



“EVALUATE THE EFFECTIVENESS OF CRADLE HOLD POSITION VERSUS FACILITATED TUCKING POSITION ON PAIN LEVEL AMONG UNDER FIVE CHILDREN DURING IMMUNIZATION IN SELECTED HOSPITALS”.

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Abstract : Introduction: Immunization is one of the most important ways to protect children under five years of age. Young children have weak immune systems, so they can easily get infections. Vaccines help protect them by building immunity and preventing serious diseases like measles, diphtheria, whooping cough, polio, pneumonia, and tuberculosis. Immunization helps reduce illness and death in children, prevents disease outbreaks, and supports healthy growth and development. It also protects children from long-term problems such as paralysis, hearing loss, and learning difficulties. When most children in a community are vaccinated, it creates herd immunity, which helps protect even those who are not vaccinated. Since more than half of deaths from vaccine-preventable diseases occur before the age of five, completing immunization on time is very important for a child's survival and lifelong health. **Objectives:** 1. To assess the pain level in cradle hold position among under five children during immunization. 2. To assess the pain level in facilitate tucking position among under five children during immunization. 3. To compare the pain level in cradle hold position with facilitate tucking position among under five children. 4. To find the association of study finding with selected demographic variables. **Methodology:** Research design use for study Two group post-test only. Sampling technique: Non probability convenient sampling technique. **Sample:** under five children in selected hospital. **Sample size:** 60(30 each group i.e. Cradle hold position and facilitated tucking position). **Study setting:** Immunization clinic in selected hospitals. **Target population:** pentavalent receiving 1 children. Research Tool = FLACC (face leg activity cry consolability) Descriptive and inferential statistics were used for the analysis of data. Result: the comparison of pain in cradle hold position and facilitated tucking position among under five children from selected hospital. Mean, standard deviation and mean difference values are compared and student's unpaired 't' test is applied at 5% level of significance. The tabulated value for $n=30+30-2$ i.e. 58 degrees of freedom was 2.00. **Conclusion:** The calculated 't' value i.e. 17.59 are much higher than the tabulated value at 5% level of significance for overall pain score of under five children which is statistically acceptable level of significance. Hence it is statistically interpreted that level of pain score in cradle hold position was more effective than facilitated tucking position among under five children from selected hospital. **Recommendation:** 1. The cradle hold position can be effectively implemented in community immunization clinics, outreach programs, and well-baby clinics due to its simplicity and cost-effectiveness. 2. Similar studies can be conducted with a larger sample size, different age groups, and in different settings to generalize the findings. Comparative studies with other non-pharmacological interventions may also be undertaken.

KEY WORD: Cradle Hold Position, Facilitated Tucking Position, Pain, Immunization, FLACC pain assessment scale

I. INTRODUCTION

Immunization is one of the most important ways to protect children under five years of age. Young children have weak immune systems, so they can easily get infections. Vaccines help protect them by building immunity and preventing serious diseases like measles, diphtheria, whooping cough, polio, pneumonia, and tuberculosis. Immunization helps reduce illness and death in children, prevents disease outbreaks, and supports healthy growth and development. It also protects children from long-term problems such as paralysis, hearing loss, and learning difficulties. When most children in a community are vaccinated, it creates herd immunity,

which helps protect even those who are not vaccinated. Since more than half of deaths from vaccine-preventable diseases occur before the age of five, completing immunization on time is very important for a child's survival and lifelong health.¹

The facilitated tucking position is a supportive technique used during immunization to minimize movement, ensure safety, and provide comfort to infants and young children. This position mimics the natural fetal posture, which can help calm the child and reduce distress during the procedure. This position is particularly effective for infants during the early stages of their immunization schedules and enhances both safety and comfort during the procedure.²

The cradle hold is a commonly used technique for holding infants during immunization. It helps to secure the child safely while providing comfort and minimizing movement, ensuring accurate and efficient vaccine administration. This position also reduces anxiety for both the child and caregiver. This method is widely recommended for infants during their early immunization schedules and can improve the overall immunization experience.³

I.1. TITLE OF THE STUDY

“Evaluate the effectiveness of cradle hold position versus facilitated tucking position on pain level among under five children during immunization in selected hospitals”.

