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Impact of animation therapy on anxiety level among children in India

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Abstract:

Hospitalized children commonly experience anxiety due to unfamiliar surroundings, separation from family, illness and therapeutic procedures. A quasi-experimental pre- and post-test control group study was conducted among 60 hospitalized children in selected hospitals of Coimbatore district, with 30 children in each group. The effectiveness of animation therapy was evaluated using a standardised anxiety scale. In the experimental group, mean anxiety decreased significantly from 51.86 to 33.73 ($t=13.50$, $p<0.05$). In the control group, the mean decreased from 62.53 to 60.80 ($t=1.83$, $p>0.05$). The post-test mean anxiety score was significantly lower in the experimental group than in the control group ($t=16.60$, $p<0.05$). Thus, data shows that animation therapy effectively reduces anxiety among hospitalized Indian children.

Keywords: Animation therapy, anxiety, children, paediatric nursing

Background:

Hospitalization is stressful for children because unfamiliar surroundings, separation from family, interrupted routines, illness and invasive procedures may produce fear, anxiety, loss of control and behavioural distress [1, 2]. These reactions can reduce co-operation, intensify perceived pain, disturb sleep and communication and negatively influence adjustment to treatment [3, 4]. Therefore, paediatric nursing care should address psychological and developmental needs together with illness [4]. Therapeutic play and distraction are safe, inexpensive, non-pharmacological measures that help children's express feelings, understand procedures, redirect attention and gain control over threatening experiences [5, 6]. Evidence indicates that play-based interventions reduce anxiety and negative emotions among hospitalized children, while audiovisual distraction may decrease pain and distress during venipuncture and other invasive procedures [7, 8]. Animation therapy is a passive audiovisual distraction method using animation, sound, movement, humour and familiar characters to engage children's attention [9]. Randomized studies have found that cartoon viewing through televisions, tablets or virtual-reality devices reduces procedural pain, fear and anxiety and improves co-operation [10, 11]. Systematic reviews similarly support audiovisual distraction, although effects may vary according to age, procedure, technology and duration [12]. Therefore, it is of

interest to evaluate the effectiveness of animation therapy in reducing anxiety among hospitalized children in selected hospitals of Coimbatore district.

Methodology:**Research approach and design:**

A quantitative research approach with a quasi-experimental pre- and post-test control group design was adopted to assess the effectiveness of animation therapy in reducing anxiety among hospitalized children. The experimental group received animation therapy, whereas the control group received routine hospital care without any additional intervention.

Setting and population:

The study was conducted at selected Children Hospital, Coimbatore. The target population comprised hospitalized children, while the accessible population included children admitted to the selected hospitals that experienced anxiety and fulfilled the specified eligibility criteria.

Sample and sampling technique:

A total of 60 hospitalized children were selected using a non-probability convenience sampling technique. Thirty children were assigned to the experimental group and 30 to the control group. Children aged 6–10 years, admitted for the first time with medical illness and moderate anxiety, were included. Critically

ill, unconscious, post-operative, physically or mentally disabled children and those receiving outpatient care were excluded.

Intervention and data collection:

Pre-test anxiety was assessed in both groups using a behavioural observational checklist. The experimental group was provided cartoon animation as an audiovisual distraction, while the control group received routine care. Post-test anxiety was assessed on the third day using the same checklist. The tool included demographic information and 30 anxiety-related behavioural items, with scores classified as mild, moderate and severe anxiety.

Data analysis:

Data were analysed using descriptive and inferential statistics. Frequency, percentage, mean, standard deviation and mean difference were used to summarize demographic variables and anxiety scores. Paired *t*-test was used to compare pre-test and post-test anxiety scores, independent *t*-test was used to compare both groups and chi-square test was applied to determine associations with selected demographic variables. Statistical significance was considered at $p < 0.05$.

Results:

Table 1 and Table 2 shows the demographic characteristics and anxiety levels of hospitalized children in the experimental and control groups ($N=60$). The groups were broadly comparable regarding age, sex, birth order, residence, family type, religion, number of siblings and caretaker during hospitalization. At pre-test, all children in both groups had moderate anxiety. After animation therapy, 90% of children in the experimental group shifted to mild anxiety, compared with only 26.67% in the control group. The experimental group's mean anxiety score decreased significantly from 51.86 ± 7.19 to 33.73 ± 4.05 ($t=13.50$, $p < 0.05$), while the control group showed no significant change from 62.53 ± 5.97 to 60.80 ± 8.07 ($t=1.83$, $p > 0.05$). The post-test anxiety score was significantly lower in the experimental group than in the control group ($t=16.60$, $p < 0.05$), demonstrating the effectiveness of Animation therapy. **Figure 1** shows that all children in both experimental and control groups had moderate anxiety during the pre-test. Following animation therapy, 90% of children in the experimental group had mild anxiety and only 10% had moderate anxiety. In the control group, 26.67% had mild anxiety, whereas 73.33% continued to have moderate anxiety during the post-test. Thus, the reduction in anxiety was greater in the experimental group than in the control group.

