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## Assess the effectiveness of cough trick method in reducing immunization pain among children in NMCH, Nellore

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### Abstract

“Pain is an unpleasant sensory and emotional experience associated with actual or potential tissue damage”. Perception of pain in pediatrics is complex, and entails physiological, psychological, behavioral, and developmental factors. However, in spite of its frequency, pain in infants, children, and adolescent is often underestimated and under treated. It has also been shown that infants and children, who experience pain in early life, show long-term changes in terms of pain perception and related behaviors. Health care professionals in this setting have a responsibility to reduce pain and anxiety as much as possible while maintaining patient safety.

Pain in infants and children can be difficult to assess which has led to the creation of numerous age-specific pain management tools and scores. Health care workers need to be able to detect the symptoms and signs of pain in different age groups and determine whether these symptoms are caused by pain or other factors. It is difficult for health care professionals to foresee which measurement systems apply to accurately measure pain in the pediatric population. Health care professionals often prefer practical methods, which reliably track the child's pain experience and pain control over time whereas researchers tend to focus on tools, which are meticulously proven for reliability with different observers. Thus a balance may be hard to achieve. Barriers to pain management in children are numerous and include inaccuracies regarding pathophysiological mechanisms of pain with statements such as “children do not feel pain the way adults do”, fears regarding the use of pharmacological agents and deficits in knowledge of methods of pain assessment. These myths and other factors such as personal values and beliefs, prevent adequate identification and alleviation of pain for all children.

**Methodology:** Quasi experimental post only design was adopted to assess the effectiveness of cough trick method in reducing Immunization pain. The sample was 60 children and Non-probanility sampling technique was used to select the subjects. Facial expression pain scale was used to assess the level of pain.

### Results

#### Description of Demographic Data:

Among 60 samples, In experimental group (30 samples) with regard to age majority were 12 (40%) belongs to 3-5 year. With regard to gender majority were male child 17(56.7%).With regard to development of age majority were 16(53.3%) belongs to term. With regard to Immunization all children were immunized 30(100%).With regard to previous experience majority were 21(70%) not have history of previous experience to pain.

In control group (30 samples) with regard to age majority of the children were 10(33.33%) belongs to age group of 3-5 years, With regard to gender

Majority were 18(60%), With regard to developmental age majority were 19(63.33%) belongs to term maturity of child, With regard to previous experience majority were 16(53.3%) belongs to no history of previous experience to pain.

With regard to level of pain

In experimental group 2 (6.7%) were experienced no pain, 18(60%) were experienced mild pain, 6(20%) were experienced Moderate pain, 4(13.3%) were experienced severe pain.

In control group 1(3.3%) were experienced mild pain, 8(26.7%) were experienced moderate pain, 21(70%) were experienced severe pain.

**Keywords:** cough trick, reducing immunization, pain, children

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### Introduction

The pain of childhood immunizations causes anxiety and distress to children, their parents and the health care providers that must administer them. Some of those children become “needle phobic” adults because of painful immunization experiences. Subsequently, they avoid seeking medical and dental care because of this fear. Many parents do not get their children immunized because of the pain the child must endure.

This trend can cause a public health nightmare when outbreaks of vaccine preventable illnesses occur. Using the theory of unpleasant symptoms, this paper will explore evidence based interventions that can assist nurses and other health care providers in finding inexpensive and quick methods to decrease pain, fear and anxiety when administering immunizations and performing other needle procedures in infants, children, adolescents and adult populations.

Many strategies to address injection pain function by anesthetizing the skin with products such as eutectic mixture of lidocaine and prilocaine (EMLA), amethocaine, or vapocoolant sprays. Other strategies stimulate nerves in the skin near the injection site with a device or through pinching, rubbing, or stroking. Another important group of strategies function, at least in part, by distracting the patient before and during painful procedures such as immunization. Still other strategies involve training parents or nurses to provide distraction for children. Although they are effective, nearly all of the existing strategies require increased time, cost, and/or effort on the part of clinic staff members or patients, which increasingly are being recognized as barriers to implementation of evidence-based practices in pediatrics and primary care. One novel alternative has the potential to reduce significantly the time, effort, and cost associated with addressing pediatric immunization pain. This strategy, referred to as the "cough trick," requires that the patient be prompted to give a single "warm-up" cough of moderate force, followed by a second cough that coincides with needle puncture. The cough trick was evaluated recently with adult volunteers and resulted in clinically and statistically significant decreases in reported pain.

