



Blow Out Anxiety with Bubbles-Observational Study

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Abstract

Background : Dental anxiety is a common concern in children, especially concerning dental visits. Play therapy is an interpersonal process that helps patients to overcome their anxiety. Bubble therapy is a simple, non- invasive approach that may be used to reduce anxiety in children—an innovative way directed towards distracting and calming the child.

Aim: Comparison of 2 behavior management techniques therapy with tell show do technique (TSD) and TSD in reducing anxiety while restoring teeth in 4-6 years children.

Design: 20 Children aged between 4 and 6 years who came for 1st dental visit were randomly selected and divided into two groups via simple randomization. In both groups dental procedures carried out were standardized. The level of dental anxiety was recorded by measuring pulse rate with a finger pulse oximeter and applying Venham's interval rating scale for behavior and anxiety. Then, the anxiety levels were compared between the two groups.

Result and Observations: Children were more relaxed in group 1 as compared to group 2 but were statistically insignificant. Statistically significant heart rate differences were seen in group 2.

Conclusion: Bubble therapy can be used as a behavior management technique singularly or in conjunction with other techniques.

Keywords: Nonpharmacological Behavior Management; Pediatric Dental Anxiety; Tell Show Do; Bubble

Introduction

Dental anxiety is one of the most prevalent problems that pediatric dentists face in routine dental practice [1]. This anxiety can stem from various factors such as past traumatic experiences, family's negative attitude towards dental health, painful earlier dental treatment, and fear of pain [2]. Children who experience dental anxiety are less likely to go for dental treatment, which has been directly linked to poor oral health status [3]. This results in cyc-

lic worsening of dental and oral health and in turn elevated dental anxiety. Children experience dental pain; it may have impact on their quality of life as well as that of their families and caregivers [4].

It impairs the child's capacity to learn, disrupts sleep patterns, and has a detrimental effect on their physical, mental, and social wellbeing [5]. So, in order to overcome this problem, there are

many nonpharmacological behaviour management techniques which can be used singularly or in combinations and can be customized according to patients need. Wherein, the most routinely employed technique in pediatric dentistry is Tell Show Do technique. In clinical practice, play therapy has long been widely used approach while treating children. Play therapy help kids have a pleasant and comfortable dental treatment by getting them involved in entertaining and interactive activities and in youngsters as they do not yet possess the ability to reason abstractly abilities. Play therapy is an interpersonal process in which a licensed therapist uses play's therapeutic properties methodically to assist clients in resolving their present psychological issues. A practical technique for distraction and relaxation is bubble therapy. It is an enjoyable, affordable, non-threatening strategy that is simple to employ as a supplement to TSD. This technique is appropriate for children in the age group of 4-12 years [6]. This method works particularly well for calming down kids who are agitated, nervous, or stressed. Hence, this study aimed at comparing two Non pharmacological behaviour management technique bubble therapy along with Tell Show Do technique (TSD) and TSD in reducing anxiety while restoring the tooth with Glass ionomer cement (GIC) in children aged 4-6 years and objective is to evaluate the efficacy of Bubble therapy with tell show do technique during restoring the tooth.

Materials and Method

This study was carried out in the Department of Pediatric and Preventive Dentistry. This is a Randomized cross-sectional study. The Institutional Review Board of the institute examined and approved the study design. The informed consent form was made available in three different local languages (Hindi, Marathi, and English). Clinical trial of registry of India no: CTRI/2024/03/064472. The study population consisted of children whose parents provided informed consent. The sample size was derived by using the following formula.

$$n_1 = \frac{(\sigma_1^2 + \sigma_2^2 / \kappa)(z_{1-\alpha/2} + z_{1-\beta})^2}{\Delta^2} \quad n_2 = \frac{(\kappa * \sigma_1^2 + \sigma_2^2)(z_{1-\alpha/2} + z_{1-\beta})^2}{\Delta^2}$$

The study was carried out on 40 children who met all the inclusion criteria in the age group of 4-6 years old. The children were divided using simple randomization into two groups 20 in each.

Inclusion criteria

The study population selected for this study included children with Frankl's behavior rating 2, Children aged between 4 to 6 years with no previous dental experience, restorations that do not require local anesthesia, and Class 1 cavities.