II. OBJECTIVE

1. To assess the pain level in cradle hold position among under five children during immunization.
2. To assess the pain level in facilitate tucking position among under five children during immunization.
3. To compare the pain level in cradle hold position with facilitate tucking position among under five children.
4. To find the association of study finding with selected demographic variable

III. MATERIALS AND METHODS:

- **Research approach:** Quantitative research approach
- **Research design:** Two group post-test only research design
- **Sample size:** 60 (30 each group)
- **Sampling Technique:** Non probability convenience sampling technique
- **Study Setting:** Immunization clinic in selected hospitals.
- **Target population=** Under five children receiving pentavalent 1
- **Accessible population =** Under five children receiving pentavalent 1 in selected hospital and available at the time of data
- **Tool =** FLACC (face leg activity cry consolability)
- **Data collection =** Assessment of demographic variables and FLACC (face leg activity cry consolability)
- **Inclusion criteria:** Children receiving pentavalent 1 vaccine

III.1. Description of tool

Section A: Demographic variables: It consists of demographic profile of infants and parents i. e. Gender, birth order, residential area, family income, type of family, Parents education, occupation of parents. The investigator constructed this tool to collect the data of the study subjects. It includes total 7 demographic variables.

Section B: FLACC pain assessment Scale (Face, Leg, Activity, Cry, Consolability)

It is standardized scale and used to assess the pain in infants during immunization.

Interpretation:

0-3: Relaxed or Comfortable

4-6: Moderate pain

7-10: Severe discomfort pain

Section C: Standard operating procedure for Cradle Hold Position and Facilitated Tucking Position used during immunization.

2. Validity and Reliability

The validity of the tool was obtained by giving it to 19 experts personnel in the field pediatric and research. The suggestion was incorporated in modifying to develop tool. Valuable suggestion was given by experts. Necessary correction was made before data collection.

Reliability refers to the accuracy and consistency of information obtained in the study. It is major criterion for assessing the accuracy of the tool. The reliability of the questionnaire and rating scale was calculated by test-retest method. The tool was administered at two different occasion and the score was compared and calculated using formula of correlation and coefficient. The reliability coefficient for knowledge score reliability: 0.8649 The result showed that there was high degree of correlation, so the tool was found to be reliable.

3. Hypothesis

- **Null Hypothesis (H_0):** There is no significant difference in pain levels between the Cradle Hold Position and the Facilitated Tucking Position during immunization in under five children.
- **Research Hypothesis (H_1):** There is a significant difference in pain levels between the Cradle Hold Position and the Facilitated Tucking Position during immunization in under five children.

4. Variables of the study.

- **Independent variables:** In this study the independent variable was Cradle Hold Position Versus Facilitated Tucking Position
- **Dependent variables:** In this study the dependent variable was pain.
- **Demographic variables:** In this study the demographic variables were gender, birth order, parental education, type of family, income, residential area, occupation of parent.

5. Statistical Analysis:

The data was decided to be analyzed, by both descriptive and inferential statistics on the basis of objectives and hypothesis of the study. To compute the data, a master data sheet was prepared by the investigator including:

- Demographic variable containing sample characteristics like. Gender, birth order, residential area, family income, type of family, Parents education, occupation of parents.
- Pain assessed by Face, Leg, Activity, Cry, Consolability scale
- The association between Cradle Hold Position Versus Facilitated Tucking Position and demographic variables would be calculated using ANOVA and unpaired 't' test.

6. Ethical Consideration:

- Ethical committee approval will be sought.
- Prior permission will be obtained from the concerned authority.
- Informed written consent will be obtained from study subjects.
- Confidentiality and anonymity of subjects will be maintained.
- Participants will be protected from all type of harms.
- Freedom to withdraw from the study at any point of time will be assured.

