

Effect of CPEP on Level of Knowledge Regarding Non-Pharmacological Pain Management Measures: A Quasi Experimental Approach

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Abstract: Pain is experienced by everyone. It is the most common reason for seeking health care. Pain is a two-edged sword. On the one hand it warns us that something is wrong in the body and influences us to seek medical attention. On the other hand, fear of pain may cause us to delay medical treatment. Relief of pain is a basic need and right of all children. For effective pain management, health professionals are practicing a number of interventions to achieve optimal results. Aim: To assess the knowledge and effect of Concise & Planned Educational Program (CPEP) on non-pharmacological measures of pain management in children among staff nurses working in pediatric wards in selected hospitals at Tumkur District, Karnataka. Materials and methods: The research approach used was quantitative with a one group pre-test post-test design in the year 2010. Sixty Subjects were selected using random sampling technique; their knowledge level regarding non pharmacological pain management was assessed using a self-structured questionnaire then CPEP was administered, seven days following the program knowledge level was assessed again with the same tool. Findings: There was significant difference in level of knowledge after the CPEP session. Conclusion: CPEP was found to be effective in improving knowledge level regarding non pharmacological pain management for children among staff nurses.

Keywords: Concise and Planned Educational Program, Staff Nurses, Pain Management

1. Introduction

Pain is an uncomfortable feeling that tells you something may be wrong in your body. When there is an injury to your body, such as through surgery, nerve cells send signals into the spinal cord and then up to the brain. Pain medicine blocks those signals or reduces their effect on the brain. After your child's surgery or treatment, nurses and doctors will ask you and your child about the pain because they want your child to be comfortable. Both medicine and non-medicine treatments can help to prevent and control pain. Pain is often associated with fear, anxiety and stress. Basically pain-reducing methods can be grouped into two categories non-pharmacological and pharmacological [1].

According to the International Association for Pain, it is defined as an unpleasant sensory and emotional experience. Children should learn a specific strategy before pain occurs or before it becomes severe. Relief of pain is a basic need and right of all children. For effective pain management, health professionals are practicing a number of interventions to achieve optimal results. Now pain is considered as the "fifth" vital sign [2].

Children and adolescents account for about 34% of hospital visits each year and many of these visits are related to painful conditions. Based on family reports, satisfaction with hospital experience is highly dependent on efforts made to manage pain. The ideal goal of pain management in children is to make the procedure comfortable for the child and parents, success will be manifested by the child who is not afraid of subsequent procedures and not merely by a child who can be held still for procedures [3].

Everyday millions of people suffer from pain whether they are in the hospital, their homes, or assisted living facilities. The experience of pain negatively influences their daily lives. As nurses and physicians interact with patients and families, they assess and treat their pain. Nurses and physician's attitude & knowledge of pain management can affect their patient's treatment options. Non-pharmacological pain management therapies are increasing in popularity; however, medical personnel as well as patient's knowledge of these therapies are not well researched. Physicians & nurse's level of knowledge and attitudes of non-pharmacological pain management greatly affects whether a patient is given these options [4].

2. Need for the Study

Each child experience pain differently. So it is challenging for the pediatric nurses to discover the best methods for pain control prior to the onset of pain. The ideal goal of pain management in children is to make the procedure comfortable for the child and parents. Success will be manifested by the child, who is not afraid of subsequent procedures and not merely by a child who can be held still for procedures. Effective pain management in children is challenging because there are many special considerations when providing treatment. Hence it has been documented that the standard pain care for children lags behind established guidelines, and more frightening fact is that many centers have no guidelines /protocols.

Traditionally, health care practitioners have approached pediatric pain management conservatively, such that 50% of Chinese pediatricians use placebos such as vitamin C or saline to relieve pain, they used placebos to "protect" children from becoming addicted to opioids or to test

whether children were really experiencing pain. Although practice in controlling moderate to severe pain was far from ideal, majority of surveyed Chinese pediatricians believed that the training they had received in pain management was poor [3].

