



COMPARATIVE EVALUATION OF THE IMPACT OF TWO DIFFERENT DISTRACTION STRATEGIES AS A NON-PHARMACOLOGICAL ANXIOLYTIC AMONG HOSPITALIZED CHILDREN

Nursing

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ABSTRACT

Background Non-pharmacological anxiolytic distraction methods are extensively supported for their role in reducing anxiety; stress in hospitalized children. However, there is limited scientific evidence identifying the most suitable distraction strategy, especially in an Indian set-up. **Objective** To perform a comparative evaluation of the impact of two different distraction strategies as a non-pharmacological anxiolytic among hospitalized children. **Methodology** In this prospective study, 120 hospitalized children of either sex, satisfying the inclusion criteria were included. Three different treatment groups created: animated cartoon video group (ACV/ n=40), distraction card therapy (DCT/ n=40) and control group (n=40). ACV and DCT was administered for 20 minutes in their respective groups during the vital signs' procedure, and anxiety was assessed before, during and after the 5 min of procedure by using modified child faces anxiety scale (Wong-Baker FACES). The routine procedure was done on control group without giving them the intervention. P 0.05 was considered significant. **Results** Most patients were in the age group of 3-6 years, with a male predominance (53.75%) (Male: Female=0.67:0.57). Significant difference was noted in the post-test anxiety scale test score between ACV and control group, DCT and control group ($p < 0.001$), with high post-test score noted in the control group. Slightly high mean test score noted in the DCT group (6.8) than ACV group (5.5), but non-significant. The majority of children in the age group of 3-6 years had moderate anxiety levels in the ACV group ($p = 0.01408$) and DCT group ($p = 0.0316$) indicating their significant association with age group. **Conclusion** ACV is a more effective non-pharmacological intervention than DCT, for decreasing the anxiety levels in paediatric inpatients.

KEYWORDS

Anxiety, Anxiety disorder, Child, Test anxiety scale, Vital signs

INTRODUCTION

Hospitalization can engender notable stress and anxiety among the large pediatric population and thus is an important public health issue (Hibberson, 2019)^[1]. Various medical procedures, especially the ones involving a needle, are one of the most common sources of anxiety, stress, and pain among children (Kar et al, 2015)^[2].

Distress among children due to short-term hospitalization could compromise the completion of their desired medical procedure. On the other hand, stress related to long-term hospitalization of children could cause aggression and regression in behaviour, non-cooperation and delay in recovering from the procedure (Düzkeya et al, 2021; Rasti-Emad- Abadi et al, 2017)^[3,4]. Depending on their age, sex, level of development, temperament, cause of hospitalization, sociocultural factors, and past pain experiences, the response of a child to anxiety and stress might vary (Mutlu and Balci, 2015; Bray et al, 2019)^[5,6].

Anxiety and stress associated with hospitalization could be managed by two approaches: pharmacological and non-pharmacological (Lago et al., 2017)^[7]. Pharmacological approach involves the utilization of drugs to relieve stress, anxiety and pain. However, pharmacological approaches have certain disadvantages that limit their long-term usage, viz. the potential development of hyperalgesia and tolerance, possible central nervous system (CNS) and gastrointestinal side effects in small children, high cost, etc. (Maciel et al, 2019)^[8]. Non-pharmacological approaches include various distraction activities for the children and thus are cost-effective and safe. They help in decreasing distress, pain, and anxiety reported by the child during hospitalization (Manyande et al, 2015)^[9].

Studies related to the comparison of two or more non-pharmacological techniques for anxiety and stress management among hospitalized patients are rarely published (Agarwal et al, 2017)^[10], and in published ones also the distraction methods are not significantly compared, especially in the Indian set up (Maharjan et al, 2017)^[11]. To fill this lacuna, we performed a comparative evaluation of the impact of two different distraction strategies as a non-pharmacological anxiolytic among hospitalized children.

MATERIALS AND METHODS

Study design

This multicentre, prospective, cross-sectional, evaluative and descriptive study was conducted in the Department of Paediatrics, at selected five tertiary care hospitals in Kolhapur, (Maharashtra) over a period of one month (15/02/2020 up to 15/03/2020), with the

institutional ethics committee approval (DYPMCK/266/2020/IEC). Written informed consent was obtained from the parents of all the children included in the study.