IV. RESULTS

4.1 Distribution of under five children with regards to demographic variables.

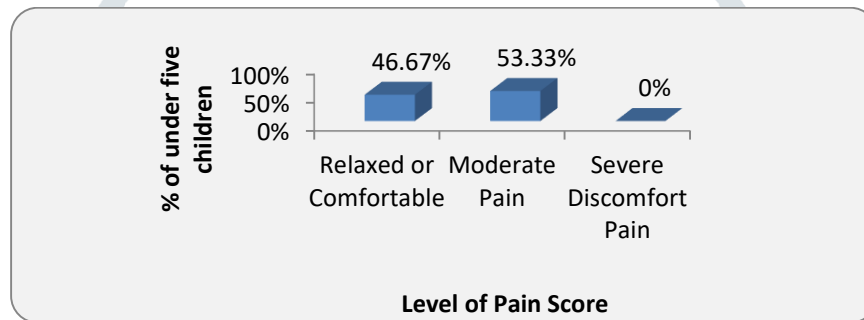
Table no.4.1: Percentage wise distribution of Under five children according to their demographic characteristics.

(n=60)

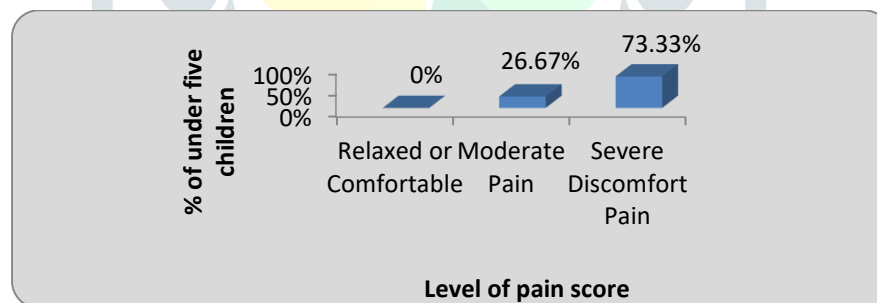
Demographic Variables	Cradle Hold Position	Facilitated Tucking Position
Gender		
Male	20(66.7%)	15(50%)
Female	10(33.3%)	15(50%)
Birth order of child		
First	10(33.3%)	6(20%)
Second	17(56.7%)	20(66.7%)
Third	3(10%)	4(13.3%)
Fourth	0(0%)	0(0%)
Parent's Education		
Primary Education	1(3.3%)	0(0%)
Secondary Education	2(6.7%)	6(20%)
Higher Secondary Education	9(30%)	15(50%)
Graduation	15(50%)	7(23.3%)
Postgraduation	3(10%)	2(6.7%)

Type of family		
Nuclear Family	12(40%)	7(23.3%)
Joint Family	18(60%)	23(76.7%)
Extended Family	0(0%)	0(0%)
Family income per month		
Below15000 Rs	3(10%)	4(13.3%)
15001-30000 Rs	12(40%)	8(26.7%)
30001-45000 Rs	9(30%)	12(40%)
>45000 Rs	6(20%)	6(20%)
Residence of family		
Urban Area	24(80%)	23(76.7%)
Rural Area	6(20%)	7(23.3%)
Occupation of parents		
Labour	6(20%)	8(26.7%)
Private Job	21(70%)	16(53.3%)
Government Job	2(6.7%)	5(16.7%)
Homemaker	1(3.3%)	1(3.3%)

4.2 Assessment of level of pain score in cradle hold position and in facilitated tucking position among under five children from selected hospital