### **Statement of the Problem**

"A study to assess the effectiveness of cough trick method in reducing Immunization pain among children in Narayana medical college and general hospital Nellore."

### **Objectives of the Study**

- To determine the level of pain among children
- To determine the effectiveness of cough trick method in reducing immunization pain.
- To compare the effectiveness of cough trick method in reducing Immunization pain among children in experimental group and control group.
- To find the association between the post test and selected demographic variables on the effectiveness of cough trick method in reducing Immunization pain.

### **Operational Definitions**

**Effectiveness:** It refers to the outcome of cough trick method in reducing immunization pain among children in experimental group and control group.

**Cough trick:** It refers to the process in which the child is asked to have a single warm cough of moderate force followed by a second cough that coincide with the needle puncture. The effectiveness of the procedure may result from distraction (concentrating on coughing on cue), competing sensory stimuli (noise and feeling of the cough), competing physiologic stimuli (e.g: increased pressure in the subarachnoid space or increased blood pressure), or some combination of these factors. The strategy can be taught easily and requires no additional cost, equipment, or staff time. Therefore, it may prove to be a practical strategy even in busy pediatric clinics.

**Pain:** It refers to the response shown by the child due to immunization pain as observed by a modified pain assessment group.

**Children:-**In this study children refers to >4 to 15 years.

### **Assumptions**

- Pain is a common phenomena during immunization.
- Implementation of cough trick method may help to reduce the pain during immunization among children in experimental group and control group.

### **Delimitations**

- The present study is delimited to 6 weeks of data collection period.
- The study is delimited to sample size of 60 children only.
- The study is delimited to children admitted in N.M.C.H at Nellore.

### **Hypothesis**

**H<sub>0</sub>:** There will not be significant difference in the level of pain in children during immunization with cough trick method in experimental group

**H<sub>1</sub>:** There will be a significant difference in the level of pain in children during immunization with cough trick method in experimental group.

### **Research Approach**

Quantitative research approach was used for assessing the effectiveness of cough trick method in reduction of pain in children 3 to 15 years of age during immunization.

### **Research Design**

Quasi experimental Post test only design was selected by the investigator to conduct the study.

### **Population**

In this study the population are the children who are undergoing immunization

### **Sample**

Sample of the study was children of age 3to 15 years who are receiving Undergoing Immunization.

### **Sample Size**

The sample size of the present study was 60 children who are undergoing immunization.

### **Criteria for Sample Selection**

#### **Inclusion Criteria**

- Children who are undergoing Immunization.
- Children of age >4 to 15 years of age children only included in the study.
- Who can understand and speak Telugu or English.

#### **Exclusion Criteria**

- Parents who are not willing to participate in the study.
- The children who are acutely ill

### **Variables of the Study**

#### **Independent Variable**

- Cough trick method

#### **Dependent Variable**

- Level of pain

**Description of the Tool**

The tool is developed with the help of related review of literature from various text books, journals, and guidance from experts in the field of nursing and pediatrics.

**The Tool Was Divided Into Two Parts**

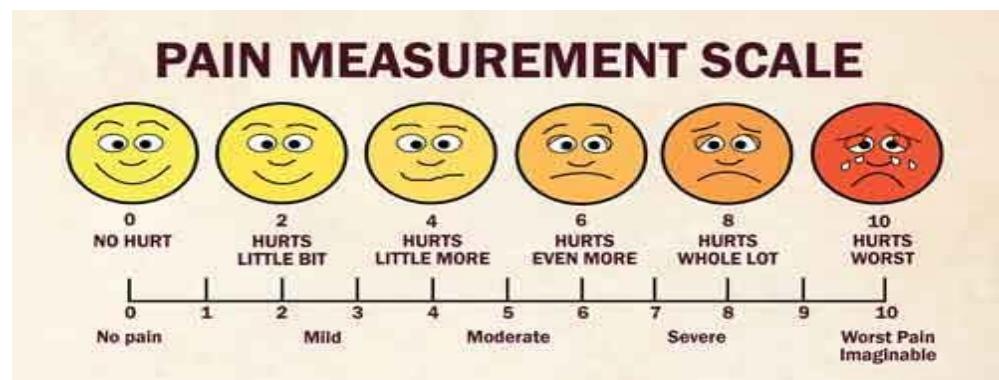
Part 1:- Deals with socio demographic variables.

