ABSTRACT
An important index used to estimate the Nation’s health is the health status of children in the country. Children are more vulnerable due to their lack of knowledge of procedures, a lack of control, a lack of explanation in child-appropriate terms, and a lack of pain management. Hospitalized children may experience high level of anxiety due to many different factors both physical and psychological factors. The present study aimed to determine the effectiveness of play intervention on anxiety among children admitted in preoperative wards of selected hospitals at Mangalore. The objectives of the study were to determine the effectiveness of play intervention among experimental group. The study design was two group pre-test post-test design. The sample comprised of 60 preoperative school age children in the age of 6-12 years who were selected by Purposive sampling technique and divided into experimental and control group. Pretest anxiety was assessed and play intervention (video game) was given to the experimental group along with the routine care and only routine care to the control group. The data was collected by using demographic proforma and numerical state anxiety scale. The study result showed that the calculated ‘t’ value (t = 4.225) was greater than the table value (t58 = 1.671) at 0.05 level of significance. The pre-test anxiety score was independent of all the demographic variables such as age, gender, religion, type of family, residence, care giver present during hospital stay, past child reactions to any procedures. The finding of the study shows that the play intervention was effective in reducing the anxiety among preoperative children.

Keywords: Effectiveness, school age children, anxiety, play intervention.

INTRODUCTION
An important index used to estimate the Nation’s health is the health status of children in the country1. Unfortunately, even the healthiest baby can get sick2. Surgery can be a threatening experience for everyone, especially for children. Hospitalized children may experience high level of anxiety due to many different factors both physical and psychological factors1. It is not surprising therefore that up to 65% of children experience significant anxiety associated with the preoperative period2. A child’s surgery is often a very significant and memorable event in the life of the entire family and especially the child’s personal history3. Preoperative anxiety is an extremely unpleasant sensation for children4. Preoperative anxiety refers to anxiety regarding the events that take place prior to surgery5. In India approximately 3 million of children undergo surgery, among them boys are more than girls and the ratio is 7:46. Up to 25% of children have been noted to require physical restraint7. Loss of freedom can produce stress and anxiety in children8. Play therapy in a hospitalized setting is innovative and concisely accomplishes the task of supporting children emotionally in their time of chaos, fear, and pain9. The nurses play an important role in helping the parent and child cope with their anxiety and stress7.
The anxiety caused by the hospital environment and surgical procedure may be harmful during the preoperative period because it might affect cognitive, social, and affective development, in addition to increasing negative behaviours during the child’s postoperative period\textsuperscript{10}. The pharmacological and non pharmacological therapy is used to reduce the anxiety of the child\textsuperscript{11}. Play is an important part of child life and it is an important aspect to foster the growth and development of a child\textsuperscript{12}. Play comes naturally to children and is often their favourite activity. Providing an environment conducive to play activities like giving a toys or using of handheld game technology to make the environment less threatening, has been shown to reduce anxiety and this also help in getting child cooperation with medical procedures and anaesthesia induction\textsuperscript{13}. A study was conducted to identify the effect of play on pre-operational anxiety among children. There was a significant reduction in the trend of anxiety increment after surgery in the intervention group in comparison to the control group. Attending in playrooms and using play activities might have reduced the trend of increment in the anxiety level induced by surgical procedures\textsuperscript{6}. The influence of play activity among children between 5 and 12 years of age undergoing medical procedures at the outpatient surgical centre revealed that during the preoperative period, children who participated in playful activities in the recreation room had their anxiety reduced in comparison with those that only stayed in the preoperative holding area\textsuperscript{14}. The child copes up with the anxiety in different ways. So the investigator felt the need of using a distracter as diversion therapy. A conceptual framework is an interrelated concepts or abstractions assembled together in a rational scheme by virtue of their relevance to a common theme. The conceptual framework used in the present study was adapted from the General Systems Theory introduced by Ludwig Van Bertalanffy (1968)\textsuperscript{15,16}.

