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ABSOLUTE ISOLATION: EDUCATIONAL INSTRUMENT IN DENTISTRY

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Abstract: The rubber dam (absolute isolation) has benefits with regard to infection control, patient protection and treatment efficacy. The objective of this work is to evaluate the attitude of dental students, general practitioners and specialists in Endodontics, in relation to the use of the rubber dam. A qualitative and quantitative research, of an exploratory and applied nature, was carried out, with the application of a questionnaire via Google Forms in order to collect data on the use of absolute isolation in restorative and root canal treatments. Students and professors of the Dentistry course at Centro Universitário Vale do Rio Verde and dentists in general were included in the sample. The results had a variation according to the level of performance, with Endodontists being the most adept at using the rubber dam. It is concluded that successful dental treatment depends on effective infection control measures and this can be achieved by isolating the operating field with a well-fitting rubber dam.
Keywords: Absolute isolation; Contamination; education; dentistry; endodontics.

INTRODUCTION

The rubber dam (absolute isolation) has been used in dental care for decades. It is considered the ideal standard of care in endodontic treatment. It is very widespread due to its advantages and benefits with regard to infection control, patient protection and treatment effectiveness[1].

The absolute isolation procedure protects the patient's airways against accidental aspirations or swallowing of instruments and irrigants, reduces bacterial contamination by aerosol, ensures the aseptic field of the teeth, results in compression of the soft tissues, facilitating access to the teeth that are being treated, however the use of the rubber dam tends to decrease drastically after graduation[2].

Endodontic treatment and restorative dentistry are the two main areas where rubber dam is used. The use of the rubber dam is essential to avoid bad practices and the non-use or improper use can result in undesirable consequences[2,3]. The smaller amount of saliva in the area to be worked allows the materials used for repair to have better adhesion, allowing high performance and reliability of the restoration[4].

Even with all the advantages of the rubber dam, some students and professionals are resistant to using it. They claim it is time consuming and uncomfortable for patients. Absolute isolation has been considered a fundamental part of contemporary dental education[5]. During graduation in dentistry, professors show the use of absolute isolation from the first patient attended by the student. It is a mandatory procedure in clinical practice[5,2].

The dentistry student is taught at the beginning of graduation that in clinical practice absolute isolation increases visibility and regulates humidity control, thus increasing the efficiency of each procedure, especially in endodontic treatment[6,7]. Recent population-based studies have shown that the probability of successful endodontic treatment after 3 years is significantly higher when a rubber dam is used[7].

A study with general practitioners and endodontists in the western province, Saudi Arabia, found that the proportion of endodontists using the rubber dam was significantly higher than that of general practitioners. This is justified by the advanced training on rubber dam placement that endodontists study and practice during graduate school[8].

Endodontists are more aware of the risks their patients may be exposed to without dam placement. The Supreme Court of Kansas (USA) imposed that the general

dental surgeon who performs endodontic treatment on a patient must use the same care during treatment as is done by an endodontic specialist[9].

The use of absolute isolation tends to decrease dramatically after graduation, creating a disconnect between the presumed standard of care and what is actually done in clinical practice. A study in dental environments in the city of Tianjin (China) showed that among general practitioners and endodontists, 45.4% and 39.7% never used a rubber dam during procedures, respectively[10]. The main reasons reported for not using the rubber dam include lack of patient acceptance, longer time required for application, insufficient training at graduation, difficulty in use, and cost of equipment and materials[11].

Although most dentists agree that the rubber dam is the standard of care in restorative treatments, opinions differ. No other technique, treatment or instrument used in dentistry is as universally accepted and advocated by recognized authorities as absolute isolation. However, ignored in practice by a large number of dentists[12, 13, 14].

The aim of the present study was to evaluate the attitude of dental students, general practitioners and specialists in endodontics, in relation to the use of the rubber dam (absolute isolation) according to its advantages in invasive dental procedures.

MATERIALS AND METHODS

Quantitative research was carried out, of an exploratory and applied nature, with the objective of collecting data on the use of absolute isolation in restorative treatments. The project was approved by the Ethics Committee of the Centro Universitário Vale do Rio Verde with Opinion Number: 5,735,043. The research was carried out through the application of a questionnaire via Google Forms, containing 10 questions that evaluated the effects of using absolute isolation on the success of restorative treatments, with emphasis on endodontics and patient protection.