Exclusion criteria

Subjects unwilling to participate in the study, Children with a previous history of dental treatment, Children with other than Frankl's behavior rating 2, and patients who are medically compromised and have allergies.

In Group 1 (study group) bubble therapy and TSD technique were used. Wherein, group 2 (Control group) only the TSD technique was performed.

In Group 1

In this, the operator shot bubbles out of the gun while the child was sitting on the dental chair and in the waiting area. The child was allowed to play with those released bubbles and pulse oximeter readings were recorded simultaneously. In the operatory area, the procedure was explained to the child using the TSD technique and then the bubble gun was handed over to the child, and was instructed to release the bubbles from the gun as he/she starts feeling anxious.

In Group 2

In waiting area and when the child sat on dental chair pulse oximeter readings were recorded prior to start of any treatment. In the operatory area, the procedure was explained to the child using TSD. The child was instructed to raise their hand as he/she starts feeling anxious.

An independent clinician assessed the child's anxiety during the procedure while restoring the tooth with glass ionomer cement, using Venham's interval behavior and anxiety rating scale [13] (Table 1,2) and recorded the reading of the pulse Oximeter during the procedure was carried out in both the groups. Study was conducted for a time span of half an hour per subject.

Statistical analysis

SPSS 18.0 was used to enter and analyze the gathered data. Excel statistical operations were used to compute inferential statistics and descriptive statistical tests.

Score	Interpretation
0	Total cooperation, best possible working conditions, no crying or physical protest.
1	Mild, soft verbal protest or (quite) crying as a signal of discomfort, but does not obstruct progress.
2	Protest more prominent. Both crying and hand signals. May move head around making it hard to administer treatment.
3	Pronounced verbal protest, crying. Using hands to try to stop procedure.
4	Protest disrupts procedure, requires that all of the dentist attention be directed toward the child behavior.
5	Child out of contact with the reality of the threat. Actively involved in escape behavior. Physical restraint required.

Table 1: Venham’s interval anxiety rating scale.

Score	Interpretation
0	Relaxed, Smiling, willing.
1	Uneasy, concerned. Tense facial expression, may have tears in eyes.
2	Child appears scared. During stressful procedure, may touch dentist’s hand or instrument, but not pull at it.
3	Pronounced verbal protest, crying. Using hands to try to stop procedure.
4	More prominent body movement. Child can be reached through verbal communication.
5	Child out of contact with the reality of the threat. Actively involved in escape behavior. Physical restraint required.

Table 2: Venham’s interval behaviour rating scale.

Result

Pulse rate

A total of 20 children were assessed in each group. When pulse rate was compared intergroup, it showed statistically significant

differences at different intervals of time during the treatment. In group 1 statistically lower pulse rate was seen throughout the procedure (Figure 1).

