



Efficacy of application of two different distraction methods of dental anxiety in children

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Abstract

Anxiety is highly prevalent among children. It is a subjective emotion which leads to maladaptive behavior. Subjective fears are opinion based which needs to be dealt with at the prime time. Though several interventions have been developed over time to manage these children the American Academy of Pediatric Dentistry has laid focus on non-Pharmacological approaches among which TSD- (Tell, Show, Do) and TLC- (Tender loving Care) were chosen for a comparative basis for the study. TSD was introduced by Addelston in 1959. TLC was recommended as an allied procedure. TSD is based on the principle of learning theory. A young child's cognitive development does not have the conceptual framework to understand a dentist's claim, which needs to be communicated effectively. With this basic notion, the study was undertaken. This study aims to investigate the application of two different distraction methods in children at the dental operator. This was a double blind, parallel, randomized controlled trial. The sample consisted of 68 children between 6-9 years. They were randomized into two groups of 34 children in each group namely TLC-(Tender loving care) and TSD- Tell, Show, Do) SPSS version 16 was used. Within group comparison was done using Friedman's test and Inter group comparison was done using Wilcoxon's test. Among the two techniques employed TLC was better, performance-wise, whereas considering the overall level of acceptance, TSD was better. Distraction techniques have proved to be a breakthrough in behavior management forums. This study contributes to the literature on nonpharmacological methods. The study must be repeated further on increased population grounds to check if the findings are replicable and consistent.

Keywords: Behavior management, distraction techniques, children

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1. Introduction

Children with dental anxiety provide difficulties for the dental team, their parents, and the child. Poor oral health results, difficulty managing behavior, and avoidance of dental care follow [1]. In order to resolve these issues, facilitate diagnosis and treatment, and provide a positive dental experience, dental anxiety screening is required [2]. According to reports, a variety of factors can affect children's dental fear. According to the pertinent literature, numerous research has been carried out to determine the effects of particular factors on dental anxiety [3]. Children's dental dread and anxiety (DFA) is caused by a variety of risk factors, according to its multi-factorial etiology. Although there are numerous variables, they can be divided into three broad categories: personal (age, gender, general apprehension, temperament, and intelligence), social (parental dental anxiety, family social-economic status, pre-appointment preparation by parents, and their expectations for children's behavior in the dental environment), and environmental (factors related to dental visit, treatment, and environment). A vital turning point in a child's attitude towards dental care, the first dental appointment is crucial since it has a significant impact on subsequent recall visits.

However, there has been considerably less research on how a child's DFA is affected by their age at their first dental visit. Suprabha et al. discovered no connection between dental fear (DF) and current behaviors in the dental office and age at the first dental visit (5 years old). Later studies by Paryab et al. supported the fact that this aspect had no effect on how school-aged children behaved during a dental visit. Dental visits made in the past and prior dental experiences [4].

Literatures have indicated that patients without DA have significantly more filled surfaces than patients with anxiety, whilst other studies have found no correlation between DA and the quantity of fillings in various child age groups. According to a study, teenagers with prior dental treatment experience have a considerably higher mean DAS score (Corah Dental Anxiety Score) than adolescents without such experience. The invasive treatments and bad experiences that some youngsters have during previous dental appointments may be a contributing factor. Children without dental experience have greater amounts of DA, according to a prospective study. The authors and other researchers link DFA to a reduction in dental visits [5].

Reduced dental appointments cause oral health to deteriorate, which over time causes the emergence of new anxiety disorders. Other research, however, has shown contradictory

findings, claiming that children who visit the dentist more frequently exhibit higher levels of DFA. The findings of a cross-sectional questionnaire survey from 2011 indicate that children with prior dental experience have greater levels of DF; however, the frequency of dental visits was not related to DF. Suprabha et al. use their prior traumatic, intrusive dental experiences to explain their findings. Reasons to visit the dentist: The purpose of the dental appointment has a significant effect on how children's DF develops and functions throughout childhood and adulthood. According to Versloot et al., a child's attitude towards receiving dental care depends on previous dental appointments. Negative pain experiences and the requirement for local anesthetic injections cause difficult conduct and raise anxiety during subsequent dental visits. Children who have had a traumatic dental encounter in the past are more likely to be scared and avoidant than children who have not [4,5].

According to Milgrom et al., children who reported receiving unpleasant treatment during their most recent dental appointment were 4.9 times less likely to be willing to attend the dentist again than those who did not. According to Ramos-Jorge et al., kids with toothache have a significant effect on how children's DF develops and functions throughout childhood and adulthood [5, 6]. With this basic notion, the study was undertaken to evaluate the effectiveness between the two techniques.

2. Materials and methods

The study was conducted among children. It was designed as a prospective randomized controlled trial that evaluated and compared the effects of two different distraction techniques in children. Official permission to conduct the study was obtained from the school authorities.

2.1. Sample size calculation

The study population consisted of children in the age group of 6-9. Sample size was determined by power analysis. With a power of 80 %, type 1 alpha error of 0.05 each group needed 34 children. Adding a 10% loss rate the final study population was 64. Children were randomized into two groups.

2.2. Source of samples

A total of 64 healthy children belonging to the age group of 7-12 years were recruited for the study. The source of samples included out-patients reporting to the Department of Pediatric and Preventive Dentistry at the dental hospital.

2.3. Recruitment of participants

A hundred and twenty children were screened for eligibility criteria, 86 were excluded for not meeting the inclusion criteria, 6-declined to participate, 80 were selected. Allotment to the two parallel arms were done by SNOSE method, from random organizer table.

2.4. Eligibility Criteria

Inclusion criteria

Children present on the day of assessment.

Children who were willing to participate.

