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Efficacy of Application of Communication, Home and Homar Distraction Methods of Dental Anxiety in Children - a Randomized Controlled Pilot Trial

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Behavior management, distraction techniques, children

Abstract

Background & Rationale

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 Communication, Home and Homar distraction methods were chosen for a comparative basis for the study.

A young child's cognitive development does not have the conceptual framework to understand a dentists' claim, which needs to be communicated effectively. Communication is a team effort involving the child, dentist and the support staff. The communication process comprises of the message, messenger and the receiver. Message conveyed must be clear, simple and designed to adapt to the child's level of understanding.

Home- is the abbreviation for Hand Over Mouth Exercise. It is used by the dentist in an apparently healthy child to gain attention to the child. Once the child stops crying the exercise is discontinued.

Homar- is the abbreviation for Home with airway restriction.

With this basic notion, the study was undertaken. This study aims to investigate the application of three different distraction methods in children at the dental operatory

Methodology

This was a controlled trial. The samples were simple random in nature and consisted of 75 children equally divided among the three groups in the pediatric age groups..

Statistical Analysis

Statistical analysis was done using IBM SPSS version for windows. Statistical significance was set at P < / = 0.05. Kolomogrov- Smirnov and Shapiro- Wilk's tests were used for testing the normality of data. Intra group comparison was done using Friedman's test and Wilcoxon-signed rank tests. Inter group comparison was done using Kruskall – Wallis and Mann –Whitney tests.

Results

All the groups showed significant reduction in dental anxiety among children.

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Conclusion

Distraction techniques have proved to be a major break through in behavior management forums. This study contributes to the literature on non pharmacological methods. The study has to be repeated further on increased population grounds to check if the findings are replicable and consistent.

Introduction

Anxiety is highly prevalent among children. It is a subjective emotion which leads to mal adaptive behavior.[1] 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 Communication, Home and Homar were chosen for a comparative basis for the study.[2,3]

A young child's cognitive development does not have the conceptual framework to understand a dentists' claim, which needs to be communicated effectively. Communication was introduced by Chambers in 1976. [4] Types of communications include verbal- speech and nonverbal- expressions. Speech is enhanced by use of euphemisms or second language. Communication is a team effort involving the child, dentist and the support staff. [5,6] The communication process comprises of the message, messenger and the receiver. Message conveyed must be clear, simple and designed to adapt to the child's level of understanding.

Behavior management was defined by Wright in 1975 as the means by which the dental health team effectively and efficiently performs treatment and at the same time instills a positive dental attitude. Both Home and Homar come under behavior management.[7,8]

Home- is the abbreviation for Hand Over Mouth Exercise. It was introduced by Dr. Evangelin Jordan in1920. It is used by the dentist in an apparently healthy child to gain attention to the child for a time span of 20-30 seconds. Once the child stops crying the exercise is discontinued.

Homar- is the abbreviation for Home with airway restriction. Airway restriction can be done using dry or wet towel for a time span of 15 seconds It was introduced by Levitas in 1947. [9-11]

With this basic notion, the study was undertaken. This study aims to investigate the application of three different distraction methods in children at the dental operatory

Methodology

The study was conducted among children. It was designed as a prospective randomized controlled trial that evaluated and compared the effects of three different distraction techniques in children. Official permission to conduct the study was obtained from school authorities. After explaining the purpose and details of the study informed consent and assent was obtained from parents and children.

Sample size calculation

The study population consisted of children in the pediatric age group .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 10% loss rate the final study population was 75. Children were randomized into three groups.

Source of samples

A total of 75 healthy children belonging to the pediatric age group 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.

Participants recruitment

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 was done by SNOSE method, from random organizer table.

Eligibility Criteria

Inclusion criteria:

Children who fall under the ASA category 1

Children present on the day of assessment

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Children who were willing to participate.

Children with no past experience

Children who fall under Frankel Behavior rating of 2 or 3

Exclusion criteria:

Children with special health care needs

Children with underlying systemic conditions

Ethical considerations

The study was approved by the ethics committee. The aim and procedure was explained to both parents and children. Informed consent and assent was obtained. They were informed that they had the right to withdraw from the study at any point without even stating a reason. Study protocol was explained to the participants, consent and assent obtained. Since it was non –interventional there was no harm inflicted on the participants and the observations were was recorded.

Data collection:

Data collection was done through the administration of three different distraction techniques. The collected data was entered into MS Excel and analyzed using SPSS version for windows. (IBM Armonk, New York, USA) package. All possible efforts were made to address the potential source of bias

Randomization and Blinding

The sample size comprising of 75 participants were randomly divided into three groups of 25 each by generating a table of random numbers through www. Randomizer.org web page. Allocation concealment was done using Snose – sequentially numbered opaque sealed envelop method. Lottery method was used to determine the allocation of intervention to the two groups. Statistician was blinded by coding the interventions in the data tabulation sheet. All these procedures were monitored by two investigators RH and SN.