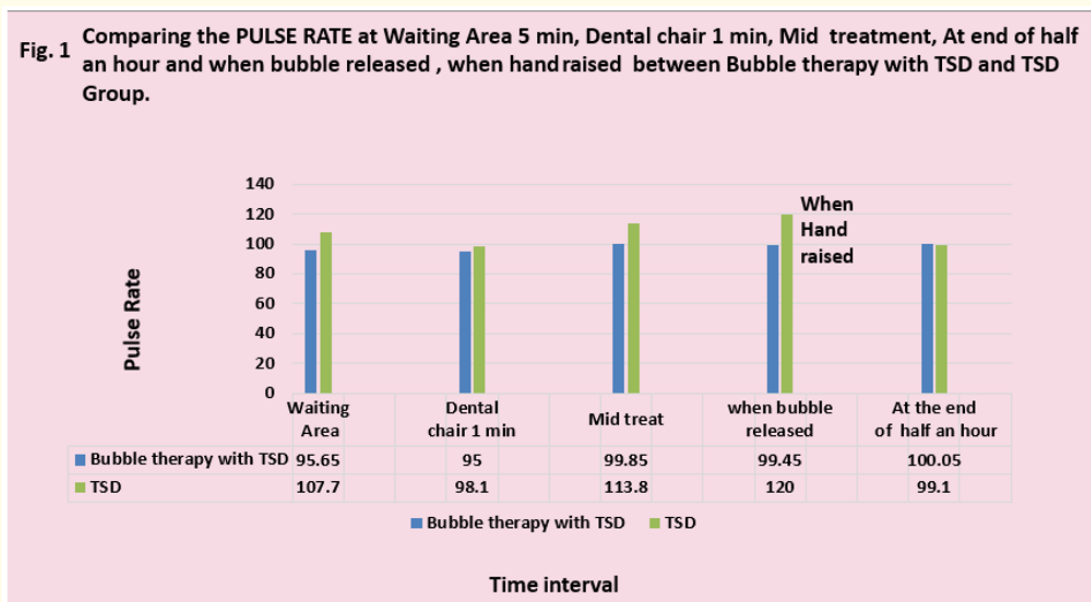


Figure 1

Cumulative Venham’s interval anxiety rating score for group 1 suggests, 5 children were relaxed, 8 children were uneasy and concerned, 6 of them were scared, 1 showed reluctance to start the treatment.

While in group 2, 2 children were relaxed, 8 were uneasy and concerned, 8 were scared, 2 were reluctant to start the treatment. Statistically insignificant differences were seen between two groups (Figure 2).

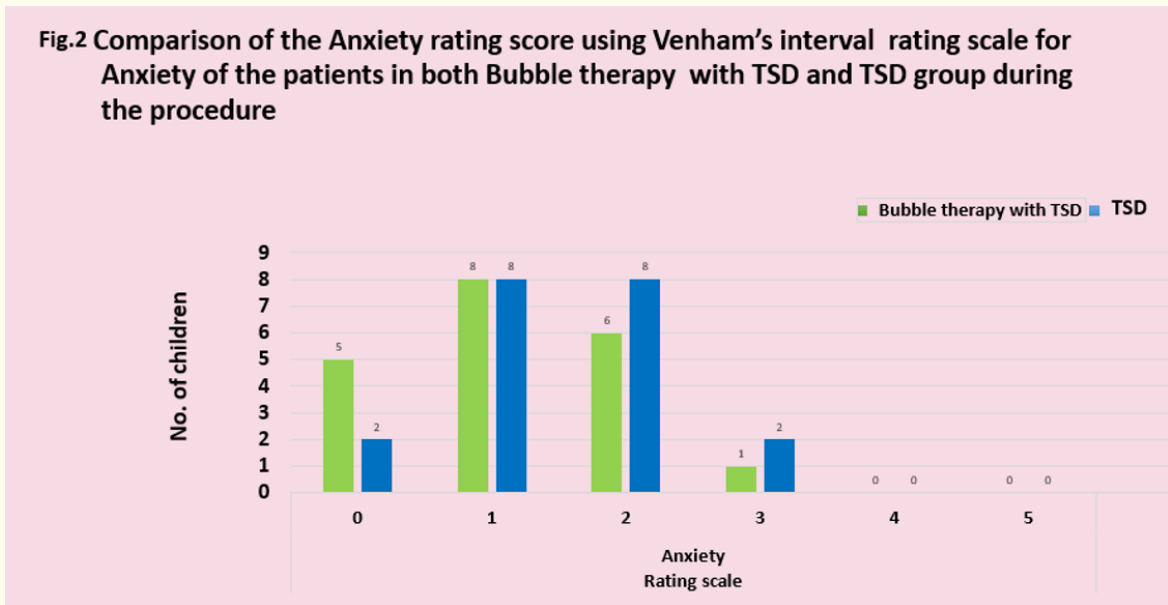


Figure 2

Cumulative Venham’s interval behavior rating score for group 1 suggests, 5 children showed total cooperation, 9 children were crying, 5 children were crying and gave hand signals to stop the treatment, 1 started protesting.

While in group 2 Out of 20 participants, 2 showed total cooperation, 10 children were crying, 9 of them were crying and gave hand signals, and 1 started protesting. Statistically insignificant differences were seen between the two groups (Figure 3).

