Knowledge, Attitude, and Practice of General Dental Practitioners towards the Use of Rubber Dam in Nepal

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ABSTRACT

Introduction: Isolation of teeth is crucial for multiple procedures in dentistry. For this the rubber dam is considered as a useful adjunct in dentistry, helping in achieving a drier field and improved visibility during operative procedures. Rubber dam serves well for isolation of the tooth by making the working field clear of oral fluid hindrances.

Objective: To determine the general knowledge, attitude, and practice of usage of rubber dam among dental practitioners in Kathmandu.

Materials and Method: A cross-sectional study was designed. Three hundred questionnaires were distributed to dental practitioners of Kathmandu, working in various government and private hospitals and clinics. The data were collected and descriptive statistical analysis was done.

Result: Out of 300 questionnaires only 267 were returned. Only 247 (92.50%) that were filled completely were included in the study. We found that most of the dental practitioners 201 (81.4%) do not use rubber dam in their daily practice and it was observed to be used mostly by the endodontists.

Conclusion: The findings of this study show that the dentists of Kathmandu although have significant knowledge of rubber dam use, they do not use rubber dam much. This study show that dentists have to be encouraged to use rubber dam.

Keywords: Endodontics; operative dentistry; rubber dam.

INTRODUCTION

Rubber dam is considered as a useful adjunct in operative and endodontic field. It was introduced by Dr. Sanford C Barnum in 1864.[1] It is a sheet of rubber used in dentistry for achieving a drier field by isolating tooth and improved visibility during operative procedures.[1-3]

Use of rubber dam with proper standardisation can definitely help to perform any operative and endodontic procedure with convenience which results in improved quality of treatment outcome. It also provides an infection control barrier for the dentist and patients.[3] Despite so many advantages, its practice among dentists seems to be dimmed because it is time consuming, some patients find it uncomfortable, and due to lack of required skill of usage. However, it has been proven to be boon for dentists if used with good skill and care.[4,5]

Various studies have been carried out worldwide to find out the usage of rubber dam among general dental practitioners; however, in Nepal data on the subject is scarce. The purpose of this study was to assess the knowledge, attitude, and practices of general dental practitioners towards the use of rubber dam in Kathmandu, Nepal.

MATERIALS AND METHOD

A cross-sectional study was conducted among the dental practitioners of Kathmandu from 20th August 2018 to 15th Dec 2018 after obtaining the ethical clearance for the study from Institutional review Committee of KIST Medical College and Hospital (IRC NO: 2075/76/48). The inclusion criteria for the study were practicing dentists and the one who fully filled the questionnaires.

The self-administered semi-structured questionnaires with data related to knowledge, attitude and practice of rubber dam among dental practitioners were distributed and collected manually by the researcher. Before sample collection, a pilot study was done among 20 dentists in order to examine the validity and reliability of the questionnaire. The questionnaire has been adapted and modified from the study done by Tanalp et al.[4] The questionnaires comprised of two portions, the first regarding the demographic details of the participants and the second portion was related to use or non-use of rubber dam in daily clinical practices. All the participants were explained about the motive of the study and the anonymity of the respondents were assured. The participants who were using rubber dam were asked to fill all the questionnaires while those who did not use rubber dam were asked not to fill the attitude and practice questionnaires. The data were collected and descriptive statistical analysis was done.

RESULT

Out of 300 questionnaires, only 247 completely filled questionnaires were received in the study with the response rate of 82.3%. Out of these respondents, 81 (32.8 %) were male and 166 (67.2%) were female (Table 1).

Table 1: Gender wise distribution.

Gender	Frequency (Percent)
Male	81 (32.8 %)
Female	166 (67.2%)

All the dentist had knowledge about rubber dam. They had known about rubber dam during their undergraduate (UG) level 226 (91.5 %), postgraduate (PG) level (10, 4%) and remaining through continuing dental education (CDE) and conferences. About 149 (60.3%) of respondents had seen rubber dam being used during dental procedure (Table 2).

More than 80% of the dentists who used rubber dam agreed that rubber dam eased the restoration stage and improve the success rate of the treatment while 71.7% believed that isolation could not be achieved without the use of rubber dam. Around 80% of dentists believed that taking radiographs was difficult with rubber dam while more than 65% reported that it has a lot of components and difficult to apply. Provision of isolation was the greatest advantage of rubber dam which was reported by 58.7% followed by prevention of swallowing of materials (37%) (Table 3).

