6.3 Sample Size

Based on previous studies sample size was calculated 100. (50 in experimental and 50 in control group)

Inclusion criteria

1. Neonates born in selected labour room..
2. Neonates available for sampling during data collection period.

Exclusion criteria

1. Preterm neonates
2. Health care professionals
3. Neonates with any complications such as birth asphyxia , IUGR, or any other medical or surgical conditions.

6.4 Variables under study

Independent variable**: In** this study tapping technique (method of administration of IM injection)
Dependent variable
The dependent variables in this study is pain level during IM injection Demographic variables

6.5 Tool preparation

Collection of appropriate information which provides necessary data for the study is an important aspect of any research. A thorough review of research and non research literature was undertaken to decide on the tools to be used for data collection based on the objectives of the study. Investigator has interview with medical officers, nursing officers to identify the areas of importance.

7. Neonatal Infant Pain Scale (NIPS)

The Neonatal Infant Pain Scale (NIPS) is a behavioural assessment tool for measurement of pain in preterm and full-term neonates. This can be used to monitor a neonate before during and after a painful procedure such as veni puncture. It was developed at the Children's Hospital of Eastern Ontario.
Parameters:
(1) Facial Expression
(2) Cry
(3) Breathing Patterns
(4) Arms
(5) Legs
(6) State of Arousal

Parameter	Finding	Points
Facial expression	relaxed	0
	grimace	1
Cry	no cry	0
	whimper	1
	vigorous crying	2
Breathing patterns	relaxed	0
	change in breathing	1
Arms	restrained	0
	relaxed	0
	flexed	1
	extended	1
Legs	restrained	0
	relaxed	0
	flexed	1
	extended	1
State of arousal	sleeping	0
	awake	0
	fussy	1

7.1 Neonatal Infant Pain Scale (NIPS)

Interpretation:
• minimum score: 0
• maximum score: 7

7.2 Pilot study

After accordance of the ethical committee clearance, the pilot study was conducted on 10 neonates. Feasibility of the study was determined by assessing the availability of deliveries during the data collection period. The tool was found to be satisfactory in terms of clarity and ease of administration. The investigator then proceeded for the final study.

7.3 Method of data collection

After getting permission from the hospital administration, medical superintendent, nursing superintendent, HOD of paediatric medicine department study conducted.

- Children were identified as per inclusion criteria.
- After identifying the injection site tapped the skin 16 times approximately 5 seconds with the palmer aspect of the dominant hand to relax the muscle.
- After preparing the skin with alcohol uncapped the syringe in the dominant hand make a “V” with the thump and tapped the skin again for 3 times.
- Inserted the needle into the antero- lateral aspect of thigh. After aspirating to prevent injection into vessel as per normal routine injected the medication slowly while continuing to tap muscle gently to keep it relaxed.
- Removed the needle while simultaneously tapping the skin again using “V”tap (spreading the thumb and index finger) with non dominant hand.
- Procedure was video recorded and pain assessment was done by using NIPS scale by an observer selected for the study.

8. Analysis & Interpretation of data

Scheme of statistical analysis was as follows:
Section I : Analysis of data according to baseline variables of study subjects
Section II: Assessment of pain level during intramuscular injection among experimental and control group
Section III: Comparison of the pain level of neonates during intramuscular injection with Helfer skin tap technique and using conventional methods.

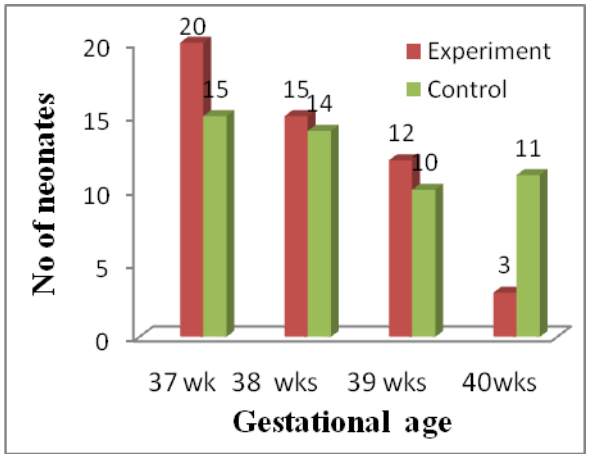


Figure 1: Gestational age wise distribution of neonates in experiment and control group

Fig 1 shows that 40% of Experimental group has comleted 37 wks of gestation and 30% , 38 wks of gestation, 24 % 39 wks of gestation and 6% 40 wks of gestation. Among Control group neonates 30% were 37 wks , 30% 38 wks and the 35% were 39 – 40 wks of gestational age.