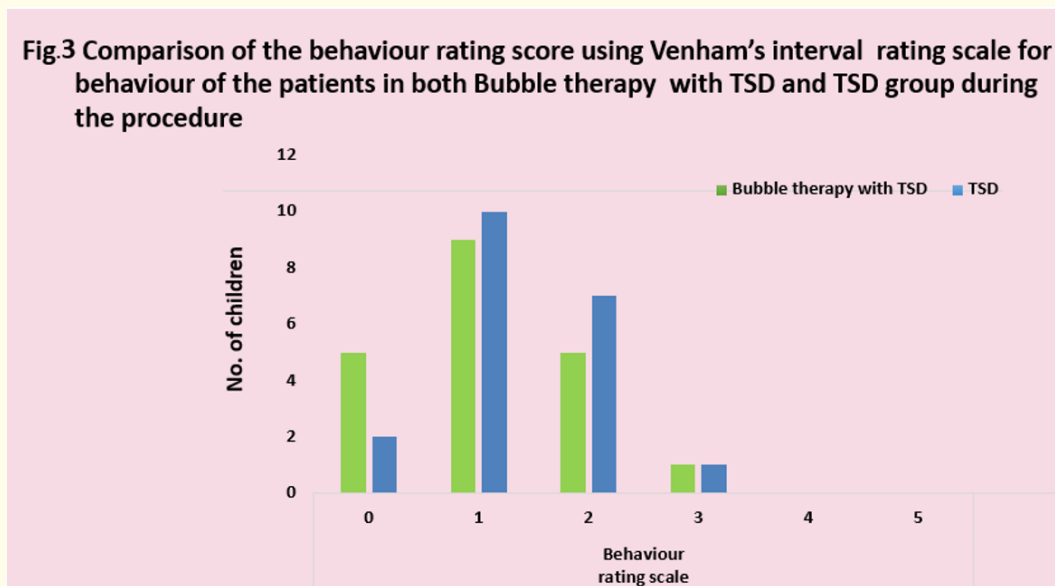


Figure 3

Number of incomplete treatments

Of 20 children in each group, 4 children in group 1 and 7 children in group 2 did not finish the treatment within half an hour (Figure 4).

Discussion

Recognizing and treating dental anxiety in youngsters is essential because it promotes appropriate dental care and a positive

Fig.4 Comparing the No. of incomplete treatments in bubble therapy with TSD group and TSD group



Figure 4

dental attitude toward oral health care from an early age [7]. Understanding children's anxiety levels is beneficial because it offers a more comprehensive viewpoint on the interventions that should be used for pediatric patients. Class I lesion treatment was chosen among dental procedures because it is noninvasive and can be managed in children after the initial lesion is treated without the use of any alternative behavior modification strategy methodology. The appropriate age range for using bubble therapy is 4-12 years therefore, the sample population age group in this study was 4-6 years. Bubble therapy is regarded as a kid- friendly technique that serves as a diversion.

Both TSD and Bubble Breath Play Therapy were employed in the Umme Azher, *et al.* 2020 study [8]. Comparing BPT to the baseline revealed improvements in behavior and anxiety ratings as well as a drop-in heart rate, which is consistent with our study's findings. Children aged 6-12 years in a cross-sectional study conducted in 2013 by Martinez, *et al.* reported high levels of anxiety and fear of dental treatment [9]. In a study done by Munevveroglu, *et al.* in 2014, it was observed that dmft scores of children who were afraid of dentists were significantly high [10]. Heart rate monitoring has been demonstrated to be a reliable indicator of children's dental anxiety, by Furlan, *et al.* and Carillo-Diaz [11,12]. Thus, the present study employed pulse rate to gauge children's anxiety levels because it's a clear indicator of physiological arousal and dental pro-

cedures are associated with a rise in stress levels. There was a slight increase in pulse rate in TSD group following dental treatment when compared to the end of treatment. However, bubble therapy does soothe the fears; although the TSD method also works well for this. Bubble therapy technique (BPT) has shown promising results in distracting the child during dental treatment in conjunction with TSD. Why this paper is important to pediatric dentists

- Using suitable non-pharmacological behavior shaping techniques, BPT along with TSD can help to calm the child and subsequently help in alleviating their anxiety.
- It is an economical, child-friendly, less technique-sensitive, method of distracting the child and coax them to get dental treatment done in a fun and stress-free environment.
- Hence, bubble therapy can be a behavior management technique which can be used singularly or in conjunction with other techniques.

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Conflict of Interest

All authors have no conflict of interest.

Author's Contribution

Dr. Mansi Baviskar conceived the idea and finalized the article, Dr. Shilpa S Naik and Dr. Rachna Sharma helped in refining the study protocol and analyzed the data, Dr. Dhanashree Pawar collected the data and wrote the article, Dr. Chinmaya Chaudhary and Dr. Aayushi Mehta helped in writing the article.

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