Out of 247 study participants, only 46 (18.6%) of dental practitioners used rubber dam in their routine dental practice. Out of 46 dentist who use rubber dam in clinical practice, 34 (73.9%) of dentists reported that they asked their patients about latex allergy. Regarding the stage of endodontic treatment, nearly 44% used rubber dam during access cavity preparation, 24% during anaesthesia while 13%

Table 2: Knowledge among the dental practitioners.

Questions	Responses	Frequency (Percent)
Knowledge about rubber dam	Undergraduate level	226 (91.5 %)
	Postgraduate level	10 (4 %)
	Continuing dental education	10 (4 %)
	Conference	1 (0.4 %)
Ever seen the rubber dam being used on someone else during dental treatment	Yes	149 (60.3 %)
	No	98 (39.7 %)
Age groups you use rubber dam	3-12 yr old	3 (6.5 %)
	12-18 yr old	2 (4.3 %)
	18 and above years	26 (56.5 %)
	All age groups	15 (32.6 %)

Table 3: Attitude among the dental practitioners.

Questions	Responses	Frequency (Percent)
The greatest advantage offered by the rubber dam	Provision of isolation and an aseptic working area	27 (58.7 %)
	Prevention of swallowing or aspirating materials	17 (37 %)
	Prevention of ingestion of materials	2 (4.3 %)
Rubber dam eases the restoration stage	Agree	45 (97.8 %)
	Disagree	1 (2.2 %)
Treatments performed using the rubber dam are more successful than those performed without using it	Agree	39 (84.8 %)
	Disagree	7 (15.2 %)
An adequate isolation cannot be achieved in case rubber dam is not used	Agree	33 (71.7 %)
	Disagree	13 (28.3 %)
Rubber dam eases access to root canals	Agree	33 (71.7 %)
	Disagree	13 (28.3 %)
Rubber dam makes radiograph taking procedure difficult	Agree	37 (80.4 %)
	Disagree	9 (19.6 %)
Rubber dam is difficult to apply	Agree	31 (67.4 5)
	Disagree	15 (32.6 %)
Rubber dam consist of two many components	Agree	35 (76.1 %)
	Disagree	11 (23.9 %)
Rubber dam shortens/extends treatment plan	Agree	32 (69.6 %)
	Disagree	14 (30.4 %)
Rubber dam is more necessary while working in the	mandible	37 (80.4 %)
	maxilla	9 (19.6 %)
Assistance is necessary during rubber dam application	Agree	37 (80.4 %)
	Disagree	9 (19.6 %)
Patient do not like the rubber dam	Agree	38 (82.6 %)
	Disagree	8 (17.4 %)

Table 4: Practice among the dental practitioners.

Questions	Responses	Frequency (Percent)
Using rubber dam in your cPlacement of frame	Yes occasionally	46 (18.6 %)
	No	201 (81.4 %)
Reasons for not planning to use the rubber dam in future	Costly	85 (34.4 %)
	Difficult in placement	44 (17.8 %)
	More time consuming	21 (8.5 %)
	Patient discomfort	17 (6.9 %)
	Insufficient training and knowledge	77 (31.2 %)
	No interest	3 (1.2 %)
Ask your patients whether they have latex allergy prior to rubber dam use	Yes	34 (73.9 %)
	No	12 (26.1 %)
Using rubber dam during amalgam restorations	Never	17 (37 %)
	Rarely	11 (23.9 %)
	Sometimes	14 (30.4 %)
	Always	4 (8.7 %)
Using rubber dam during composite restorations	Never	10 (21.7 %)
	Rarely	9 (16.9 %)
	Sometimes	27 (58.7 %)
Stage of endodontic treatment you use rubber dam	Following anaesthesia	11 (23.9 %)
	During access cavity preparation	20 (43.5 %)
	Following identification of root canal orifices	5 (10.9 %)
	During root canal shaping	6 (13 %)
	During root canal filing	4 (8.7 %)
During endodontic treatment of teeth with extensive tissue loss	Don't use	25 (54.3 %)
	Use rubber dam	21 (45.7 %)
Major factor that makes rubber dam application a difficult procedure	Selection of clamp and its adaptation	33 (71.7 %)
	Placement of rubber dam	10 (21.7 %)
	Placement of frame	3 (6.5 %)

Table 5: Opinions about present and future use of rubber dam.