Table1: Sex wise distribution of neonates in experiment and control group

Sex	Experiment	Control	Total
Male	19	23	42
Female	31	27	58
Total	50	50	100

Tab1 shows that majority were female babies in both control and experimental group

Table 2: Assess the pain level during intramuscular injection in experiment group

Pain score	Experiment
Mild (1 – 2)	43
Moderate (3 – 5)	0
Severe (6 – 7)	7
No (0)	0
Total	50

86 % of the neonates in the experimental group had mild pain, only 14% perceived severe pain during IM injection by using helfer skin tap technique.

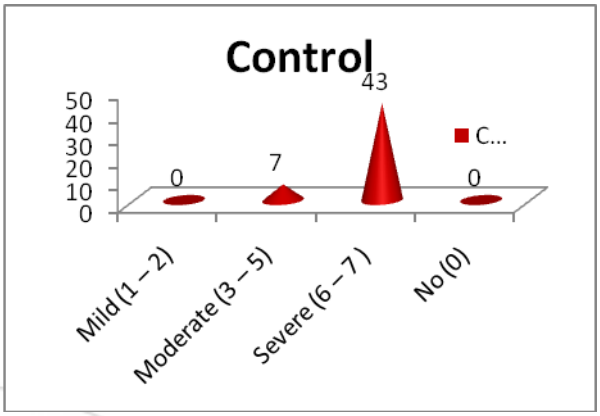


Figure 2: Assess the pain level during intramuscular injection in control group

86 % of the neonates in the control group had severe pain, only 14% perceived moderate pain during IM injection by using conventional routine technique.

Table 3: Area wise comparison of pain level in experiment and control group

Area	Experiment (n=50)		Control (n=50)		MW test Z Value	P Value
	Mean	SD	Mean	SD		
Face	0.4	0.5	1	0	3.23	<0.05
Cry	1.15	0.37	1.85	0.37	3.77	<0.05
Breathing	0.15	0.37	0.85	0.37	3.77	<0.05
Arms	0.15	0.37	1	0	4.58	<0.05
Legs	0.15	0.37	1	0	4.58	<0.05
State of arousal	0.15	0.37	1	0	4.58	<0.05

(1.96)