Part 2:- Facial expression pain scale

Part 3:-Cough trick method.

**Part-I: Socio Demographic Variables**

The questionnaire consists of 5 items seeking demographic variables such as age, gender, developmental age, immunization status, previous exposure of invasive procedure, Dietary pattern, Place of residence.

**Part-II****Scoring Interpretation**

No Pain	0
Mild Pain	1-3
Moderate Pain	4-6
Severe Pain	7-9
Worst Pain (Imaginable)	10 AND >10

**Part -III**

**Cough Trick Method** The “cough trick,” requires that the patient be prompted to give a single “warm-up” cough of moderate force, followed by a second cough that coincides with needle puncture.

**Data Collection Procedure**

The data collection procedure was done for the period of four weeks from 28-3-2014 to 29-4-2014. The Investigator was obtain the formal permission from the ethical committee, Director, Medical Superintendent, Nursing Superintendent, HOD of pediatric department, to conduct a study in NMCH Nellore. A total of 60 samples was selected by probability simple random sampling technique who

fulfilled the inclusion criteria. The selected samples were randomly assigned under experimental and control group and cough trick method was practiced i.e., the children who are undergoing any Immunization the child was asked to cough warm cough and is asked to cough a mild force cough secondly and that cough should be coincide with either intra muscular and the investigator should assess the level of pain to the children in both the experimental and control group.

**Plan for Data Analysis**

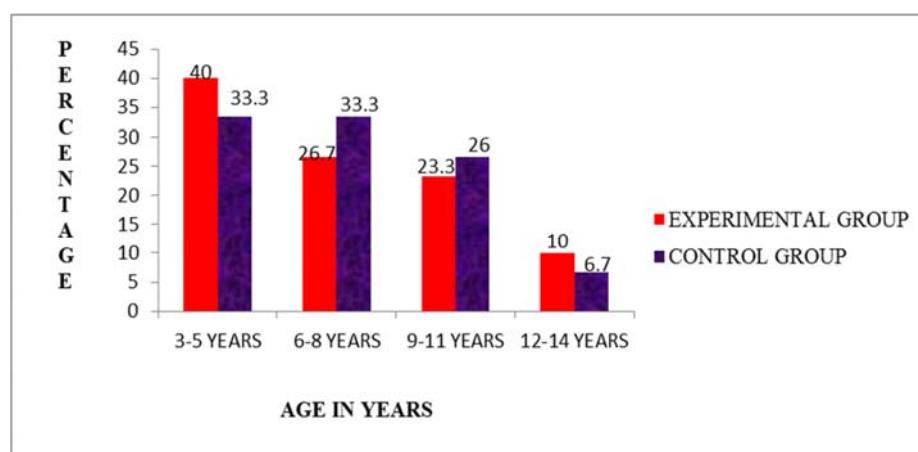
Data analysis was done using descriptive and Inferential statistics