The research sample consisted of 40 participants; among them: students, professors of the Dentistry course at Centro Universitário Vale do Rio Verde and dentists. After collection, data were tabulated and prepared for descriptive statistical analysis.

RESULTS AND DISCUSSION

The questionnaire was answered by two general practitioner dentists (5%), 10 endodontists (25%), 06 dentists with another specialty (15%) and 22 dentistry students from Centro Universitário Vale do Rio Verde (55%).

When asked about the use of the rubber dam during dental care, there was a variance of responses determined by the graph in figure 1.

Faced with the statement: even with all the advantages of the rubber dam, some students and professionals still resist using it[5]. It must be noted that the present study also found such a situation.

When asked about the training they received on the use of the rubber dam, there was a variance between the levels of performance, which can be seen in figure 2.

In the present study, 15% of the participants stated that they had not received adequate training on the use of the rubber dam, with greater disagreement among dental surgeons in other specialties. patient protection measure[15].

It is noteworthy that the answers to the questions that referred to: extension of the consultation time had 95 to 100% of answers in the affirmative. As for the ease of working on posterior teeth, 100% of respondents agreed. Regarding help from third parties,

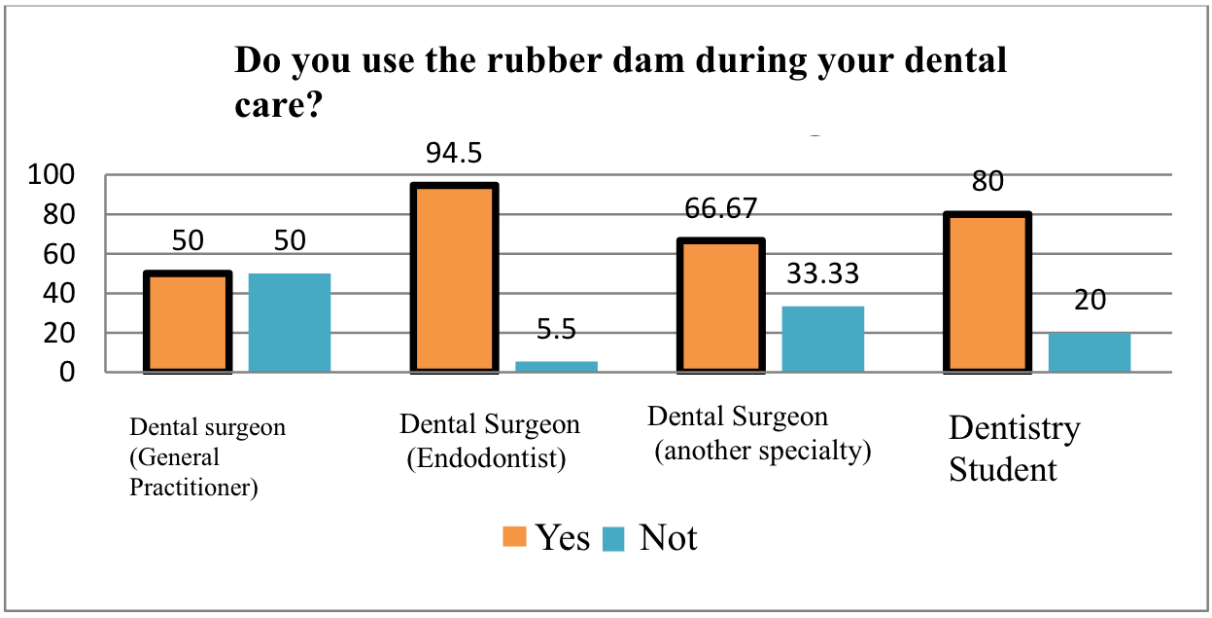

Figure 1: graph of the question about using absolute isolation or not.