Children with no experience

Children who fall under Frankel Behavior rating of 2 or 3

Exclusion criteria

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Children with special health care needs

Children with underlying systemic conditions

2.5. Data collection

Data collection was done through the administration of the newly developed structured questionnaire for dental anxiety status. The collected data was entered into MS Excel and analyzed using SPSS version 20. (IBM Armonk, New York, USA) package. All possible efforts were made to address the potential source of bias.

2.6. Randomization and Blinding

The sample size comprising of 64 participants were randomly divided into two groups of 32 each by generating a table of random numbers through www. Randomizer.org. Allocation concealment was done using Snose – sequentially numbered opaque sealed envelope method. The lottery method was used to determine the allocation of intervention to the two groups.

2.7. Outcome and Data recording

The primary outcome was analyzed for baseline date. Secondary outcomes were analyzed for intergroup comparison.

2.8. Data analysis

A double blinded pattern was followed. All the data in the study were categorical and therefore nonparametric statistics were performed using SPSS version 16. The primary outcome was analyzed for baseline date. Within the group comparison was done at 3, 6 and 12 months and evaluated using Friedman's test. For intergroup comparison Wilcoxon signed rank test was used at 3, 6 and 12 months, thus secondary outcomes were analyzed.

3. Results and Discussions

It showed the frequency distribution percentages of the study population based on the intervention trial groups of TLC- Tender Loving Care/ TSD- Tell, Show, Do at baseline values at 3 months and at 6 and 12 months. At 3 months review the frequency of patients accepting TLC was maximum. TSD-At 3 months review the frequency of patients accepting TLC was 26 (81.2%). Chi square values were significant. It showed the level of acceptance of TLC and TSD at 3, 6 and 12 months. At 3 months review the frequency of patients accepting TLC was maximum, at 6 months. TSD-, at 6 months it was maximum. Chi square values were significant for the TLC group, whereas they were not significant for the TSD group.

Anxiety assessment based on the distraction techniques.

Of the participants recruited in each group, there were males and females. Loss to follow up was 2, thereby the total was 32. Of the total number, at 3 months- complete acceptance was found to be higher in Group 1 than Group 2. At 6 months, the score was higher in Group 1 than in Group 2. At 12 months also the score was higher in Group 1 than in Group 2. Relatively TLC technique was better when compared to TSD at 3, 6 and 12 months but not statistically significant.

Anxiety assessment based on the level of acceptance.

Results of Friedman's test showed that overall probability of complete acceptance increased significantly with time at 3, 6 and 12 months for TSD ($P < 0.01$), whereas it was not significant for TLC group. ($P > 0.05$)

Maintaining good oral health cannot be compromised at any stage for which the major barrier is child dental anxiety. Our results showed that TLC was better accepted by a wide variety of population gradient, but TSD was better with regards to level of acceptance.

Our study shows the frequency distribution between TLC and TSD at 3, 6 and 12 months for 32 patients in each group. At 3 months review the frequency of patients accepting TLC was 25 (78.1%), at 6 months it was 23(71.9) and at 12 months it was 21(65.6). The corresponding P value was < 0.01 . It was statistically significant. TSD-At 3 months review the frequency of patients accepting TLC was 26 (81.2%), at 6 months it was 25(78.1) and at 12 months it was 23(71.9). The corresponding P value was < 0.01 . It was statistically significant. This was in accordance with similar studies done by Nada et al [1-5] Milgrom et al [6-11] Sharma Salah Adeen [8-12] et al, Wilson et al [4] and Alvesalo et al [5] based on techniques of managing behavior in Pediatric Dentistry. A comparative study of live modeling and Tell –Show –Do based on children's heart rate during treatment was measured and assessed. Our study showed the level of acceptance of TLC and TSD at 3, 6 and 12 months for 32 patients in each group. At 3 months review the frequency of patients accepting TLC was 0, at 6 months it was 28(87.5%) and at 12 months it was 25(78.1). The corresponding P value was < 0.01 . It was statistically significant. TSD-At 3 months review the frequency of patients accepting TLC was 0, at 6 months it was 31(96.9%) and at 12 months it was 30(93.8%). The corresponding P value was > 0.05 . It was not statistically significant. This is in accordance with similar studies done by Milgrom P et al [6], Chapman et al [7], Wright et al [8], Townsend et al [9] and Buchanan et al [10]

Our study showed TLC- (Tender loving care) was highly significant- < 0.01 at both levels with regards to frequency and the level of acceptance, whereas TSD (Tell, Show, Do) was not significant- > 0.05 with regards to the level of acceptance. The findings of our study emphasize the fact that TLC and TSD can be recommended as safe procedures for behavior management in children at the dental office. This is in accordance with similar studies done by Pinkham et al [20-26] et al on Techniques of managing behavior in Pediatric Dentistry. Our study is in accordance with similar studies done by Rantavuori K et al [27-30] done on the relationship between children's first dental visit and their anxiety.

Limitations

Within the pursuits of the regional population, the study focused on TLC technique, which needs a larger population study to implement the same.

4. Conclusions

Distraction techniques have proved to be a breakthrough in behavior management. The study has to be replicated on further population grounds to check if the findings are replicable and consistent.

Clinical Implications

The two techniques discussed above can be implemented in behavior shaping and management as suggested by experts in the field of Pediatric dentistry. The acceptance level of TSD was better from the patients' point of view, whereas TLC was technique sensitive.

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Conflict of Interest

Nil

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LEGENDS

TABLE 1 - Anxiety Assessment Based on the Distraction Techniques

Total number of Participants	Mean age of the Participants
32	7.5

TABLE 2 - Anxiety Assessment Based on the Level of Acceptance

3 Months	6 Months	12 Months
P<0.01-TSD	P<0.01-TSD	P<0.01-TSD
P<0.05-TLC	P<0.05-TLC	P<0.05-TLC