



Comparison of the Effectiveness of Taste Distraction Technique Using RMS Pictorial Scale for Recording RVG

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ABSTRACT:

Background: Poor radiographic outcomes may affect the diagnosis and the course of treatment as well. Dentists treating children must understand that fear is a part of their development and if behavior modification strategies are not used, treatment could traumatize the child for the rest of their lives. The distraction technique is one of the most successful non-pharmacological. The aim of this study was to compare the effectiveness of the taste distraction technique while recording RVG

Method: 60 children were divided into two groups, the control group with plastic barrier isolation and the taste distraction group. Pre-treatment and post-treatment anxiety were recorded. The anxiety of the child was assessed through (RMS a pictorial Scale (RMS-PS).

Result: Pre-radiographic anxiety levels with or without taste distraction showed no significant difference. ($p=0.641$) whereas post-radiographic anxiety levels were significantly lower in children with taste distraction ($p=0.001$).

Conclusion: Taste distraction is effective in decreasing dental anxiety in children when compared to conventional techniques. Distractions such as taste distraction techniques help to make the environment friendly for the patient and make the dental procedures less troubling for the patient. This study suggests that taste distraction techniques can be used on children as they are easy to access and implement and are effective methods for reducing anxiety.

INTRODUCTION

One of the supporting examinations that is crucial in the field of dentistry is the radiographic examination. Most dental and oral care procedures need radiographic examination support data to attain the best results.¹ In paediatric dentistry, the main purpose for obtaining radiographs of teeth and supporting tissue are to check for caries, examine for dental traumas, examine for abnormalities with tooth development and screen for

other pathological disorders besides caries.² Poor radiographic outcomes may affect the diagnosis and the course of treatment as well.³ Cancer, birth abnormalities and genetic disorders all can be caused by excessive radiation exposure. As a result, digital radiography is increasingly used in dental practices because it substantially cuts down on X-ray exposure.⁴ There has not yet been any published research on the effectiveness of other plastic barriers for usage in the prevention of



contamination on imaging plates or the contamination of image receptors in intraoral digital radiography.⁵

Dental fear and anxiety are the most frequently observed emotions in dental offices, both among children and adults, even though dentistry is highly advanced. Dentists treating children must understand that fear is a part of their development and if behavior modification strategies are not used, treatment could traumatize the child for the rest of their lives.⁶ The distraction technique is one of the most successful non-pharmacological techniques for treating paediatric short-term procedural pain. Distraction tactics are designed to divert attention away from the procedure and onto any other stimulation that would enable the patient to effectively manage the sensation of pain. The child is able to restrict his sense of pain by focusing his attention on something else.

The mind is diverted and concentrates on the new stimuli as a result of the taste distraction, which reduces pain and anxiety.³ Understanding the child's behaviour, personality and psychological traits will greatly improve the success of the treatment⁶. It's helpful to select anxiety tests designed for kids when interpreting behavior. The RMS Pictorial Scale (RMS-PS) helps paediatric dentists, patients, and parents build a positive dental experience and a trustworthy relationship by offering a quick and easy way to assess anxiety in a paediatric dentistry clinic.⁷ In light of this context, the current investigation includes taste distraction using flavoured toothpaste. Also, the effectiveness of RVG and the above-mentioned distraction approach will be compared.

MATERIALS AND METHODS

60 children who met the inclusion criteria and visited the pedodontics and preventive dentistry department were chosen. The investigator then randomly divided those children into two groups using a simple random sampling and the lottery approach.

Inclusion Criteria

- Children between the age of 5–10 years.
- No previous dental treatment experience
- Those who gave consent for the study.

Exclusion Criteria

- Any medically and physically compromised children

- Children who do not require X-ray as a diagnostic aid

- Those who had not given consent for the study.

Group A: the control group with plastic barrier isolating RVG group (n = 30),

Group B: the taste distraction group with toothpaste applied on the plastic barrier isolating RVG (n = 30).

The investigator was not informed of the allocations, so the co-investigator assessed the anxiety. The child in Group A was seated and used the Tell Show Do method to describe the procedure. After that, pre-radiographic anxiety was measured using the RMS Pictorial scale, and then an RVG was taken using the traditional technique (Figure 1a b). After that, post-radiographic anxiety was once again measured with the RMS Pictorial Scale. (Figure 1c)

The toothpaste application technique was used in group B to perform the taste distraction. The RMS Pictorial scale was used in this study to measure the child's pre-radiographic anxiety. RVG was then monitored after coating the plastic barrier with toothpaste with a bubblegum flavour and fluoride (figure 2 a b). Post-radiographic anxiety was evaluated following the radiograph.

STATISTICAL ANALYSIS

Statistical analysis was performed using Statistical Product and Service Solution (SPSS) version 21 for Windows (SPSSInc, Chicago, IL). Descriptive quantitative data was expressed in mean and standard deviation respectively. Data normality was checked by using the Shapiro – Wilk test. The confidence interval was set at 95% and the probability of alpha error (level of significance) was set at 5%. The power of the study was set at 80%. Intergroup comparison between both groups with respect to study parameters was done using unpaired t test/Mann Whitney U test. Intragroup comparison in each group from pre-study levels to post-study levels was done using paired t-test/Wilcoxon test.