Selection criteria

120 One hundred and twenty children of either sex aged between 3-12 years, admitted in the pediatric ward of the study hospitals, whose parents were willing to give consent and who were able to understand Marathi, Hindi or English, were included in the study. Children, who were critically ill, treated as outpatients, had vision and hearing issues (blind and deaf), on anxiety reducing drugs, were excluded from the study.

Grouping

The children were randomly assigned to three different treatment groups using lottery method: animated cartoon video group (ACV/ n=40), distraction card therapy (DCT/ n=40) and control group (n=40). The control group included those children who were not given any treatment/intervention, neither ACV nor DCT.

Study assessment tool

The study tool consisted of following sections:

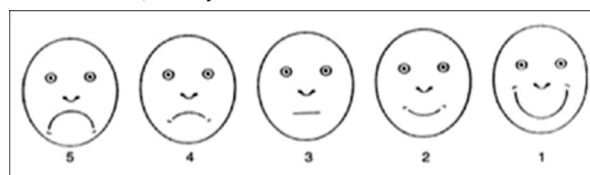
(a) Section A: Selected socio demographic data

It consisted of ten items for obtaining information about the selected background factors such as age in year, gender, habitat, no of sibling, age of mother, age of father, etc.

(b) Section B: Child faces anxiety scale (Wong-Baker FACES Foundation, 2016)^[12]

The section B was noted before, during and after the procedure.

1= Relaxed / Not worried; 2= Very slightly worried; 3= Fairly worried; 4= Worried a lot; 5= Very worried



Data collection

The pre-assessment was done by using selected socio-demographic data. Anxiety was assessed by using a modified child faces anxiety scale in ACV, DCT and control groups. ACV

and DCT was administered for 20 minutes in their respective groups during the vital signs' procedure, and anxiety was assessed before, during and after the 5 min of procedure by using a modified child faces anxiety scale (Wong-Baker FACES Foundation, 2016).¹² The routine procedure was done on control group without giving them the intervention and anxiety was assessed before during and after the 5 min of vital sign procedure by the same scale.

Statistical analysis

Software R version 3.6.0. was employed to analyse the data. The categorical variables were presented as frequency and percentages. Other data was presented as mean $\pm$ standard deviation (SD). Unpaired t-test was used to compare the effectiveness and the Mann-Whitney-U test was performed to determine the association. Qualitative variables were analysed using chi-square test of independence. Data was considered statistically significant when $P \leq 0.05$.

RESULTS

Out of total of 120 hospitalized children, 50% belonged to the age group of 03 to 06 years, and the remaining 50% belonged to the age group 06 to 12 years. In ACV and DCT groups, the majority (53.75%) of children were males while 46.25% were females, indicating male preponderance (Male: Female=0.67:0.57). Table 1 presents the comparison between post-test anxiety scores in DCT and ACV groups.

Table 1: Comparison between post-test anxiety score in DCT and ACV group

Group	Post-test anxiety score			p-value U
	Mean	Standard Deviation	Median	
ACV	5.5	2.81	4	0.05325
DCT	6.8	3.16	7	

ACV: animated cartoon video; DCT, distraction card therapy; U: Mann-Whitney-U Test No significant difference was noted in the total anxiety scale test score between DCT and ACV groups ($p > 0.05$), with a slightly high mean test score noted in the DCT group as compared to the ACV group (Table 1). This stipulates that some children in the ACV group had mild anxiety levels as compared to the DCT group which showed moderate anxiety levels but the difference was insignificant.

Table 2: Association between ACV post-test anxiety score and age group

ACV post-test anxiety score interpretation	Age group (in years)		p-value ^c
	3 to 6 (N=20) (%)	6 to 12 (N=20) (%)	
Mild	5 (25)	14 (70)	0.01408
Moderate	14 (70)	5 (25)	
Severe	1 (5)	1 (5)	

ACV: animated cartoon video; c: chi-square Test; n (%), number (percentage) A significant association was noted between different age groups and their ACV anxiety post-test score ($p < 0.05$) as the majority of children in the age group of 3-6 years had moderate anxiety levels and the majority of children in the age group of 6-12 years had mild anxiety levels (Table 2).