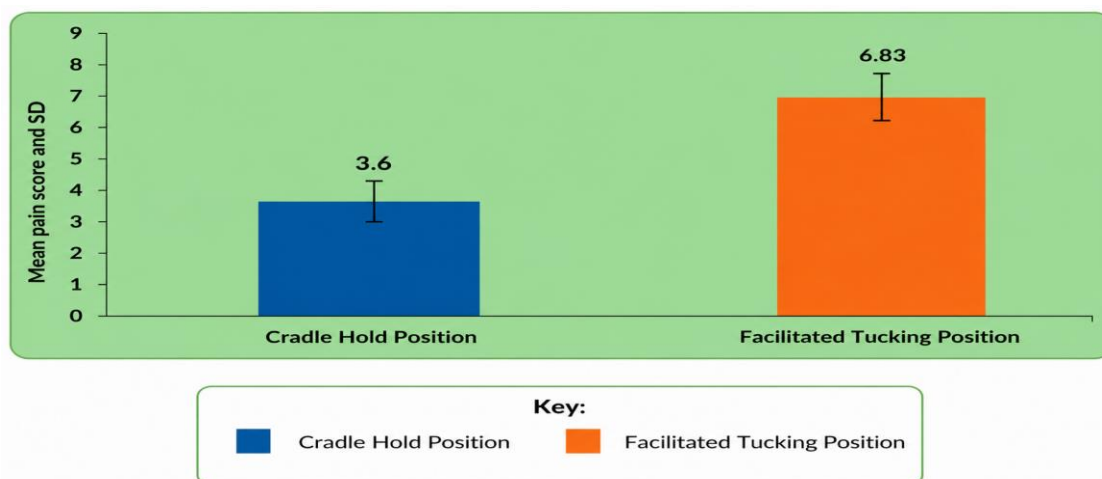


4.2(a) Assessment with level of Pain score in Cradle Hold Position



4.2(b) Assessment with level of Pain score in Facilitated Tucking Position

4.3 Comparison of level of pain in cradle hold position and facilitated tucking position among under five children from selected hospital



4.4 Association of the level of the pain in cradle hold position and facilitated tucking position among under five children from selected hospital in relation to demographic variables

Variables	Chi-square Vale	df	Tabulated value	p-value and significance
Gender	7.67	1	3.84	0.19, NS
Birth order in family	17.71	2	5.99	0.0001, S
Parent's Education	23.03	4	9.49	0.0001, S
Type of family	1.09	1	3.84	0.29, NS
Monthly family income (Rs)	1.54	3	7.82	0.67, NS
Area of residence	2.71	1	3.84	0.10, NS
Occupation	3.98	2	7.82	0.26, NS

4.4(a) Overall comparison of level of pain score among under five children with their demographic variables (Cradle Hold Position)

Variables	Chi-square Vale	df	Tabulated value	p-value and significance
Gender	2.72	1	3.84	0.09, NS
Birth order in family	20.79	2	5.99	0.0001, S
Parent's Education	1.38	3	7.82	0.70, NS
Type of family	0.71	1	3.84	0.39, NS
Monthly family income (Rs)	19.77	3	7.82	0.0001, S
Area of residence	0.01	1	3.84	0.89, NS
Occupation	3.15	3	7.82	0.36, NS

4.4(b) Overall comparison of level of pain score among under five children with their demographic variables

V. DISCUSSION

The present study shows that the demographic distribution showed that males were predominant in the cradle hold group (66.7%), while the facilitated tucking group had equal males and females (50% each). Most children were second-born (56.7% and 66.7%, respectively). Graduation was the most common parental education in the cradle hold group (50%), whereas higher secondary education predominated in the facilitated tucking group (50%). The majority belonged to joint families (60% and 76.7%), had a monthly income of ₹15,001–45,000, and resided in urban areas (80% and 76.7%). Private employment was the most common parental occupation in both groups (70% and 53.3%, respectively).

The findings of the present study are comparable with Agrawal et al (2019) study conducted among 530 mothers of under-five children attending the outpatient department, immunization clinic, and pediatric ward. The previous study reported that the majority of mothers were housewives (73.77%), had primary education (33.58%), belonged to the Hindu religion (47.54%), were aged 21–30 years (52.64%), resided in urban areas (62.07%), and belonged to the middle socioeconomic group (45.84%). The study also found that boys were marginally more unimmunized (37.32%) than girls (23.04%). Furthermore, maternal education, occupation, parity, religion, residence, and socioeconomic status were significantly associated with the immunization status of children ($p < 0.05$). These findings indicate that socio-demographic factors play a crucial role in influencing childhood immunization practices and highlight the importance of parental characteristics in ensuring complete immunization among under-five children.