**Descriptive Statistics**

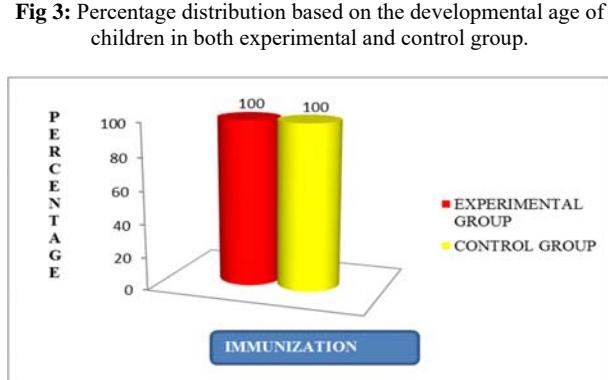
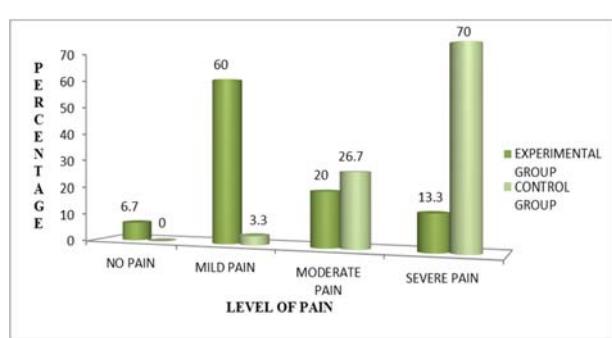
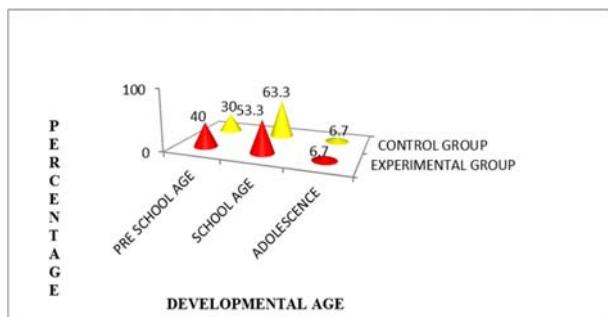
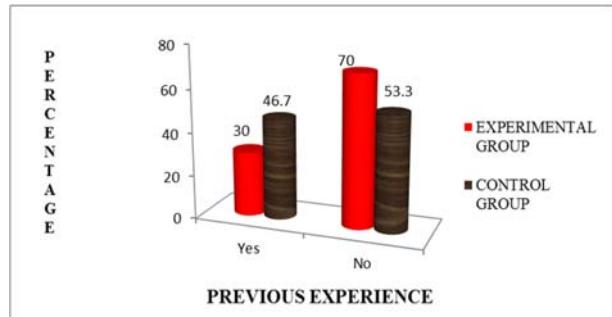
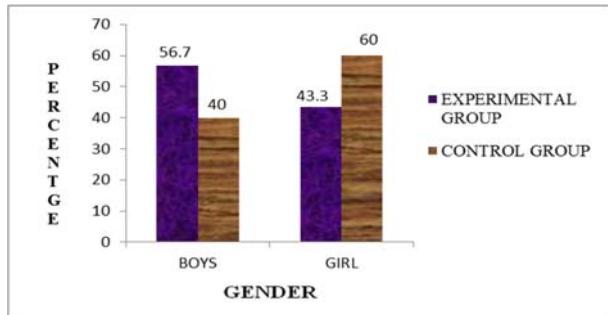
Frequency and percentage distribution of demographic variables  
Mean and standard deviation

**Inferential Statistics**

Chi-square test was computed to find the association with level of pain by both experimental and control group.



**Fig 1:** Percentage distribution based on age of children in both experimental and control group.



**Table 1:** Compare The Effectiveness Of Cough Trick Method On Reduction Of Level Of Pain Among Children During Immunization Between The Experimental And Control Group. (N=60)

Level of Pain	Experimental Group		Control Group		Paired "t"
	Mean	Standard Deviation	Mean	Standard Deviation	
Mild Pain	2.3	0.72	2.5	0.06	23.163 S*
Moderate Pain	5.2	0.8	4.8	0.5	
Severe Pain	-	-	7.8	0.4	

**Table 2:** Association between Level of Pain with the Socio Demographic Variables in Experimental Group. (N=60)

S. No	Demographic Variables	No Pain		Mild Pain		Moderate Pain		Severe Pain		Chi-Square
1.	Previous Experience									$C=20.13$ $t=12.6$ $df=2$ $S^*$ $P=0.05$
	Yes	1	3.34	3	10	3	10	2	6.66	
2.	Gender									$C=20.13$ $t=12.6$ $df=2$ $S^*$ $P=0.05$
	Boys	1	3.33	10	33.33	5	16.66	1	3.33	
	Girls	1	3.33	8	26.9	1	3.33	3	10	

**Table 3:** Association between Level of Pain with the Socio Demographic Variables in Control Group. (N=60)

S. No	Demographic Variables	No Pain		Mild Pain		Moderate Pain		Severe Pain		Chi-Square
1.	Experience of Pain									$C=9.57$ $t=12.6$ $df=2$ $NS$
	Yes	1	3.34	3	10	3	10	2	6.66	
2.	Gender									$C=20.13$ $t=12.6$ $df=3$ $S^*$ $P=0.05$
	Boys	1	3.33	10	33.33	5	16.66	1	3.33	
	Girls	1	3.33	8	26.9	1	3.33	3	10	

### Description of Demographic Data

Among 60 samples, In experimental group (30 samples) with regard to age majority were 12 (40%) belongs to 3-5 year. With regard to gender majority were male child 17(56.7%).With regard to development of age majority were 16(53.3%) belongs to term. With regard to Immunization all children were immunized 30(100%).With regard to previous experience majority were 21(70%) not have history of experience of pain.