Non pharmacological pain therapies and techniques have great potential to relieve someone's pain and can be used with or without pharmacological methods. There are many benefits to use non-pharmacological methods in relieving pain, therefore, the barriers keeping patients, nurses, and physicians from using them need to be explored. Nurses' attitudes and knowledge of non-pharmacological pain management therapies needs to be assessed, and any deficits identified need to be rectified, so that the patients have access to other options to manage their pain more effectively [5].

Heavy workload, timelessness, lack of knowledge for implementing non-pharmacological methods made it impractical for nurses to use different non-pharmacological methods effectively. Already studies and researches emphasized the need for non-pharmacological pain management. In addition to this if we could rectify the lack of knowledge and make them to use these non-painful, inexpensive methods to their full extend, painful procedures and their aftercare will not be a very big problem in pediatric wards.

A study conducted at Finland to assess the effectiveness of non-pharmacological methods in relieving children's post-operative pain among hospital nurses using extensive questionnaire which resulted that nurse's attributes such as age, education, work experiences and place of work were significantly related to the use of some non-pharmacological methods. Thus the study had a conclusion that more research is needed on non-pharmacological methods used by nurses to relieve children pain in different patient group [6].

Pain management is the primary responsibility of nurses; therefore they need to be trained. Learning is a continuous process. As a professional nurse to make a mark in one's own field, a continuous process of learning is pre requisite to acquire depth of knowledge, besides developing specialized skill in a specialized area. Each practice setting offers the nurse slightly different variations in the provision of care.

Attitudes are changing in area of pediatric pain management and in the traditional belief that children are incapable of experiencing pain has been abandoned. Studies suggest that the use of these non-pharmacological methods would complement pharmacological management, hence the American Academy of Pediatrics/Canadian Pediatric Society recommend non-pharmacologic interventions to prevent, reduce or eliminate pain. So it is significant that more detailed studies and training for nurses regarding the use of non-pharmacological methods to relieve pain in children is needed [7].

Poor awareness about non-pharmacological management for children among staff nurses has been portrayed in many studies and survey reports. Hence the research felt a need for

implementing a concise educational program for improving the knowledge regarding the same.

3. Review of Literature

3.1 Knowledge and use of non-pharmacological measures for pain management upon children among nurses

A descriptive survey was conducted on use of non-pharmacological methods in relieving children's postoperative pain by hospital nurses in Finland. The aim of this study was to describe nurses' use of selected non-pharmacological methods in relieving 8-12-year-old children's postoperative pain in hospital. 162 nurses were selected and data collected through questionnaire, including a five-point Likert-scale. The result suggested that emotional support and a comfortable environment were reported to be used routinely. They concluded in the study that the nurses used versatile non-pharmacological methods in children's postoperative pain relief [8].

Nurses knowledge about pharmacological and non-pharmacological pain management in children was assessed by a descriptive study conducted at Finland. The convenient sample consisted of 265 nurses working on children's wards in university hospitals. The results showed that there remain gaps in the knowledge base of nurses with regard to both pharmacological and non-pharmacological pain management in children. The study concluded that nurses should take a more active role in seeking new information and also should be encouraged to use non-pharmacological methods that let the children be active participants in their own care[9].

3.2 Effect of Non-Pharmacological Measures in Reducing Level of Pain

An experimental study conducted at University of Saskatchewan, Canada to assess the value of two cognitive strategies (suggestion and music distraction) in reducing pain in children. Two hundred children aged 4.5-6.5years, receiving routine immunization injection were randomly assigned to one of the intervention groups in this factorial study. The groups were designated as distraction; distraction with suggestion; suggestion; and control. Subjects reported their pain using four-point pain scale. Distraction was found to significantly decrease pain whereas suggestion did not. Combining suggestion and distraction did not further enhance pain relief compared to use of distraction alone. The result of this study supported the use of music distraction in the reduction of injection pain in children [10].

4. Research Question

“A quasi experimental study to assess the effect of CPEP on level of knowledge regarding non-pharmacological measures of pain management upon children among staff nurses in a selected hospital at Tumkur District”

4.1 Objectives

- 1) To assess the level of knowledge regarding non-pharmacological measures of pain management upon children among staff nurses

- 2) To assess the effect of CPEP on level of knowledge regarding non-pharmacological measures of pain management upon children among staff nurses.
- 3) To determine the association between pre-test knowledge and selected demographic variables of subjects.

