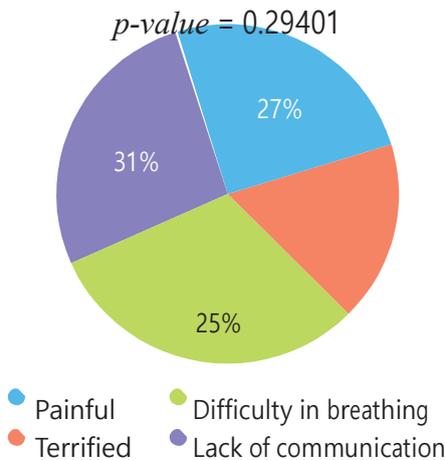
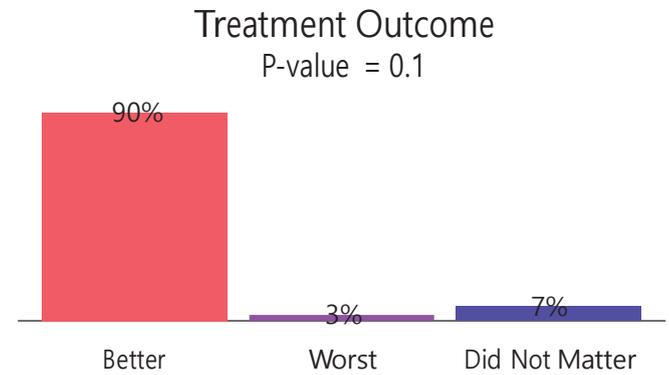


Fig (3). shows the findings regarding the Treatment outcome according to the responders and the results were, (90%) said that rubber-dam provides Better treatment outcome to prove once again the importance and effectiveness of rubber-dam in dental care. (7%) said it did not matter which includes that they do not know what happened to the patient after the treatment as there was no feedback or recall visits. (3%) reported that the treatment was worst maybe because it was

not applied properly which caused difficulties during the treatment which effected the end result.



**Discussion**

90 students out of 120 participated and replied to the questionnaire. The results in Table (1) were found less than adequate when compared to the results of NDPBRN (National Dental Practice-Based Research Network) which has showed that 44% of practitioners always the rubber-dam, 24% used often, 17% occasionally and 15% not being used.

The participant was also asked whether if the patient refusal is a factor in not using the rubber-dam or not and results were as followed 53% of the patients accept the use of rubber-dam while 47% refuse it .31% refused because of lack of communication. 27% being painful. 25% difficulty in breathing and the other 17% terrified.

One of the questions referred to the success rate of the treatment with rubber-dam according to the participants experience and knowledge in comparison with Fig (3), Only 68% of students in a study which was done in two British schools implied that rubber-dam had enabled higher clinical standards. This percentage is lower than RAKCODS clinic.

A higher 59% of students use rubber-dam in endodontic treatment compared to a 41% in operative treatment to provide good isolation of the canals and prevent aspiration of files and irrigation solutions. 65% of responders preferred single tooth isolation over 35% multiple isolation stating that it's easier and less time consuming 64% implied that they prefer using rubber-dam in the mandible as there is more accumulation of saliva and fluids when compared maxilla.

**Conclusion**

The study showed that rubber-dam usage in RAKCODS clinic is less than it should be. A very high 90% of the responders admitted that rubber-dam increased the success and effectiveness of treatments done. Hence promotion of rubber-dam usage must be done more effectively in pre-clinical and clinical practice in various ways such as information regarding better brands of rubber-dam sheet, patient education, providing film holders and more strict approach by the supervisor towards rubber-dam application.

## LIMITATIONS

The number of the responders was not large enough because the study setting was limited to RAKCODS clinics and not all the candidates participated in the survey.

## FUTURE DIRECTION

We suggest for the future research to include a larger number of participants and include other dental schools in UAE. Another research could be conducted to evaluate the effectiveness of rubber-dam against other isolation methods.

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