Table 3: Association between DCT post-test anxiety score and age group

DCT Post-test anxiety score interpretation	Age group (in years)		p-value ^c
	3 to 6 (N=20) n(%)	6 to 12 (N=20) n (%)	
Mild	8 (40)	6 (30)	0.0316
Moderate	10 (50)	9 (45)	
Severe	2 (10)	5 (25)	

c: chi-square Test; DCT, distraction card therapy; n (%), number (percentage)

A significant association was noted between different age groups and their DCT anxiety test score ($p < 0.05$) as the majority of children in the age group of 3-6 years as well as 6-12 years had moderate anxiety levels (Table 3). This stipulates that toddlers and young children, both are more prone to anxiety and comparatively less affected by DCT intervention.

Table 4: Multiple comparisons of anxiety test scores between groups

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ACV: animated cartoon video; CG, control group; DCT, distraction card therapy; d, Dunn-test; *, significant

A significant difference was noted between the anxiety test score of ACV and CG as well as between DCT and CG ($p < 0.001$) (Table 3). This indicates that as compared to the control group, both ACV and DCT intervention groups showed improved anxiety scores.

DISCUSSION

Hospitalized children routinely confront anxiety and fear, especially while encountering a medical procedure. Therefore, reducing pre-procedural anxiety among such children is essential to improve outcomes for both children and their parents^[13]. Non-pharmacological approaches are such approaches which are utilized to reduce pre-procedural anxiety in children^[9]. Hence, the present study performed a comparative evaluation of the impact of two different non-pharmacological anxiolytic distraction strategies viz. ACV and DCT among hospitalized children.

A significantly high post-test anxiety score was noted in the control group as compared to ACV intervention group in the present study. This is in accordance with the study conducted by Maharjan et al (2017)^[11], as the post-test anxiety and pain score were more in the control group (9.43) as compared to the experimental (ACV) group (6.63) which was significant ($p < .038$)^[13]. Among various non-pharmacological therapies, animated cartoon videos help children in focusing their attention to other stimuli and thus could be an effective therapy for reducing anxiety and any pain before or during any medical procedure (Babaie et al, 2015)^[14]. When compared with the DCT intervention group, the control group showed significantly high post-test anxiety score as was shown with ACV group. Similar results were observed by Sahiner and Bal (2016) in their study on non-pharmacological intervention with distraction card therapy. In their study the distraction card group had lower pain levels (2.33 ± 3.24) as compared to the control group (4.53 ± 3.23) showing a significant difference ($p < 0.047$)^[15]. The argument for the pain and anxiety-reducing effects of distraction therapy via cards is the hypothesis targeting the limited ability of the brain to focus attention on stimulation (Aydin et al, 2017)^[16]. Some children in the ACV group had mild anxiety levels as compared to the DCT group which showed moderate anxiety levels but the difference was insignificant. This is in accordance with the study findings by Oliveira et al (2017) as the audio-visual distraction was significantly better effective than the card distraction therapy for reducing the stress and anxiety levels due to fear of pain among children undergoing surgical treatment ($p < 0.048$)^[17]. Different age groups of children and their ACV and DCT post-test anxiety scores showed significant association with each other as toddlers and very young children (3-6 years) were noted to be more prone to anxiety and comparatively less affected by DCT then ACV intervention. While the children in the age group between 6 to 12 years were more positively affected by both the non-pharmacological interventions. This is in line with the study findings by Aydin et al (2017) which showed an association between age group and various non-pharmacological interventions which was also significant ($p < 0.032$)^[16]. During the preschool period (3-6 years), children are full of imaginative thinking and curiosity. They usually consider all objects to be alive which leads to the development of their self-centered perspective. Due to their undeveloped sense of body integration at this age, children might fear any clinical intervention, medications, or injections. This factor, as well as castration anxiety, make them initially repulsive to towards any intervention (Sahiner and Bal, 2016)^[15]. The presented study is, however, subject to some limitations. The comparison between pre-test and post-test anxiety scores was not performed. Further, there was no subgroup analysis based on the type of treatment that the children were undergoing due to hospitalization, which could have highlighted that whether it was more or less affected by the intervention. Future studies are obligatory to do additional research for investigating the effect of non-pharmacological interventions on children with specific medical conditions.

CONCLUSION-

The present study further contributes to the literature regarding the effects of two important non-pharmacological interventions viz. ACT and DCT for anxiety management among hospitalized children. The comparative analysis indicates that ACT is a more powerful and effective non-pharmacological intervention as compared to DCT, for decreasing the anxiety levels in paediatric inpatients.

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