

ASSESSMENT OF ATTITUDES AND DIFFERENCES IN ANXIETY LEVELS DURING THE TREATMENT USING RUBBER DAM IN CHILDREN AND ADOLESCENTS - A PILOT STUDY

Pedodontics

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ABSTRACT

Objectives: To explore young patients' attitude towards rubber dam (RD) and determine changes in anxiety levels during RD application and dental procedure using RD. **Study design:** A survey form was developed to capture Pediatric patients' experiences of treatment under RD in a hospital setting. Anxiety levels were assessed objectively and subjectively using FLACC scale and Verbal rating scale respectively. **Results:** Sixty children (27 male, 33 female) with a mean age of years 10 years (range 6-16 years) participated. The FLACC scores was significantly different ($P < 0.05$) during RD application and treatment with RD. **Conclusions:** The use of RD appears acceptable physically and psychologically to most pediatric patients.

KEYWORDS

rubber dam, children, anxiety, attitudes

INTRODUCTION

Most of the dental materials used are hydrophobic in nature. Hence for the success of any dental treatment a thorough isolated field is mandatory. Rubber dam, cotton roll isolation and saliva ejector are the most commonly used measures for the isolation during dental practice.¹

Almost 150 years ago, concept of isolating teeth from the rest of the oral cavity using rubber dam (RD) was first introduced by Sanford C Barnum.² Rubber dam has been considered as the gold standard in isolation protocols for decades owing to several advantages, such as providing an aseptic environment, minimizing the potential risk of transferring infective microbes between the operator and the patient, and prevents any possible ingestion or aspiration of dental instruments during a dental procedure,³ dry operating field, facilitate treatment of patients with significant gag reflexes.

Fear and/or anxiety are recurrent feelings which influences the child's behaviour and plays an important role in pain perception.⁴ Children gets more anxious when they are subjected to various sophisticated instruments.

This creates an apprehension in the mind of the dental practitioners to use rubber dam isolation in children due to fear of their anxiety and thereby destroys the rapport with the child. Clinicians think that using rubber dam increases the time of treatment. However, some authors have found that patients get the impression that the treatment takes place outside of their mouth, so that even children tolerate longer treatments once the rubber dam has been applied.⁵

The aim of this evaluation was to explore pediatric dental patients' attitudes to RD and to evaluate difference in anxiety levels during RD application and dental treatment using RD.

MATERIALS AND METHOD

A survey form was developed in order to facilitate data capture which was divided into three parts. First part covered socio demographic data like name, age, gender and allowed the clinician to indicate the nature of the treatment, whether local anaesthetic was used, how long the RD was in situ for.

The second part, completed by the patient regarding past experience with RD and comparison with present experience, patients' opinion relating to their acceptance of RD and perceptions of how well the need for RD was explained to them.

The third part consist of the FLACC scale⁵ will be measured by an assistant according to the scale criteria to objectively assess the anxiety levels. For subjective analysis of anxiety levels, verbal rating scale was also included. All these scales were used to assess the anxiety levels during RD application and during treatment procedure with RD.

Patient's preference for RD usage in their future dental treatment was also noted. RD used in the study was of brand Coltene Hygenic Dam kit and secured with RD clamp only. All the procedures were undertaken by post graduate students who were trained for rubber dam placement.

The survey forms were checked for readability and were piloted prior to data collection. Data was collected for a convenience sample of 60 patients attending for treatment that required the use of RD in the department of Paediatric and Preventive dentistry, at Himachal Pradesh Government dental college and hospital, Shimla, India. Children with special health care needs, history of allergic incidents were excluded from the present study.

Statistical Analysis

The data were analysed using SPSS software for simple descriptive statistics and a Wilcoxon signed ranks test used to determine statistically significant differences in FLACC scores between during RD application and during treatment with RD ($P < 0.05$).