4.2 Hypothesis

H1: There is a significant increase in level of knowledge regarding non-pharmacological measures of pain management after providing CPEP.

5. Research Methodology

Research Approach - In order to accomplish the objectives quantitative approach with a one group pre-test post-test design was used in this study.

Variables – Level of knowledge, CPEP are the dependent and independent variables respectively.

5.1 Setting of the Study

Study was conducted in three hospitals at Tumkur district in Karnataka state. District Government Hospital, Sri Siddhartha Medical College & Research Centre and Siddharamana hospital located at Tumkur district. These hospitals have a well-established pediatric department including inpatient and outpatient units. Collectively more than 100 nurses are working in these hospitals for all the shift duty. The inpatient department consists of both medical and surgical units, a separate Pediatric ICU and Neonatal ICU.

5.2 Population

The target population of the study was all the staff nurses working in pediatric ward in the data collection period in hospitals.

5.3 Sample Size

The total sample comprises of sixty staff nurses working in the selected settings

5.4 Sampling Technique

The sampling technique adopted for the study is random sampling method. Here the units are selected at the discretion of the researcher. Such samples use human judgment in selecting units and have no theoretical basis for estimating population characteristics. This method is used because of accessible persons or objects as subject in this study. The subjects are convenient and accessible to the researcher.

Inclusion and exclusion criteria – Staff nurses who are working in pediatric department are included and those who are not available at the time of data collection are excluded from the study.

5.5 Data collection tool

1. Socio demographic data sheet to collect basic data of subjects like age, gender, year of experience etc.

2. Knowledge assessment questionnaire:

The investigator prepared a structured questionnaire based on the objectives of the study. The questionnaire consisted of thirty multiple choice questions from various non-pharmacological measures for pain management such as guided imagery, distraction methods, positive reinforcement and calm environment. Reliability of the tool was assessed using test re-test method and the correlation coefficient $r=0.87$, hence the tool is considered to be reliable to implement. Then the tool was validated by experts in the concerned field as an appropriate instrument to elicit the responses to effectiveness of CPEP on knowledge regarding non-pharmacological methods of pain management upon children among staff nurses working in pediatric wards.

5.6 Data collection procedure

Researcher obtained written permission from the ethical committee of selected hospitals. The staff nurses who are working in pediatric ward were selected randomly as they came to duty. Written consent was obtained from each subject. The number of subjects varied each day. The investigator maintained good interpersonal relationship with the subjects and explained about the study. If they are willing to participate in the study, the data were collected using multiple choice questionnaires on non-pharmacological pain management upon children. Then a concise and planned educational program (CPEP) was given for nurses using adequate audio visual aids for a period of one and half hours. The session focused on non-pharmacological pain management measures for children mainly biofeedback, guided imagery, distraction, music therapy, calm environment and token economy. The knowledge was assessed before giving CPEP and seven days following the session using the same questionnaire. The data collection period for this study was 1st July 2010 to 31st July 2010.

5.7 Plan for data analysis

Data was entered into an excel sheet and computed using SPSS 16.0 trial version. Descriptive statistics (Mean, Standard deviation, Frequency and Percentage) and inferential statistics (Paired t test) were used for analysis of data.

6. Findings

6.1 Description of sample characteristics

Majority of subjects belongs to age group of 20-30 years and were females. Regarding qualification majority of them had three year general nursing education and had up to 5 years of experience mainly in pediatric wards in major government hospitals.

6.2 Effect of CPEP on level of knowledge regarding non-pharmacological measures of pain management

Table 1: Mean, SD and Mean % and paired 't' test value of pre-test and post-test knowledge regarding non-pharmacological pain management in children among staff nurse

(n=60)			
Domain	Mean	Mean %	't' value
Pre-test	17.4 ± 3.1	43.00	3.46*
Post-test	22.01 ± 2.6	75.33	
Enhancement	4.61 ± 0.5	15.06	

*Significant at p < 0.5 level

6.3 Association between pre-test knowledge level and selected demographic variables

Chi square test was used to determine the association with selected demographic variables; from the analysis it was evident that apart from the variable gender there was no significant association with any of the demographic variables.

