Effectiveness of Distraction Therapy on Pain Relief among Children Undergoing Vein-Puncture in a Selected Hospital, Bhubaneswar

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Aim: The present study is aimed to assess the effect of distraction therapy during venipuncture in reducing pain among 6-12 years children in the selected hospital at Bhubaneswar.

Methods: The study was a double blind; Randomized control trial design was used and the formal consent was obtained from Pradyumna Bal Memorial Hospital and the investigator selected 182 samples using consecutive sampling technique and then randomized into experimental and control groups. The intervention group and the control were having 91 samples each. Measurement of pain experienced by the school going children was assessed with the help of Wong-Baker Faces Pain Scale. Descriptive and inferential statistics were used to analyze the data.

Result: The mean pain score of children in experimental group was 2.571 and the standard deviation was 2.006. The p value in comparing the pain level of children in control and experimental group was <0.01, which was statistically significant at p<0.05 (confidence interval 95%) level indicating that there was significant difference in the post test level of pain between the experimental and control group.

Conclusion: Hence the distraction therapy was responsive in reducing the vein-puncture pain among school going children.

Keywords: Distraction Therapy, Pain, Vein-Puncture, Bhubaneswar

Introduction

Pain continues to be the most complex and challenging sensory emotions in the life of children. It is defined as a universal unpleasant, subjective, sensory and emotional human experience. Because of its strong sensation; it activates the sympathetic nervous system to alter the quality of life in children such as sleep, mobility, nutrition, thought, emotional wellbeing, and creativity.
Needle puncturing is painful to all children but how they respond to that depends on their developmental ages and their previous experiences. During venipuncture the nurse can provide various diversionary activities before, during and after procedure.

Children should not be exposed to painful procedures. Despite the prevalence of pain stemming from medical procedures and the distress associated with this, research indicates that pain management continues to be suboptimal. Therefore, reducing the emotional and physical short-and long-term negative effects of painful procedures in children through adequate management is an important part of nursing practice.

Need of the Study
Pediatric nursing is the specialized care of nursing practice concerning the care of children during wellness and illness. Pain is an unpleasant sensory and emotional experience associated with actual and potential damage.

To the response of pain perception in children with acute and chronic disease is a major public health problem that has been increasing over the last 20 years. Elimination or relief of pain and suffering, whenever possible is as important responsibility of nurse caring for children, because unmanaged pain can result in a variety of negative long-term consequences. Vein-puncture is also a source of pain in hospitalized children. Vein-puncture was found to be the second most common cause of the worst pain experience during hospitalization. Before and during this procedure most children are fearful and suffer from pain.

Problem Statement
Effectiveness of distraction therapy on pain relief among children undergoing vein-puncture, in a selected hospital, Bhubaneswar.

Hypothesis
There is significant reduction of pain during vein puncture after using the distraction therapy.

Objective of Study
The overall study objective is:
- To evaluate the effectiveness of distraction therapy on pain relief among children during vein puncture.
- To find out the risk factors affecting the pain level.

Literature Review
A randomized control trial on distraction using the BUZZY for 4 to 12 years children during an IV insertion. They are divided into experimental and control group and each group was having 25 children. Then BUZZY was used in the experimental group. Wong-Baker FACES Pain Rating Scale was used to rate the pain. BUZZY group was having less pain rating.

A quasi-experimental study was done to compare between the effect of analgesic method among 7 years children. One group was held by family members and other group was held by family members as well as distraction therapy was used in second group. FLACC pain scale was used to assess the pain in both groups. Findings revealed that the mean pain score of group 1 was 3.86 and that of group 2 was 2.43, while comparing both group pain scores 7.199 with p-value 0.000 was highly effective in group with distraction therapy.

A control trial was conducted to assess the pain in 1 to 16year children during vein puncture procedure. A sweet tasting solution or substance was used as an interventional method. 330 samples were randomly divided in control and experimental group. In control group pacifiers and water substances were used. In Toddler group cry was very less so intervention was effective.
Inclusion Criteria

- Children aged between 6-12 years.
- Children undergone vein puncture (IV cannulation, Blood collection).
- Children who are or whose parents are willing to participate.

Exclusion Criteria

- Children undergone any other procedure such as central line, arterial line etc.
- Syndromic babies, neurodevelopmental disorder.
- Visual and hearing impairment, verbal difficulty.
- Patient who used analgesics within 6 hours.

Result

Description of Tool

Socio-Demographic Data

Socio-Demographic data of the subjects consists of the following items: age, gender, birth order of the child, residence, type of family, religion, occupation of the father, educational qualification of the father, occupation of the mother, educational qualification of the mother, previous hospitalization within one year.

Data Collection Procedure

This was a prospective study that was conducted in the...
phlebotomy room of KIMS hospital, in which the effect of distraction therapy (music + distraction card) was seen on pain relief among school going children. The children were randomized into two groups: experimental group (91) and control group (91) using a random table. First the socio demographic history of the child was collected. During the phlebotomy process one music (Hindi cartoon audio songs, ex-chhotabheem, Doremon) and then distraction card was shown to the child and questions were asked regarding the cards. The phlebotomy was performed using a 5 ml syringe and 22 G, 24 G needle. Pain level of children in the experimental group were assessed by Wong Bekar Faces Pain Scale. In control group only, the routine hospital care was given during vein puncture.