Outcome and Data recording

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

Data analysis

A double blinded pattern was followed. All the data in the study were categorical and therefore non parametric statistics were performed using SPSS version 16. Primary outcome was analyzed for baseline date. Within 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.

Results

Table 1 showed the frequency distribution percentages of the study population based on the intervention trial groups of **Communication, Home and Homar techniques** at baseline values at 3 months and at 6 and 12 months.

At 3 months review the frequency of patients accepting Home was maximum .At 6 months review the frequency of patients accepting Home and Homar was maximum. Chi square values were significant

Table 2 showed the level of acceptance of **Communication, Home and Homar techniques** at 3,6 and 12 months. . **Home and Homar techniques.** At 3 months review the frequency of patients accepting Homar was maximum , at 6 months it was Home -, at 12 months Homar was maximum. Chi square values were significant for the Communication group , whereas they were not significant for the Home and Homar group

Anxiety assessment based on the distraction techniques

Of the participants recruited in each group, there were males and females. The mean age of the participants was 7.5 years. The total number of participants in each group was 25. Evaluation of the total number of participants was done at baseline, 3, 6 and 12 months. At baseline participants were recruited. At 3 months, Home technique showed maximum score. At 6 months Home and Homar techniques showed maximum score. At 12 months, Home technique showed maximum score. All three categories showed statistically significant levels ($P < 0.01$). Table 1

Anxiety assessment based on the level of acceptance

Results of Friedman's test showed that evaluation of the total number of participants was done at baseline, 3, 6

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and 12 months. At baseline participants were recruited. At 3 months, Homar technique showed maximum score. At 6 months , Home technique showed maximum score. At 12 months, Home technique showed maximum score. The communication categories showed statistically significant levels. Home and Homar categories showed statistically non- significant levels. ($P > 0.05$) Table 2

Discussion

Despite the fact, that the overall global prevalence of dental anxiety has reduced considerably, it still continues to be a major concern provoking factor among Pediatric dentists. Behavior management is the means by which the dental health team effectively and efficiently performs treatment and at the same time instills a positive dental attitude. The definition was given by Wright in 1975.

Communication in children must be done based on Piaget's concept of giving life to inanimate objects. The concept encourages the use of word substitutes or Euphemisms like dental hand piece being called a whistling Charlie. The dentist must get his point across to the child by being sympathetic, confident and honest.

The other terminologies for Home include Aversive conditioning by Lenchner and Wright in 1975 and Aversion by Crammer in 1973.The basic notion is to deliver quality dental care. This can be achieved by gaining the child's attention in order to explain the appropriate behavior expected.

Home is indicated in healthy children, who will be able to understand and co-operate better with the dentist during treatment. It is employed in defiant behavior and those who exhibit obstreperous and hysterical behavior at the dental office. It is not indicated in immature children. Homar is hand over mouth with airway restriction. Nose may or may not be involved. The other variations include towel over mouth only or dry or wet towel over mouth and nose.Scheduling appointments according to child's convenience, child friendly ambience and support staff are other contributing factors enabling appropriate behavior at the dental office.

Our showed the frequency distribution percentages of the study population based on the intervention trial groups of Communication, Home and Homar techniques at baseline values at 3 months and at 6 and 12 months. At 3 months review the frequency of patients accepting Home was maximum .At 6 months review the frequency of patients accepting Home and Homar was maximum. Chi square values were significant. This is in accordance with similar studies done by Ashkenazi M et al [12-18]

Our showed the level of acceptance of Communication, Home and Homar techniques at 3,6 and 12 months. At 3 months review the frequency of patients accepting Homar was maximum , at 6 months it was Home -, at 12 months Homar was maximum. Chi square values were significant for the Communication group , whereas they were not significant for the Home and Homar group. This is in accordance with similar studies done by Berggren U et al [19-23]

Conclusion

Thus the study concluded that Communication, Home and Homar behavior management techniques can be employed widely to control defiant or uncontrolled behavior of children at the dental office.

Clinical Implications

Efficacy of application of Communication, as distraction technique will help the dentist to reach out to patients in future.

Efficacy of application of Home and Homar as distraction techniques will help the dentist to gain the child's confidence.

Declaration Of Interests : The Authors declare no conflicts of interest.

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Legends

Table 1: Frequency of Communication, Home and Homar techniques at 3, 6 and 12 months

	3 months	**6 months**	**12 months**	**P**
Communication n=25	24 (78.1)	23 (71.9)	21(65.6)	< 0.01-SS
Home n=25	25 (81,2)	24 (78,1)	23 (71.9)	< 0.01-SS
Homar n= 25	21(65.6)	24 (78.1)	21(65.6)	< 0.01-SS

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Table 2: Level of acceptance of Communication, Home and Homar at 3,6 and 12 months

	Level of acceptance			**P**
	3 months	**6 months**	**12 months**	
Communication n=25	0	28 (87.5%)	25 (78.1)	< 0.01-SS
Home n=25	0	31(96.9%)	30 (93.8%)	.>0.05-NS
Homar n=25	25 (78.1)	25 (78.1)	0	>0.05-NS