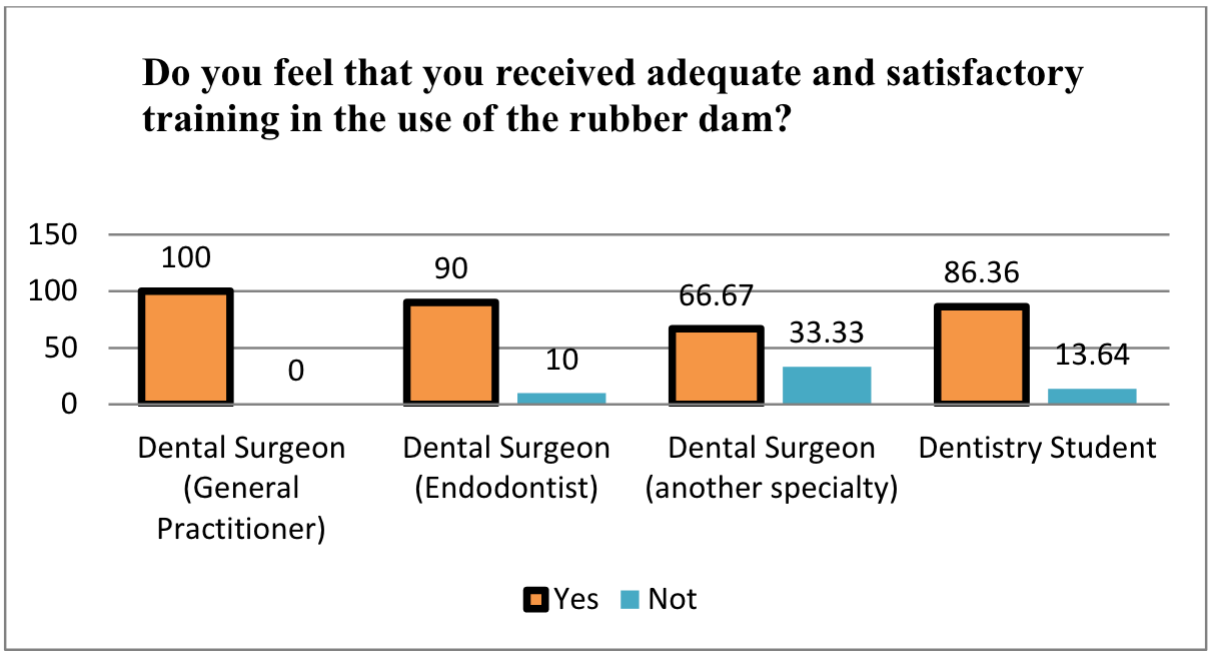

Figure 2: graph of the question about training to use absolute isolation.

during the installation of isolation, 100% of clinicians answered yes, 66.7% said no and 45% of students answered that they need help. Situations that corroborate with the authors who explored the same themes in their studies[1, 2, 5, 6].

The answers to questions involving the advantages of using absolute isolation converged to three relevant scores: aseptic work area, prevention of swallowing or aspiration of particles or instruments, and easy access to cavity preparation and coronary opening with 100% agreement among the participants, corroborating with several authors who defended the same advantages of using absolute isolation, mainly in relation to patient protection[2, 3, 8, 15].

It is important to note that the proportion of endodontists who used the rubber dam in endodontic treatment is significantly higher than that of other specialists, this is justified by the advanced training on rubber dam placement that endodontists study and practice during postgraduate studies[8]. This way, it is observed that there are disparities in the answers about the importance of absolute isolation, mainly regarding safety and cross-infection.

When analyzing the answers of the participants of the present work to the questions about: using absolute isolation in all cases, 100% affirm that they intend to use it, however, when faced with the question: at what stage of the procedure to use it, the answers are incongruent, because half of the participants stated that they use absolute isolation after cavity preparation. What about patient protection during cavity preparation? What about cross-contamination during cavity preparation? Therefore, greater consistency is observed among endodontists who receive more training, which corroborates the findings of authors who studied specialists in endodontics on absolute isolation[3, 7, 8, 9, 11].

The subject of absolute isolation must be seen as educational in dentistry, especially with regard to patient safety at all stages of procedures. The answers refer to convergences between the participants. Absolute isolation is well accepted by dentists and dentistry students, however, some still resist its use. Dentistry students need to be better prepared about absolute isolation as a protective measure, through educational theoretical precepts and clinical training during graduation.

It is pointed out that: the responses of general practitioners and dentists from other specialties, showed substantial variations in the item use of absolute isolation. It is notable that Endodontists are the most adept at the practice of absolute isolation, especially regarding issues related to contamination and swallowing of dental materials and instruments.

CONCLUSION

Absolute isolation is an educational instrument and requires greater intensification in relation to its need for use, both for undergraduates and graduate students and professionals working in dentistry.

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