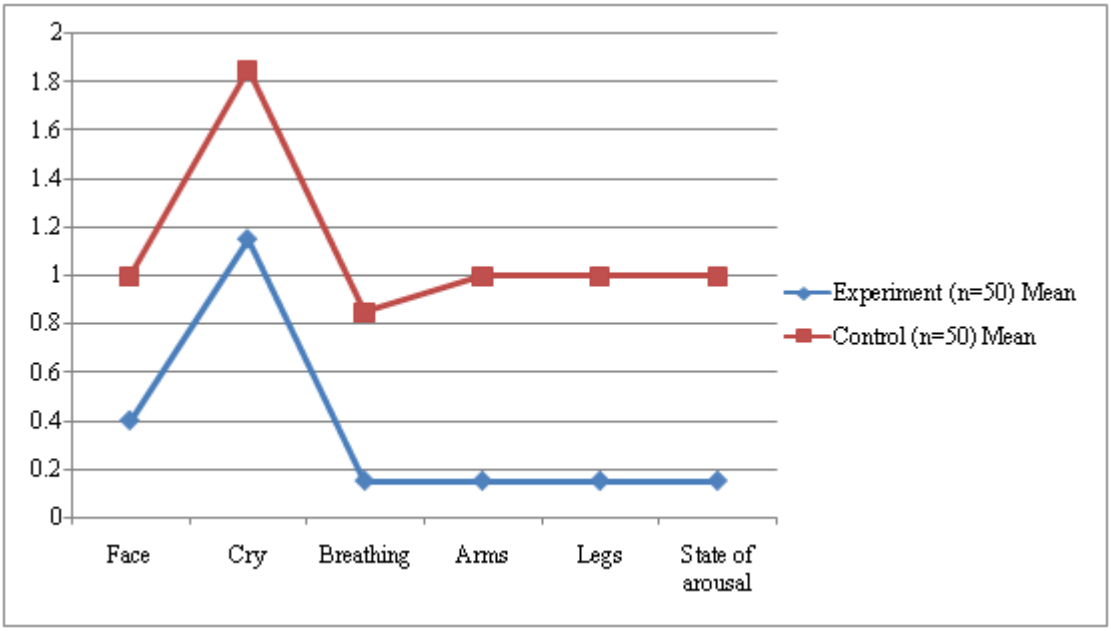


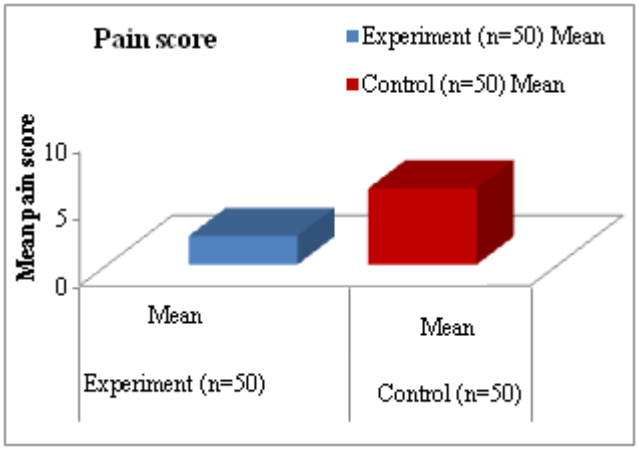
Figure 6: Area wise comparison of pain level in experiment and control group

There is a significant difference in the pain score between the administration of IM injection with or without helfer skin tap technique with p <0.05.

Table 4: Comparison of pain level in experiment and control group

Parameter	*Experiment (n=50)*		*Control (n=50)*		*MW test Z Value*	*P Value*
	Mean	SD	Mean	SD		
Pain score	2.15	2.01	5.7	0.73	4.003	<0.05

(1.96)



There is a significant difference in the pain score between the administration of IM injection with or without helfer skin tap technique with p <0.05.

9. Findings of the Study

- 40% of Experimental group has comleted 37 wks of gestation and 30% , 38 wks of gestation, 24 % 39 wks of gestation and 6% 40 wks of gestation. Among Control group neonates 30% were 37 wks , 30% 38 wks and the 35% were 39 – 40 wks of gestational age.
- Majority were female babies in both control and experimental group
- 86 % of the neonates in the experimental group had mild pain, only 14% perceived severe pain during IM injection by using helfer skin tap technique.
- 86 % of the neonates in the control group had severe pain, only 14% perceived moderate pain during IM injection by using conventional routine technique
- There is a significant difference in the pain score between the administration of IM injection with or without helfer skin tap technique with p <0.05.

10. Hypothesis testing

- Ho (1) : There is no difference in the pain level between Helfer skin tap technique and usual standard technique during intramuscular injection among children at 0.05 level of significance.
- **Null hypothesis is rejected with 0.05 level of significance**

Implications of the study

The result of this study have several implications for the nursing professionals, including nursing practice, nurse education, nursing research and nursing administration.

11. Limitations of the Study

The present study had the following limitations:

1. The study was conducted on a limited number of neonates (100) only for a period of eight weeks..
2. The study is limited to term neonates without any other complications
3. Broad generalization cannot be made due to limited area of setting and limited sample size.

12. Recommendations

- A similar study can be conducted in a broader area in order to draw generalization
- A similar study can be conducted in different settings and in a large group.
- A study can be conducted in term and preterm babies and results can be compared.
- A study can be conducted incorporating continuous vital parameters monitoring while administering IM injections.

13. Conclusion

Pain is a major source of distress for children and their families as well as health care providers. It is an accepted fact that there is reduced pain in giving injection into a relaxed muscle. Tapping over the skin is one of the various techniques to keep the muscles relaxed. This study explored the effect of helfer skin technique (rhythmic tapping) over the skin before and during IM injection in relation to pain.

The present study findings supported that there is a significant difference in the pain score in the IM administration with Helfer skin tap technique. This reduction in pain results in the better adaptation of neonates into the extrauterine environment.

In conclusion findings of this study strongly emphasis the importance of making helfer skin technique is a compulsory step in IM injection and thus we can reduce agony of our patients. The standards for nursing care clearly supports a holistic care of our clients.

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