Table 1: Demographic characteristics of hospitalized children in experimental and control groups $N=60$

Demographic variable	Category	Experimental group, f (%)	Control group, f (%)
Age	6–8 years	16 (53.33)	15 (50.00)
	8–10 years	14 (46.67)	15 (50.00)
Sex	Male	15 (50.00)	16 (53.33)
	Female	15 (50.00)	14 (46.67)
Birth order	First	15 (50.00)	17 (56.67)
	Second	15 (50.00)	13 (43.33)
Residence	Urban	21 (70.00)	20 (66.67)
	Rural	9 (30.00)	10 (33.33)

Family type	Joint	14 (46.67)	12 (40.00)
	Nuclear	16 (53.33)	18 (60.00)
Religion	Hindu	17 (56.67)	15 (50.00)
	Christian	11 (36.67)	12 (40.00)
	Muslim	2 (6.66)	3 (10.00)
Siblings	No sibling	15 (50.00)	16 (53.33)
	One sibling	15 (50.00)	14 (46.67)
Caretaker	Mother	27 (90.00)	28 (93.33)
	Grandparents	3 (10.00)	2 (6.67)

Table 2: Anxiety levels before and after animation therapy $N=60$

Anxiety level	Experimental pre-test, f (%)	Experimental post-test, f (%)	Control pre-test, f (%)	Control post-test, f (%)
Mild	0 (0.00)	27 (90.00)	0 (0.00)	8 (26.67)
Moderate	30 (100.00)	3 (10.00)	30 (100.00)	22 (73.33)
Total	30 (100.00)	30 (100.00)	30 (100.00)	30 (100.00)

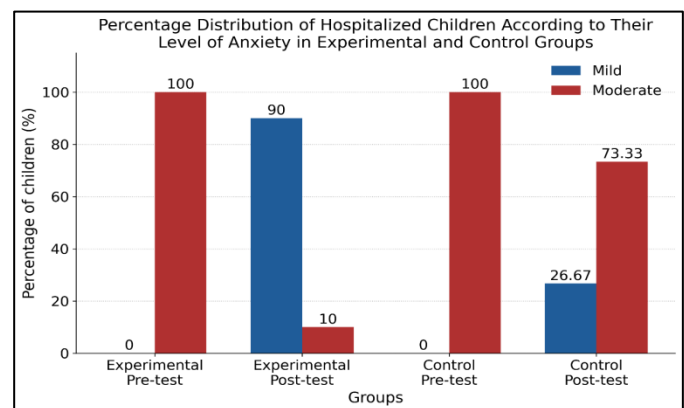


Figure 1: Percentage distribution of hospitalized children according to their level of anxiety in experimental and control groups

Discussion:

The pre-test findings showed that all 30 children in the experimental group and all 30 children in the control group had a moderate level of anxiety before the intervention. Acharya *et al.* reported considerable pre-operative anxiety among school-aged children and found that smartphone-based video distraction significantly reduced their anxiety [13]. Similarly, Tang *et al.* observed substantial perioperative anxiety among children and showed that individualized cartoon videos effectively relieved anxiety [14]. After cartoon therapy, 90% of children in the experimental group had mild anxiety and only 10% had moderate anxiety. In the control group, 73.33% continued to have moderate anxiety. Gökoğlu and Sukut found that watching cartoons significantly reduced pain, fear and anxiety among hospitalized children undergoing invasive procedures [15]. Pamungkas *et al.* also reported that animated video cartoons significantly decreased anticipatory anxiety among children during clinical procedures [16]. The experimental group's mean anxiety score decreased from 51.86 ± 7.19 to 33.73 ± 4.05 , with a mean difference of 18.13. The reduction was statistically significant ($t=13.50$, $p < 0.05$). Erdogan and Ozdemir found that virtual reality and other distraction techniques significantly reduced anxiety during venipuncture [17]. Özalp Gerçekci *et al.* similarly reported significantly lower pain, fear and anxiety

among children receiving virtual-reality distraction during blood collection [18]. The post-test mean anxiety score was 33.73 ± 4.05 in the experimental group and 60.80 ± 8.07 in the control group. The difference was statistically significant ($t=16.60$, $p<0.05$). Alsibai *et al.* found significantly lower reported pain and better overall behaviour among children receiving audiovisual distraction than controls [19]. Cumino *et al.* also showed that smartphone-based distraction prevented an increase in children's anxiety during anaesthesia induction [20]. Age and sex were significantly associated with pre-test anxiety in both groups, whereas birth order, residence, family type, income, religion, siblings and caretaker were not significantly associated. Wollin *et al.* reported that children's anxiety is influenced by individual and situational characteristics, indicating the importance of identifying vulnerable children [21]. Bossert also found that gender, health status and trait anxiety influenced stress appraisal among hospitalized school-age children [22]. Özkan *et al.* fear and anxiety levels in children can be reduced through watching cartoon during medical procedures [23].

Conclusion:

Animation therapy was found to be an effective, simple and inexpensive non-pharmacological measure for reducing anxiety among hospitalized children in India. Thus, it showed to be incorporated into routine paediatric nursing care to promote psychological comfort and co-operation during hospitalization.

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