**MATERIAL AND METHODS**

The study design chosen was two group pre-test post-test design. The population of the study was school age children at selected private hospitals at Mangalore. Permission from the institution ethics committee was obtained prior to the study. The parents of the children gave written consent for the study. Purposive sampling technique was used for selecting the study subjects. The sample comprised of 60 school age children of 6-12 years who got admitted in the preoperative ward subjected to surgery within 24 hours and divided into 30 for experimental and 30 for control group. The tool used for the study was demographic proforma and Numerical State Anxiety Scale. After a brief self introduction, the investigator explained the purpose of the study and obtained informed consent from the parents. On the first day the investigator observed the setting, structure, and the appliances for use. The investigator obtained consent from the parents to participate in the study. The parents were interviewed on the basis of baseline proforma. The investigator made the children comfortable on the bed comfortably. Pretest was assessed for both experimental and control group using numerical state anxiety scale. Then the experimental group children were provided with standard care and play intervention [video game] half an hour in the morning and half an hour in the evening for one day prior to surgery and the children in the control group was given only standardized care. Post test was assessed to both groups using Numerical State Anxiety Scale. The data was analyzed by descriptive and inferential statistics.
RESULT
In experimental group highest percentage (43.3%) of children were in the age group 8-10yrs, where as in control group majority (36.3%) of children were in the age group 10-12yrs. Highest percentages of children were females (53.3%) in the experimental group and in the control group (50%). Majority of the children were in joint family the experimental group (50%) and the control group majority (43.3%). Most of the children in experimental group were from rural area (53.3%) and in the control group majority (50%) were from both rural and urban area. Highest percentages of care giver present in the experimental group were (33.3%) both mother’s and father’s whereas in control groups (36.3%) were mothers. With regard to past reaction to any other procedure is minimal with the percentage of (56.3%) in the experimental group and (50%) control group. The experimental and control group (100%) has not under gone any distraction technique during hospital stay.
Figure.1. depicts that all the children in the experimental group and control group were having a lot anxious. In the post-test of experimental group 80% of them had medium anxious level and 20% were having little anxious. In the post test score of control group 87% were having a lot anxious, 13% had medium anxious and pre-test remained the same even in the experimental group.
The post-test level of anxiety in the experimental group was found to be lower than the control group. Computed paired ‘t’ test showed the effectiveness of play intervention in reducing the anxiety in the experimental group. Table.1and 2 showed that the mean post-test anxiety score (3.43±1) was lower than mean pre-test score (6.4± 0.5). The calculated ‘t’ value ( t= 4.225) was greater than the table value (t29 = 1.699) at 0.05 level of significance. To test the effectiveness of play intervention, statistical significance between the post-test anxiety scores

DISCUSSION
The pre-test anxiety scores in both control and experimental group showed that the entire sample had alot anxious. But in the post-test, anxiety level in the experimental group showed that majority (80%) of the sample experienced medium anxious and 20% little. In the control group majority (90%) was found to have medium anxious and 10% experienced alot anxious. A study was done to evaluate the level and prevalence of anxiety at the preoperative period using the YPAS-m in preschool children. The study result showed that their is significant
difference in the level of anxiety in experimental and control group\textsuperscript{17}. Effectiveness of play intervention is calculated using unpaired t test. The mean score of experimental group (3.43±1) was lower than mean of control group (4.43±0.83). The calculated 't' value (t= 4.225) was greater than the table value (t\textsubscript{58} = 1.671) at 0.05 level of significance. This study is supported by another study done among children between ages of 3–6 yr who were randomized into two equal groups. The anxiety of each child was assessed using the Modified Yale Preoperative Anxiety Scale. The experimental group was provided with a toy and standard care and control group by only standard care. The results showed significantly less anxiety in children who received a toy than the other group who did not\textsuperscript{18}.