In control group (30 samples) with regard to age majority of the children were 10(33.33%) belongs to age group of 3-5 years, With regard to gender Majority were 18(60%), With regard to developmental age majority Were 19(63.33%) belongs to term maturity of child, With regard to previous experience majority were 16(53.3%) belongs to no history of experience of pain.

### Findings Related To Level of Pain among Children Both In Experimental and Control Group.

Fig 10: Shows that among experimental group, 2(6.7%) experienced no pain, 18(60%) experienced mild pain, 6(20%) experienced moderate pain, 4(13.3%) experienced severe pain.

Fig 10: Shows that among control group, 1(3.33%) experienced mild pain, 8(26.67%) experienced moderate pain, 21(70%).

These findings are supported by Cheryl Clemens (2013) conducted a study on Cough trick may ease pain of shots and the authors of the study investigated the effectiveness of a "cough trick," which requires patients to give a single "warm up" cough of moderate force followed by a second cough that coincides with the needle puncture. The results found that the cough trick was effective for some children undergoing routine immunizations. The findings showed that the method was not effective for all children and the authors were not surprised. According to the study, participants identified as black did not experience a statistically significant change in pain when using the cough trick, but those identified as non-Hispanic and Hispanic groups saw a decrease in pain of 40 percent.

Table 1-To compare the effectiveness of cough trick method on reduction of pain during Immunization among children between experimental and control group.

The table 1 shows mean and standard deviation for the level of pain for both experimental and control group. The mean in the mild score range was 2.3 and 2.5 respectively for experimental group. It was 5.2 and 4.8 in the moderate score group, where as mean was zero for severe score scale in the experimental but control group had 7.8. The standard deviation was 0.72 and 0.06 for the mild score for both experimental and control group. It was noted that severe score scale had 0 and 0.4 standard deviation in experimental and control group respectively.

Gina M. French, Eileen C. Painter, Daniel L. Coury (2012) conducted a study on the effect of an active distraction technique on pain in preschool children receiving diphtheria, pertussis, and tetanus immunization It is a randomized, unblinded controlled study in Columbus Public Health Department Immunization Clinics One hundred forty-nine 4- to 7-year-old children. Children were taught to blow out air repeatedly during the injection, as if they were blowing bubbles. Children who were taught to blow out air during their shots had significantly fewer pain behaviors. ( $P < .04$ ) and demonstrated a trend toward lower subjectively reported

pain ( $P = .06$ ). There was no significant difference in the nurse or parent visual analog scale scores. A simple distraction technique can be effective in helping children cope with the pain of immunization.

To associate the effectiveness of cough trick method in reduction of pain during Immunization among children with their socio demographic variables.

TABLE 2-Shows that there will be significant association between level of pain reduction in selected demographic variables such as Developmental age c=20.13, dietary pattern c=17.48 in experimental group. And in control group there is Previous experience c=98.70, dietary pattern c=17.48.

There is no significance association between level of pain reduction in selected demographic variables in experimental group such as age c=7.50, Gender c=4.34, previous experience c=3.80, place of residence c=9.57.

TABLE 3: In control group age c=1.57, Gender c= 2.22, developmental age c=9.57, place of residence c= 9.57.so the obtained chi-square value is less than the tabulated value at 0.05 level. Shows no significant association

Between reduction of pain level at selected demographic variables with regard to gender. This shows that there is no sex influence in pain perception in young children.

Laurie Barclay, Charles P. Vega, conducted a study on (2010) conducted a study on "cough trick" may be an effective strategy to reduce pain for some children undergoing routine immunizations this study is conducted in University of Nebraska Medical Center in Omaha, The study goal was to assess the efficacy of a "cough trick" technique, which requires minimal equipment, time, and training for parents, children, and nursing staff members, on self-reported pain of children receiving routine immunizations, At an outpatient pediatric clinic at a large public hospital in the Midwest, 68 children receiving prekindergarten (age, 4 - 5 years) or pre-junior high school (age, 11 - 13 years) immunizations were recruited and clinically significant efficacy for children self-identified as Hispanic white or non-Hispanic white, but not for those self-identified as non-Hispanic black. Participants as well as clinic nurses reported that The "cough trick" did not appear to be effective in the initial analysis, but post hoc tests showed statistically the procedure was acceptable and effective, "The results of this study suggest that the cough trick can be an effective strategy for the reduction of pain for some children undergoing routine immunizations,"

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