RESULTS

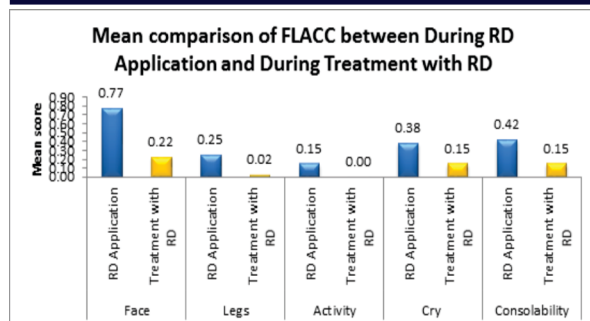
Sixty children (27 male, 33 female) participated with a mean age of 10.06 years (range 6-16 years). In 28 (46.6 %) of cases, the RD was used to facilitate endodontic procedures, with 21 (35%) cases placed for pit and fissure sealant application and 11 cases (18.3%) placed for restorations.

Exactly 26 (43.3%) of treatment episodes did not require the administration of local anaesthetic (LA). 28 children (46.6%) treated with topical local anaesthetic, whereas 6 children (10%) were undergone procedures requiring systemic local anaesthetic. Average time the RD was in situ for 15 minutes.

About three quarters of the children ($n=48/60$) had no experience of RD prior to their inclusion in this study. Out of 12 children who had prior experience of RD, 7 children found present RD experience better than previous one. About two third of patient's were anxious before receiving treatment. Patients who were not anxious had past experience of RD treatment or had seen this procedure in dental clinics.

Patients were satisfied with the dentist's explanation of why RD was used (95%). In total 25% ($n=15/60$) of patients expressed concern at being seen wearing RD. Patients displayed good insight into why RD was required with 78% of patients stating that the dentist used RD to help both patient and dentist, with 10% and 12% thinking the RD was to help the patient or dentist respectively.

Overall experience of RD was found to be pleasant (91%). Preference for future treatment with the RD was 90% ($n=54/60$). No discomfort during RD application and during treatment with RD was reported by 75% and 91.6% patients respectively.



Graph 1: Mean comparison of FLACC between During RD Application and During Treatment with RD

DISCUSSION

The quality of every restoration in dentistry primarily depends on the isolation of the operating field as the materials are hydrophobic in nature.⁶ Rubber dam has been considered as the gold standard for isolation of the operating field. However, Fuad Abdo Al-Sabri et al.⁷ in their study concluded that there is insufficient use of rubber dam among dentists and dental students and there is a requirement for the improvement in their perception towards the use of rubber dam. Leal et al.⁸ found that various dental instruments including rubber dam created significant anxiety levels in children which could be the reason for the reluctance of dentist's use of rubber dam in Pediatric dentistry.

In this study, no significant difference was seen in the subjective perception of the child towards the use of rubber dam which was assessed using verbal rating scale. This is in accordance with a study conducted by Ammann et al.¹

There was statistically significant difference in FLACC score during RD Application and During Treatment with RD ($P < 0.05$), which could be due to patients' acceptance of the rubber dam towards the end of the treatment. Role of behaviour management techniques like modelling with rubber dam will help in reducing anxiety towards RD in children.

To the present authors' knowledge, this is the first report on a clinical trial measuring subjective and objective anxiety levels in patients in conjunction with rubber dam application during rubber dam application and treatment with rubber dam. The questionnaire, completed immediately after the treatment, showed that patients had a significantly lower pain perception if rubber dam was used. Therefore, potential pain and discomfort is not substantiated as a legitimate argument to refuse the use of rubber dam.

Operator's mental state might have influenced the children during the trial because the stress level of the dentist might be transferred to the patient. This explanation is supported by other studies showing that the acceptance of rubber dam is higher when being applied by an experienced dentist.¹ It is, however, most likely that both factors contribute to a certain extent, but the level of contribution cannot be determined based on the current study design. In future studies, operators with different rubber dam experience levels should be included to resolve this problem.

CONCLUSION

This study shows that, in the hands of an experienced dentist, dental treatment is less stressful for children and adolescents when rubber dam is used as an isolation technique. Paediatric dentists should be encouraged to improve their rubber dam application skills to provide a less stressful treatment to their patients. The current study confirmed that significant decrease in anxiety levels from rubber dam application and during treatment with rubber dam.

Conflict of interest

The authors declare no conflict of interest.

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