A study was done with a total of 150 children aged 2-16 yrs, the sample was divided into two groups; experimental group were provided with standard care and play room activity and control group with standard care. The State-Trait Anxiety Inventory was used to assess anxiety. The analysis showed that 51.1\% of children in experimental group were having reduced anxiety\textsuperscript{19}.

For determine the association between level of anxiety among children in preoperative wards with selected demographic was done there were no significant association between anxiety level and selected demographic variables in control groups. But in experimental group the gender of children shows significant association. This study was supported by a study in which the children of age group 3-7 yrs showed a significant association between anxiety level and age and gender\textsuperscript{20}.

The present study was confined to a specific geographical area which obviously imposes limits to any larger generalization. The study was confined to a small number of subjects. However it could be done on more samples for larger generalization. Anxiety was assessed using only Numerical State Anxiety Scale. Play intervention was given just, a day prior to surgery.

**CONCLUSION**

The present study highlighted the effectiveness of play intervention on anxiety as a non-pharmacological and cost effective intervention for children. Anxiety is a situation where all children will face in all age group. Diversion therapy is chosen as the primary intervention for decreasing the anxiety level of children in preoperative ward because it provides a simple approach in reducing anxiety. A better understanding of health issues associated with the anxiety among school children has constituted a challenge for clinician and researchers. So there is a great lot scope for exploring this area. Research should be conducted to identify the scope of play intervention to alleviate anxiety among children.

**REFERENCES**


Table 1: Mean, median and standard deviation of pre-test and post-test anxiety scores in experimental and control group

<table>
<thead>
<tr>
<th>Group</th>
<th>Mean</th>
<th>Median</th>
<th>Standard deviation</th>
<th>Mean percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Experimental</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pre-test</td>
<td>6.4</td>
<td>6</td>
<td>0.5</td>
<td>64</td>
</tr>
<tr>
<td>Post test</td>
<td>3.43</td>
<td>3</td>
<td>1</td>
<td>34</td>
</tr>
<tr>
<td>Control</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pre-test</td>
<td>6.73</td>
<td>7</td>
<td>0.45</td>
<td>67</td>
</tr>
<tr>
<td>Post test</td>
<td>4.43</td>
<td>4</td>
<td>0.82</td>
<td>44</td>
</tr>
</tbody>
</table>

Data presented in table 1; shows that, in experimental group mean post-test anxiety score (3.43±1) was lower than that of mean pre-test score (6.4± 0.5), where as in control group, mean post-test anxiety score (4.43±0.82) was almost similar to the mean pre-test score (6.73± 0.45). It is also observed that mean post-test scores of experimental group was lesser than mean post-test scores of control group.

Table 2: Mean, standard deviation, mean difference and ‘t’ value of post-test anxiety scores in the experimental and control group. N=60

<table>
<thead>
<tr>
<th>Group</th>
<th>Mean score</th>
<th>Standard deviation</th>
<th>Mean difference</th>
<th>‘t’ value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Experiment</td>
<td>3.43</td>
<td>1</td>
<td>1</td>
<td>4.225*</td>
</tr>
<tr>
<td>Control</td>
<td>4.43</td>
<td>0.82</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Data in table 2 shows that, the mean anxiety score of experimental group (3.43±1) was lower than mean of control group (4.43±0.83). The calculated ‘t’ value ( t= 4.225) was greater than the table value (t_58 = 1.671) at 0.05 level of significance. Hence the hypothesis was accepted as there was a significant difference in the anxiety score of children between experimental and control group.
Fig.1  Bar diagram representing percentage distribution of samples according to level of anxiety in experimental group and control group.

Figures 1 show that in experimental group and control group were having 100% of a lot anxious. The post-test of experimental group were 80% of them had medium anxious level and 20% were has little anxious. In post test score control group 87% of sample were a lot anxious, 13% had of sample had medium anxious and pre-test remained same even in the experimental group.