The present study shows that the comparison of pain in cradle hold position and facilitated tucking position among under five children from selected hospital. Mean, standard deviation and mean difference values are compared and student's unpaired 't' test is applied at 5% level of significance. The tabulated value for $n=30+30-2$ i.e. 58 degrees of freedom was 2.00. The calculated 't' value i.e. 17.59 are much higher than the tabulated value at 5% level of significance for overall pain score of under five children which is statistically acceptable level of significance. Hence it is statistically interpreted that level of pain score in cradle hold position and facilitated tucking position among under five children from selected hospital was effective. The present study compared the effectiveness of cradle hold position and facilitated tucking position in reducing pain among under-five children during immunization. The mean pain scores of both groups were compared using Student's unpaired t test at the 5% level of significance. The calculated t value (17.59) was significantly higher than the tabulated t value (2.00) at 58 degrees of freedom, indicating a statistically significant difference between the two groups. This finding suggests that positioning interventions were effective in influencing pain perception among under-five children.

The findings of the present study are comparable with Kaur H et al (2015), the study comparing breastfeeding, musical therapy, and oral sucrose during pentavalent vaccination. The previous study found that breastfeeding resulted in a significantly lower median pain score (4.50) than musical therapy (6.0) and oral sucrose (7.0), indicating superior pain relief. Similarly, the present study demonstrated a statistically significant difference in pain scores between the cradle hold position and facilitated tucking position ($t = 17.59, p < 0.05$), suggesting that non-pharmacological interventions are effective in reducing pain during childhood immunization.

VII. CONCLUSION

The present comparative study was undertaken to evaluate the effectiveness of the cradle hold position versus the facilitated tucking position in reducing pain among under-five children during immunization in selected hospitals. The comparison of pain levels between the two groups was carried out using mean, standard deviation, and mean difference values. An unpaired Student's t test was applied at the 5% level of significance to determine the statistical difference between the two interventions.

The calculated t value (17.59) was found to be much higher than the tabulated t value (2.00) at 58 degrees of freedom, indicating a statistically significant difference in the overall pain scores between the cradle hold position and the facilitated tucking position. This confirms that the difference observed in pain levels was not due to chance and is statistically acceptable.

Based on these findings, it is concluded that under-five children who received immunization in the cradle hold position experienced significantly lower pain scores compared to those positioned in the facilitated tucking position. Therefore, the cradle hold position is more effective than the facilitated tucking position in reducing pain during immunization among under-five children in selected hospitals.

The study highlights the importance of adopting simple, safe, and non-pharmacological positioning techniques during immunization to improve the comfort and emotional well-being of young children.

VIII. RECOMMENDATIONS:

Based on the findings of the present study, the following recommendations are suggested:

- The cradle hold position should be routinely used as a non-pharmacological pain management method during immunization in hospitals and primary health centres.
- Parents should be educated and encouraged to participate in holding their child in cradle hold position to reduce pain and anxiety.
- Nursing education should include training on cradle hold techniques.
- Nurse administrators should develop protocols and provide regular training on cradle hold position methods.
- The cradle hold position technique can be implemented in community and outreach immunization settings due to its simplicity and cost-effectiveness.
- Further studies with larger samples and different settings are recommended to generalize the findings.

Declaration regarding conflict of interest: No conflict of interest found.

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ACKNOWLEDGMENT

“Gratitude is not only the greatest of virtues, but the parent of all others.”

Cicero

With profound gratitude and heartfelt appreciation, I extend my sincere thanks to all those who have contributed to the successful completion of this research dissertation.