Questions	Responses	Frequency (Percent)
Enhanced knowledge is required in the use of rubber dam in clinical practice	Agree	236 (95.5 %)
	Disagree	11 (4.5 %)
Need for more education on rubber dam	Agree	238 (96.4 %)
	Disagree	9 (3.6 %)
Methods that can be helpful for future learning	CDE lectures	35 (14.2 %)
	CDE hands on	175 (70.9 5)
	PG prog	37 (15 %)

used it during biomechanical preparation. About 72% reported selection of clamp and its adaptation was the major factor that made rubber dam application difficult followed by the placement of rubber dam (21.7 %) (Table 4).

When asked about reasons for not planning to use rubber dam, 85 (34.4 %) said it was costly, 77 (31.2 %) reported of having insufficient training and knowledge, 44 (17.8 %) responded on difficulty in placement, 21 (8.5%) dentists said they didn't use rubber dam as it is time-consuming while 17 (6.9 %) didn't use it due to patient discomfort (Table 4).

Regarding the opinions about the use of rubber dam in future more than 90% of the participating dentists reported the need of enhanced knowledge in the use of rubber dam (Table 5).

DISCUSSION

This study aimed to know the knowledge, attitude and practice of use of rubber dam among the dental practitioners. A total of 247 dental practitioners participated in this study, out of which 81 (32.8%) were male and 166 (67.2%) were female. Our study showed predominance of females. The reason for higher proportion of female in our study may be due to higher number of females that enroll into dentistry than males.[6]

Use of rubber dam is taught in endodontics during the UG dental programme. Similarly, in this study all of the respondents had knowledge regarding rubber dam which mostly they obtained from their UG level, few at the PG level and rest from the CDE and conferences.

Rubber dam is always preferred in endodontic practice. It is a useful tool that offers better working condition, maintaining dry field, retracting the tissues and preventing ingestion of dental materials.[5] More than half (58.7 %) of respondents reported that the greatest advantage of rubber dam was provision of isolation and aseptic working area. This was similar to other studies.[4,7] Others reported that it prevents swallowing or aspirating dental materials.

In the current study more than half dentists (56.5%) were in agreement to use rubber dam at the age of 18 or above. Studies indicated a high proportion of dentists do not use rubber dam in paediatric patients.[8,9] The reasons to use less may be due to difficulty in placement of rubber dam, uncooperative and anxious behaviour of paediatric patients in the dental clinics.[9]

Prior to using rubber dam, 73.9 % of the dental practitioners asked their patients regarding latex allergy. Our result was higher than few studies[9-11] while in accordance with the study done by Abdulrab et al.[7] Few cases of allergy to latex have been reported so may be necessary to ask about it before application of rubber dam.[12,13]

In the present study, among the study participants who use rubber dam less than 30% reported using it during composite and amalgam restorations. Restoring the teeth with composite and amalgam requires proper isolation and moisture control. Although the data from our study is not encouraging, the reason might be that the dental practitioners may use other means of isolation of the operating field such as use of suction and cotton rolls.

More than 80% of dental practitioners reported difficulty in taking radiographs with rubber dam in place. Many studies also reported similar finding.[4,9] However, removing of rubber dam during endodontic procedure is never allowed as removal of dam for convenience may move the endodontic instruments leading to inaccuracy of procedures thus performed such as working length determination, biomechanical preparation. Hence, dental radiographs must be taken with the rubber dam in place.

In spite of the advantages offered by the use of

rubber dam, the practice of rubber dam use was found to be low. It was reported in a study that majority of dentists in UK health service do not use rubber dam in their clinical practice.[14] Less use of rubber dam has been suggested due to patient's discomfort, expensiveness, difficulty in placement, more time consuming and insufficient training and knowledge. In the present study majority of the participants claimed it was costly and they lack insufficient training and knowledge. Few also reported that it was more time consuming to place rubber dam. With continued use of rubber dam this problem can be avoided.

The present study found that the most of the participants who use rubber dam were in agreement that rubber dam was difficult to apply. The selection of clamp and its adaptation was the most difficult. Our finding was in consistent to other studies.[9,15,16] This may be due to less frequency of using rubber dam in clinical practice the practitioners lacked experience in selecting and application of clamp.

This study is not devoid of limitations. The first limitation is excluding the other means of isolation and concentrating on only rubber dam. The study did not separate different groups and specialties of dentistry using or not using rubber dam which would hint on necessity of further study.

CONCLUSION

Rubber dam is an armamentarium that provides excellent isolation. From the study we can conclude that most of the dental practitioners showed positive knowledge related to rubber dam. However, there is reluctance of using rubber dam in the daily practice. It is necessary to increase awareness regarding the use of rubber dam through continued dental education.

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Conflict of Interest: None

JNDA

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