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ORIGINAL ARTICLE

Evaluation of Patient Attitude towards Rubber dam use in Endodontic Treatment

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ABSTRACT

Background: Rubber dam is an indispensable tool to isolate teeth during dental treatment, but its application can be disagreeable for some patients.
Aim: to determine the patient's attitude to rubber dam use during endodontic procedures.
Methods: Cross-sectional study was carried out in Operative Dentistry, Lahore Medical and Dental College, from 31st August 2021 to 21st October 2021. Using convenience sampling, 130 proformas were dispersed amongst house officers and postgraduate residents, who were performing endodontics under rubber dam. Questionnaires consisting demographic information, participant's previous and current experience of rubber dam use, the treating doctor, time taken to apply rubber dam and duration of procedure. 126 completed forms were returned. Chi-square test was done for proportionate variables to determine statistical significance.
Results: 46 patients (36.5%) answered their current experience was better with rubber application, 41 (32.5%) said about the same experience as compared to their previous rubber dam experience, and 11 (8.7%) had a worse current experience. Current experience of rubber dam use was: (i) pleasant/comfortable= 56 (44.4%), and (ii) uncomfortable/painful= 70(55.6%). The results further demonstrated that middle aged patients were more receptive to reapplication of the dam for future endodontic use. Statistically significant finding was that the postgraduate trainees applied the dam faster.
Conclusion: Patient acceptance increased as the operator became more experienced, in lieu, more efficient in rubber dam placement.
MeSH words: Rubber Dams, Endodontics, Patient

INTRODUCTION

Rubber dam is unanimously accepted as an essential aide in dental treatment as it provides efficient moisture control.[1] Rubber dam usage is promoted by many authorities and clinicians are encouraged to accept it in regular dental practice as it is a necessary component of current dental service[2-4]. Rubber dam offers visibility during treatment by retraction and protection of soft tissues, in addition, it provides a sterile operating field[5]. It reduces the risk of infections for the dentists and dental assistants. Patients can be protected from aspiration and ingestion of small instruments, medicaments and irrigating solutions used during endodontic treatment[3].

Similar to most countries, usage of rubber dam in Pakistan is scarcely practiced among general dentists and dental students.[6] This may be due to various reasons which include inadequate training during clinical years, application technique and time required, additional cost of equipment and materials[7,8]. It takes an average time of 4.28 minutes for general dental practitioners to place a rubber dam.

The more pleasant the experience of rubber dam application for the patient is, the more future compliance of the patient is enhanced.

The objective of this study was to determine the patient's attitude of their experience of rubber use in an objective manner at Lahore Medical and Dental College, Lahore.

METHODOLOGY

An observational cross-sectional study was conducted from 31st August 2021 to 21st October 2021 in Lahore Medical and Dental College, following approval from ethical review committee of the college. Using convenience sampling, proformas were dispersed amongst house officers and post graduate trainees of Operative Dentistry, who were performing endodontic procedure on patients aged 12-50 years. Participation was voluntary and applicants were instructed that they could leave the survey at any time. After guaranteeing privacy of their answers, patient consent was obtained. Proforma contained demographic information, participant's previous and current experience of rubber dam use. In addition, survey had details of the treating doctor, time taken to apply rubber dam and duration of procedure. WHO calculator was used for sample size calculation. Using 95% confidence level, 5% margin of error, population proportion 50% and population size 160, the sample size was calculated as 114. It was increased to 130, anticipating a less than 100% response rate.

Data analysis was done in SPSS version 25. Frequencies were calculated for the categorical data Descriptive analysis was done for quantitative data obtained. Cross tabulations of patients' responses and related factors was performed using Chi-squared test, p-value of 0.05 or less was significant.

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RESULTS

One hundred and twenty six proformas were filled out of 130, a response rate of 96.9%. 50 (39.7%) participants were male and 76(60.3%) were female. Mean age of patients was 29.19 ± 9.10 years. Mean duration to apply the rubber dam was 9.78±6.19 minutes. Mean duration of use for different endodontic steps was 32.17 ± 15.36 minutes.

When participants were inquired of any previous experience with rubber dam, 98(77.8%) answered in the affirmative and 28(22.2%) said no. Of the participants who said yes, 46(36.5%) answered their current experience was better with rubber application, 41(32.5%) said about the same experience as their previous experience, and 11(8.7%) had a worse current experience.

In addition, current experience of rubber dam use was categorized as following: (i) pleasant/comfortable 56(44.4%) and (ii) uncomfortable/painful 70(55.6%). 67(53.2%) participants were treated by postgraduate trainees and 59(46.8%) were treated by house officers.

Table 1 shows relation between age of participant and preference of rubber dam application on next visits. Chi-square showed statistically significant association (0.001) between age of participant and preference for rubber dam application. The results

demonstrate that middle aged patients are more receptive to reapplication of the dam for future endodontic use.

Table 2 shows duration to apply rubber dam and the treating doctor. Chi-square showed statistical significance (p=0.005) between time taken to apply rubber dam and the doctor treating participants.

Table 1: Cross tab of age of participant and preference of rubber dam on next visits

Age group	Preference		
	Yes	No	Total
12-20	12	10	22
21-30	15	34	49
31-40	14	22	36
41-50	16	3	19
Total	57	69	126

Table 2: Cross tab of duration to apply rubber dam and the treating doctor

Time taken to apply	Treating doctor		Total	%age
	HO	PG trainee		
1-10mins	35	56	91	72.2
11-20 mins	17	10	27	21.4
21-30 mins	7	1	8	6.4
Total	59	67	126	100

DISCUSSION

Rubber dam is appraised as the standard for endodontic and restorative treatment because it provides patient protection, infection control and better treatment outcome.[9] This survey assessed the attitude of patients towards rubber dam. According to this study, middle aged patients were more receptive to reapplication of the dam for future endodontic use. This was in agreement to the results found by Stewardson where preference for the use of rubber dam increased with the patient's age.[10] In contrast, Kapitan stated that age of patient had no impact on the acceptance level of rubber dam application.[11] This association was not observed in our previous study.[7]

Competence and experience of operator have an impact on the attitude of patient towards the rubber dam use.[7] In this study, 72.2% operators took about 1-10minutes for the application of rubber dam which was in agreement to findings by Ahmed et al and Kapitan et al.[7,11] In our previous study, 57% of operators took less than 10 minutes for rubber dam application. Association was significant in the current study as well as our previous study. Rubber dam not only contributes to better operating conditions but also reduces the time for replacing gauze pieces and cotton rolls, thereby compensating the additional time required for the placement of rubber dam.

In this study, 44.4% of the patients had pleasant/comfortable experience. According to Alamassi et al, 71.6% of the patients had comfortable experience with the rubber dam and 75.8% showed preference for procedure to be done with rubber dam in the future.[9]

Limitation of this study was that this was a concise repeated study only exploring patient experience with operator experience. Not all factors that can directly or indirectly affect rubber dam application were explored.

CONCLUSION

Patient acceptance increases as the operator becomes efficient and more experienced in rubber dam placement. Less time taken for its application makes it more preferable for future dental visits. That is possible by regularly employing the isolation technique. Continuous dental education should incorporate reinforcement of this technique as well.

Conflict of interest: Nil

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