RESULT

With a total sample size of 60, this study was conducted in the form of an in-vivo experimental study. Table 1 demonstrates there was no significant difference in pre-radiographic anxiety levels with or without flavour distraction (p=0.641). Table 2 demonstrates that post-



radiographic anxiety levels were significantly lower in children who were distracted by the taste distraction method. ($p=0.001$).

Table 3 displays Pre-treatment anxiety levels with and without toothpaste vary on mean difference by 0.1. The mean difference between anxiety levels following treatment with and without toothpaste is 0.43. Without toothpaste, the mean change in anxiety is 0.18. The mean anxiety response to toothpaste is 2.13. So, it may be concluded that the flavour distraction group had a greater mean reduction in anxiety.

DISCUSSION

In paediatric dentistry, obtaining radiographs of the teeth and supporting tissue is routinely performed to evaluate for caries, dental traumas, abnormalities with tooth development, and other pathological disorders than caries. Unsatisfactory radiography results may affect both the required course of treatment and the diagnosis. Thus, this requires the best radiographic interpretation. As it is essential to develop a positive attitude in children towards dentistry and the success of the treatment, anxiety should be addressed from the very first dental appointment itself.⁸ The problem of an apprehensive youngster in a dental office affects not only that child but also that child's family. Depending on the patients' age and level of cognitive development, an effort should be made to deal with the anxious behavior.⁹ Oliveira M de F notes that fear and anxiety are emotions that concern professionals because they undermine the doctor-patient relationship and can interfere with the performance of dental procedures.⁶ Chhabra n et al. examined the prevalence of dental anxiety in children aged 5 to 10 and found that it was 6.3% on average.¹⁰

A behaviour management strategy known as distraction involves diverting the patient's attention away from anxiety-inducing events. The major goal of this therapy is to calm the patient down and reduce their anxiety while receiving treatment.¹¹

The outcomes of this research supported a study by APW Monika et al. in which the researchers compared the lollipop method of radiography with the conventional method of radiography and also evaluated the radiograph's quality. In the present study, the taste distraction group was found to be more effective than the conventional RVG.

The results showed that the taste distraction group had a larger mean anxiety reduction, which is similar to the research by Tyagi P. et al., who also came to the same conclusion that taste distraction was more successful in reducing anxiety than the traditional method³. The benefit of taste distraction is that it takes the child's attention away from stressful stimuli, making it easier for them to undertake the treatment.

CONCLUSION

In comparison to more traditional methods, the current study found that flavor distraction significantly reduces children's dental fear. The present study's explanation of a distraction technique that can be used to record radiographs more efficiently is affordable and accessible.

CLINICAL SIGNIFICANCE

The behavioral disruption of children triggered by dental anxiety makes it difficult to provide appropriate dental treatment. As a consequence, in the paediatric dental environment, a child's behaviour control is crucial. Nonpharmacological behaviour management strategies can be recommended as a useful behaviour management technique to alleviate dental fear and anxiety in paediatric dentistry patients.

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Table 1: Comparative statistics of anxiety levels at pre-treatment levels

Pre-treatment	Mean	SD	Mean Difference (SE)	Unpaired t test	P value, Significance
Group A (without toothpaste)	3.4	0.81	0.1 -0.21	t = 0.469	p =0.641 (no statistically significant difference)
Group B (with toothpaste)	3.3	0.83			

Table 2: Comparative statistics of anxiety levels at post-treatment levels

Post-treatment	Mean	SD	Mean Difference (SE)	Unpaired t test	P value, Significance
Group A (without toothpaste)	1.6	0.56	0.43 (0.12)	t =3.496	p =0.001* (statistically significant difference)



Group B (with toothpaste)	1.16	0.37			
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Table 3: Descriptive statistics of anxiety levels at pre-treatment, post-treatment and change in anxiety levels

Pre-treatment	Mean	SD	SE	Minimum	Maximum
Group A (without toothpaste)	3.4	0.81	0.14	2.0	5.0
Group B (with toothpaste)	3.3	0.83	0.15	2.0	5.0
Post-treatment	Mean	SD	SE	Minimum	Maximum
Group A (without toothpaste)	1.6	0.56	0.10	1.0	3.0
Group B (with toothpaste)	1.16	0.37	0.06	1.0	2.0
Change in anxiety	Mean	SD	SE	Minimum	Maximum
Group A (without toothpaste)	1.8	0.61	0.11	1.0	3.0
Group B (with toothpaste)	2.13	0.93	0.17	1.0	4.0



Figure 1



Figure 1 a :This figure shows recording of radiovisiography



Figure 1 b : This figure shows plastic barrier isolating the sensor



Figure 1 c : This figure shows pre-radiographic anxiety being measured using the RMS Pictorial scale



Figure 2



Figure 2 a : This figure shows toothpaste applied on the plastic barrier isolating RVG



Figure 2 b : This figure shows Post-radiographic anxiety evaluation following the radiograph.