7. Discussion

The present study showed a significant difference between mean pre-test (17.4) and post-test (22.01) score. The calculated t value was 3.46 which is statistically significant at 0.05 level. Hence the research hypothesis H1 was accepted. CPEP is found to having role in significant improvement in level of knowledge regarding non-pharmacological measures of pain management upon children among nurses. On analysis it was clear that there is a significant association between gender and level of knowledge, to be exact the female subjects do had increased level of knowledge than males, no other socio demographic variables had any sort of association with pre-test knowledge level.

In support for the need for implementing this CPEP was explained by a study conducted at Missouri. This quasi experimental study was conducted at the Jewish Hospital College of Nursing and Allied Health St. Louis, Missouri, USA to compare the effect of two forms of distraction in injection pain in a convenient sample of preschool children aged 4 to 6 years needing DPT immunization. 145 children – 53 girls and 92 boys – were randomly assigned to receive one of the three treatments with their DTP injection: touch, bubble-blowing or standard care. Both forms of distraction – touch and bubble-blowing – significantly reduced pain perception [11]

Studies supporting the results of our study were only found, no contradictory studies were found from the published articles, journals and research papers.

8. Future Scope

8.1 Nursing education and practice

The nursing curriculum should incorporate activities like preparation of booklets, handouts, pamphlets, and self-teaching materials. The curriculum should give importance to health education. In-service education should be conducted to improve the knowledge and skills of healthcare professionals. Nursing students should be prepared to conduct health teaching programmes. The investigator as a nurse felt the need for nurses to act as facilitators to educate the health personnel so that they could be used as resource persons to impart knowledge to their work places.

Nursing personnel working in healthcare settings should be equipped with adequate knowledge about the importance of non-pharmacological pain management in children and skill in practicing non pharmacological pain management measures in children. Each health personnel should take initiative in teaching the colleagues so that the healthcare delivery becomes more effective. The teaching programme can be further developed in the form of self-instructional module, pamphlets and video tapes. Educating the health personnel is the best method to use the non-pharmacological method in future life practice. Nursing personnel should arrange for health teaching programmes on different topics and make people participate in the programme through role play and puppet show. Nursing teaching institutes can conduct surveys, research and teaching programmes on infection control.

8.2 Nursing service and administration

Educational programme is an important tool of healthcare agency. It is one of the most cost-effective interventions. It is concerned with the prevention of disease and promotion of health. The extended and expanded role of professional nurses emphasizes preventive and promotive aspects of health and healthcare delivery. There was a wide gap existing between and expected levels of knowledge of health personnel, which indicates immediate need for educational programmes regarding non pharmacological pain management in children. Educational programmes will improve their knowledge on the meaning of cognitive intervention, behavioral intervention, and physical intervention. Planned teaching programme once developed and evaluated for its effectiveness can be further modified to teach others.

Nursing administrators should implement in-service education, ongoing education, and periodic evaluation of the health personnel's knowledge and practice on infection control in the healthcare delivery system has to be carried out. Nursing administrators can contact various hospitals and prepare policies to update standards of practice. There should be health education materials, administrative support and adequate funds provided to conduct the programmes.

9. Recommendations

There is extensive need to develop information materials based on health personnel's needs. Nurses can conduct comparative studies between the control and experimental groups regarding non-pharmacological pain management in children and analyse the effectiveness of various planned teaching programme. Testing the effectiveness will scientifically enhance the validity of the outcome. Nurses can prepare manuals or modules that are helpful in following as guidelines or measures for pain management.

10. Limitations

The study lacked control group that did not receive any specific teaching to allow testing for an increase in health personnel's knowledge without the use of CPEP. No attempt was made to follow-up for measuring the retention of knowledge of staff nurses and practice of that measures in

management of pain. Generalisations can be done only for the health personnel's of three hospitals, since only three were selected for the study

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