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Original Research Article

Analysing the effectiveness of cough trick method in reducing pain among children during intramuscular injections

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ABSTRACT

Background of the study: Pain during intramuscular injection in children is a common concern and minimizing discomfort is crucial for providing appropriate medical care to children. Intramuscular injection pain has been one of the common problems for hospitalized children and also during vaccination. “.
Aim and Objective: To assess the effectiveness of cough trick method during intramuscular injection in reducing intensity of pain during intramuscular injection among children.
Materials and Methods: For this evaluative study a Quantitative research approach was used with quasi-experimental research design (post-test only control group). 60 samples were selected using non-probability purposive sampling technique. Result was analyzed using Wong Baker Face’s Pain Scale. Statistics both descriptive and inferential were used to analyse the result.
Results: The result of pain intensity score in experimental group is 19 (63.3%) had mild pain, 11(36.6%) had moderate pain and no one had severe pain whereas in control group, no one had mild pain, 14(46.6%) had moderate pain and 16(53.3%) had severe pain.
Conclusion: “Cough-trick” coughing on command simultaneously to skin puncture, is a simple effective method of pain relief during intramuscular injection and various injections. Hence it was concluded that the cough-trick method is an effective method in reducing pain intensity during intramuscular injection among children

1. Introduction

According to WHO (2021), Intramuscular injection is a common clinical procedure with 16 billion injections administered globally every year in a wide variety of health care settings.[1] Fear of needles or the pain associated with injections is a common phobia among children. This anxiety is particularly prevalent in the age group of 5 to 11 year olds, with approximately 2/3rd of them reporting needle-related fears.[2] Anxiety and fear associated with pain can reduce the acceptability of treatment to children. Physical and procedural interventions, through the use of an optimal injection techniques have the potential to reduce pain.[3] A Canadian study found that 7% of adults and 8% of children reported needle fears as the primary reason for not receiving recommended immunization.[4] Research suggests that about 40% of children worldwide under age 12, and 20% of adolescents have a fear-driven physical or emotional response to needles causing some to try to avoid necessary vaccines or medical treatment entirely.[5]

Paediatric pain was been recently recognized as a main unresolved problem.[6] The effectiveness of the cough trick (CT) as a method of pain relief during intramuscular prick (IMP) in a crossover study was tested. A total of 50 healthy male adolescent volunteers were pricked twice in the same hand after an interval of 4 weeks, once with the CT procedure and once without it. CT can be easily performed

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and was effective in pain reduction during IMP, although the exact mechanism of pain relief remains unclear.[7] various local anaesthetics (LA), ethyl chloride, ice, or even many other strategies to address injection pain function by anesthetizing the skin with products such as eutectic mixture of lidocaine and prilocaine (EMLA), amethocaine, or vapo-coolant sprays.[8]

A child may receive a vaccine when they are young and start to associate the pain that it caused with needles, in general.[9] In extreme cases, the fear of needles may stick with children and teens throughout their lives, causing them to avoid medical treatment involving needles.[10] It's important for parents to help their kids and teens develop anxiety management strategies so that they can get the necessary treatment to protect their health. India contributes 25% to 30% of the global injection load.[11] The present study was undertaken to evaluate the effectiveness of cough trick method in reducing intensity of pain during intramuscular injection among children at selected hospital, Gorakhpur.

2. Objectives

1. To assess the effectiveness of cough trick method in reducing intensity of pain during intramuscular injection in experimental group.

Hypothesis

H1 - There will be a significant effect of cough trick method in reducing intensity of pain during intramuscular injection among 5 to 12 years children in experimental group.

3. Materials and Methods

Quantitative Research Approach with Quasi-experimental (post-test only control group) research design was used. 60 Children within the age group of 5 to 12 years who were admitted in selected hospital at Gorakhpur were selected using non-probability purposive sampling technique. Out of 60, 30 samples were included in experimental group and 30 in control group.

3.1. Variables

3.1.1. Independent variable

Cough trick method is independent variable.

3.1.2. Dependent variable

Intensity of pain during intramuscular injection is the dependent variable.

3.1.3. Inclusion criteria

1. Children who are receiving intramuscular injection in selected wards and vaccination centre at Gorakhpur.
2. Children whose parents are willing to participate and give consent.
3. Children who are fully conscious. And can cough moderately.

3.1.4. Exclusion criteria

1. Children below 5 years and above 12 years.
2. Children who will not cough moderately and critically ill.
3. Non-cooperative child

3.2. Data collection procedure

After obtaining formal ethical clearance from the selected hospital, Gorakhpur, the data collection procedure was conducted. 60 samples of 5-12 years were collected using purposive sampling technique into 2 group: i) 30-experimental group ii) 30-Control group. Then the demographic data was collected Step1 -Experimental group received cough trick method during the administration of intramuscular injection and control group received routine intramuscular injection. In experimental group, samples were asked to have moderate warm cough before administering intramuscular injection. Needle was punctured during 2nd cough that coincide with it. Step2-Post-test pain score were assessed in both these group.

3.3. Data analysis

Data were analysed using both descriptive and inferential statistics.

3.4. Ethical consideration

1. Written permission was obtained from ethical committee of Guru Shri Gorakhnath College of Nursing.
2. Written permission was obtained from Dean of BRD Medical College.
3. Oral consent was taken from children's parents.

4. Results

Table 1 showed that the total number of 60 children, where they were divided as 30 for control group and 30 for experimental group.