Table 2, shows that in female 43 (48.86%) were in control group and 45 (51.14%) were in experimental group. In male 48 (47.25%) were in control group and 46 (48.94%) were in experimental group. The p value is not statistically significant.

Table 3, shows that in < 3 days of hospital stay 43 (52.44%) were in control group and 39 (47.56%) were in experimental group. In 3-7 days 35 (48.53%) were in control group and 35 (51.47%) were in experimental group. The p value is not statistically significant.

Table 4, shows that in none of the previous hospitalization 38 (45.24%) were in control group and 46 (54.76%) were in experimental group. The p value is not statistically significant.
group. In 3 - 7 days of hospital stay 33 (48.53%) were in control and 35 (51.47%) were in experimental group. In >7 days of hospital stay 15 (46.88%) were in control group and 17 (53.13%) were in experimental group. The p value is not statistically significant.

Table 4, shows that in no previous hospitalization 38 (45.24%) were in control group and 46 (54.76%) were in experimental group. In 1 time, 2 times, 3 times, >3 times 35 (54.69%), 13 (50%), 4 (66.67%), 1 (50%) were in control group respectively. In 1 time, 2 times, 3 times, >3 times 29 (45.31%), 13 (50%), 2 (33.34%), 1 (50%) were in experimental group respectively. The p value is not statistically significant.

Table 5, shows that in primary education 27 (50.94%) mothers were in control group and 26 (49.06%) were in experimental group. In secondary education, higher secondary education, graduate and above 34 (49.28%), 24 (50%), 6 (50%) were in control group respectively. In secondary education, higher secondary education, graduate and above 35 (50.72%), 24 (50%), 6 (50%) were in experimental group respectively. The p value is not statistically significant.

Table 6, shows that in rural resident 44 (48.35%) were in control group and 47 (51.65%) were in experimental group. In urban resident 47 (51.65%) were in control group and 44 (48.35%) were in experimental group. The p value is not statistically significant.

Table 7, shows that in control group and experimental group majority of the children 90 (50.28%) and 89 (49.72%) respectively were not having health care professionals in parents.

Table 8, shows pain level in control group and experimental group are 6.374 and 2.571 respectively which is statistically significant. The p value in comparing the pain level of children in control and experimental group was 0.000, which was statistically significant at p<0.05 level indicating that there was significant difference in the post test level of pain between the experimental and control group.
calculated p-value was 0.012 which is less than the level of significance p<0.05. This is statistically significant.

The number of previous hospitalizations was also associated with the level of pain among children in the experimental group. The calculated p value was 0.017 which is less than the level of significance p<0.05. This is statistically significant which means children with previous hospitalization (>3 times) feeling more pain as compared to first admission.

The other variables were not associated with the pain level of children.

**Discussion**

The first objective was to assess the effectiveness of distraction therapy in reducing pain during venipuncture by comparing the pain scores among both groups.

Control group which consists of 91 children, undergone venipuncture by routine hospital procedure. During venipuncture procedure the pain level of the children was assessed by Wong Bekar Facial Pain Scale. The score range of children in control group was 2-10. The mean pain score of children undergoing venipuncture in control group was 6.374 and the standard deviation was 2.365.

Experimental group which is consists of 91 children, received distraction therapy (music+ distraction card) during vein puncture. Then their pain level was assessed by using Wong Bekar Facial Pain Scale. The score range of children in control group was 0-8. The mean pain score of children in experimental group was 2.571 and the standard deviation was 2.006.

The p value in comparing the pain level of children in control and experimental group was <0.01, which was statistically significant at p<0.05 level indicating that there was significant difference in the post test level of pain between the experimental and control group.

In a similar study the mean pain score of group 1 was 3.86 and that of group 2 was 2.43. The comparison of mean pain score of both groups was checked statistically by computing independent t-test and the value of t comes out to be 7.199 with p-value 0.000 which was found to be highly significant.6

Another similar study revealed that the calculated unpaired ‘t’ value (3.81) is greater than tabulated value (2.04) during venipuncture and the calculated unpaired ‘t’ value (5.06) is greater than tabulated value (2.04) after venipuncture. This indicates that there is statistically significant difference between the mean post assessment pain score value of experimental and the control groups (p < 0.05).6

Results of another study was mean pain score in experimental group was lower (4.6) than that of the control group (7.7) with the mean difference of 3.1 which was significant as evident from “t” value of (10) at 0.05 level of significance.10 In another similar study the mean pain score was significantly less with animated cartoon (2.26±2.18) as compared to routine care (4.76±2.08) at pre-venipuncture. Similarly, the mean pain score during venipuncture was significantly less with animated cartoon (6.24±2.09) as compared to routine care (8.06±1.70). During post-venipuncture also the mean pain score was significantly less with animated cartoon (2.94±1.71) as compared to routine care (5.94±1.61). The results revealed that there was significantly (p<0.001) less pain related behavioral responses with the use of animated cartoons as a distraction strategy at pre-, during and post-venipuncture.21

**Conclusion**

The p value in comparing the pain level of children in control and experimental group was 0.000, which was statistically significant at p<0.05 level indicating that there was significant difference in the post test level of pain between the experimental and control group.

**Conflict of Interest:** None

**References**

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