Figure 1 Showed that frequency and percentage distribution of samples according to intensity of pain score in experimental group

5. Discussion

Table 1 showed that the distribution of samples and their characteristics among both (control & experimental groups). This was supported by a study Fried Richs Dorf, California (2023) stated "In a medical setting, children are overwhelming afraid of needles and studies show that

Table 1: Characteristics of children

Demographic Variables	Experimental Group		Control Group	
	F	%	f	%
Age of the Child				
a. 5 - 6 Years	12	40	11	37
b. 7 - 8 Years	5	17	7	23
c. 9 - 10 Years	9	30	7	23
d. 11 - 12 Years	4	13	5	17
Gender				
a. Male	16	53	17	57
b. Female	14	47	13	43
Weight in Kg				
a. 16 - 25 Kg	19	63	18	60
b. 26 - 35 Kg	8	27	9	30
c. 36 - 45 Kg	3	10	3	10
Previous experience of IM Injection				
a. Yes	19	63	18	60
b. No	11	37	12	40
Position of child during IM Injection				
a. Lateral	14	47	15	50
b. Sitting	16	53	15	50
Type of drug administered				
a. Vaccine	16	53	15	50
b. NSAID	9	30	10	33
c. Antiemetic	5	17	5	17
Site of Injection				
a. Gluteal	16	53	15	50
b. Dorso-gluteal	14	47	15	50

Table 2: The effectiveness of Cough Trick Method on intensity of pain during IM Injection among children in experimental and control group

S.No	Pain Intensity	Mean	S.D	Mean Difference	t' Value	P' Value
1	Experimental Group	3.1	1.44	3.2	8.6	**0.0368***
2	Control Group	6.3	1.52			

p value<0.05 = Level of significance

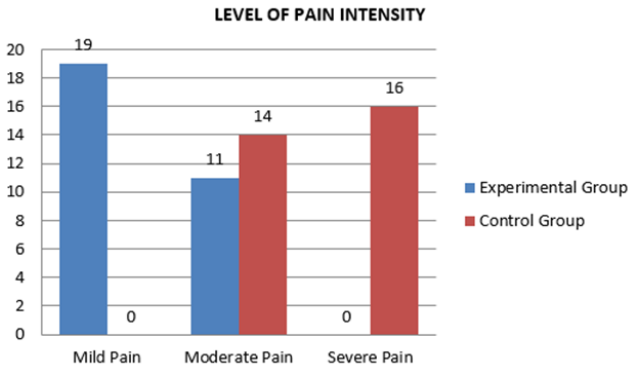

Figure 1: Frequency and percentage distribution of sample according to intensity of pain score.

some kids are so afraid of needles that they don't tell their families or doctor that they are sick or in pain".[12] and Taddio surveyed children and their parents to determine the prevalence of needle fears in kids. In the survey, 68 % of kids ages 6 to 8 and 65 % of kids ages 9 to 12 reported a fear of needles. The number dropped to 51 % among 13- to 17-year-old.[13]

Figure 1 showed that frequency and percentage distribution of samples according to intensity of pain score in experimental group, 19 (63.30%) sample experienced mild pain, 11 (36.30%) sample experienced moderate pain and none experienced severe pain whereas in control group no one experienced mild pain, 14 (46.6. %) sample experienced moderate pain and 16 (53.30%) sample experienced severe pain. These findings were supported by Lebona G B et al (2016) conducted a study to assess the effectiveness of cough trick method in reducing immunization pain among children in NMCH, Nellore. A quasi-experimental post-only design was employed to evaluate the efficacy of cough trick method in alleviating immunization-related pain. The study involved a sample of 60 children, selected through a non-probability sampling

technique. The facial expression pain scale was utilized to measure pain levels. The findings indicated that within the experimental group, 2 participants (6.7%) reported no pain, 18 (60%) experienced mild pain, and 6 (20%) reported moderate pain, and 4 (13.3%) experienced severe pain. In contrast, the control group showed that 1 participant (3.3%) experienced mild pain, 8(26.7%) reported moderate pain, and 21 (70%) experienced severe pain. [14]

Table 2 shows that the mean of pain intensity score in experimental group is 3.1 whereas in control group, the mean of pain intensity score is 6.3. Cheryl Clemens (2013) conducted a study that supports these findings, examining the potential of a "cough trick" to alleviate the discomfort associated with injections. The researchers explored the efficacy of this technique, which involves patients performing a single moderate-force "warm-up" cough, followed by a second cough timed with the needle insertion. The results indicated that this cough trick proved that this cough trick proved beneficial for certain children receiving routine vaccinations. [15]

6. Conclusion

The Cough Trick Method can be a simple, non-invasive, and effective strategy for alleviating pain in paediatric patients. The results suggest that by using controlled coughing as a distraction technique, children's perception of pain can be reduced, leading to improvements in their comfort levels during procedures such as injections. While the Cough Trick Method shows promise, further research with larger sample sizes and controlled trials is necessary to fully establish its clinical effectiveness and understand the underlying mechanisms of action. Additionally, integrating this technique into broader pain management protocols, alongside other pharmacological or psychological interventions, could provide a comprehensive approach to paediatric pain care. Ultimately, this study adds valuable insight into non-pharmacological pain management methods, opening up new possibilities for enhancing children's comfort during medical procedures.

7. Source of Funding

None.

8. Conflict of Interest

None.

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