I am grateful to Almighty God for the abundant blessings which enabled me to complete this study.

I owe a deep sense of gratitude to all those who have contributed for the successful completion of the study.

I sincerely thank **Smt. Dipratna Atram**, Principal and HOD, Department of Child Health Nursing, College of Nursing, GMC, Nagpur. Who let me and my search move around freely, I owe a deep sense of gratitude and indebtedness to her.

I express my sincere gratitude to **Mrs. Varsha Kolchalwar**, Vice Principal, College of Nursing, Government Medical College, Nagpur, for her valuable support, encouragement, and for providing a conducive academic environment that enabled me to successfully complete this research work.

The present study has been undertaken under the inspiring and valuable guidance, and supervision of my guide **Dr. Meena Pagarwar**, HOD, Department of Nursing Research and Assistant Professor (Child Health Nursing), College of Nursing, GMC, Nagpur. I express my deep sense of gratitude for her guidance, valuable suggestions, encouragement and keen interest in the conception, planning and execution of the present study.

I extend my thanks to **Mrs. Kalpana Bansod**, HOD Department of Community Health Nursing. College of Nursing, GMC, Nagpur, for her valuable guidance, support and suggestions in completing the present study.

I extend my thanks to **Dr. Prakash Makasare**, HOD Department of Mental Health Nursing College of Nursing, GMC, Nagpur, for his valuable guidance, support and suggestions in completing the present study.

I extend my thanks to **Dr. Nutan Makasare**, HOD Department of Medical Surgical Nursing College of Nursing, GMC, Nagpur, for his valuable guidance, support and suggestions in completing the present study

I owe my sincere gratitude and respect to **Mrs. Poonam Kharate**, **Dr. Anita Soni** HOD Department of OBGY, **Dr. Vijay Rokade**, Principal, College of Nursing, Government Medical College, Gondia, for their constant guidance, encouragement, and valuable support throughout this study.

I would like to mention the enriched libraries and their helpful librarians such as College Library College of Nursing Government Medical College Nagpur. for lessening my burden of hunting important resources necessary for my research work.

I would like to extend my heartfelt thanks to **Mr. Vijay Babar** from Wardha, for his exceptional statistical data analysis. His precise calculations, detailed interpretations, and valuable input significantly enriched my research findings.

I am grateful to **Dr. Dilip Madavi (Medical Superintendent), Mrs. Lalita Meshram (Metron), Mrs. Asha Metange (Metron) Daga Memorial Hospital, Nagpur** for giving me permission to collect data, which is an important aspect of the study and also the department of immunization section staff nurses help me throughout the study.

I extend my heartfelt thanks and appreciation to the **Subject Experts** for validating the tool and information guide sheet.

I would fail in my duty if I forget all the **HEADS** of the institutions for permitting me to conduct this research study. I extend my sincere thanks to all the Parents of Under-five children for voluntary participation and co-operation for this study. My cordial and sincere thanks to my brothers and sisters especially MS. Daksha Bisen, Mr. Gaurishankar Bisen and Mrs. Diksha Yede for their support, encouragement and constant prayers which enabled me to complete the study successfully.

I am deeply grateful to my loving parents, **Mr vinodkumar Jambhulkar** and **Mrs. Kalpana Jambhulkar** for their unwavering love, prayers, and moral support. I special thanks to my husband **Mr Ashish Bansod** and mother-in-law **Mrs Rekha Bansod** for their throughout support. Their endless encouragement has been the driving force behind my perseverance. To my brother, **Mr. Sushant Jambhulkar**, sister **Ms Bharti Jambhulkar** and daughter **Ms Atashi Bansod**, thank you for your constant motivation and for being a source of positivity and strength.

I would also like to acknowledge my wonderful colleagues and classmates for their cooperation, insightful discussions, and unwavering support throughout this journey. Your encouragement and shared dedication made this challenging process smoother and more enjoyable.

Last but not the least; it is my privilege to salute my esteemed College of Nursing, GMC, Nagpur for grooming me into a postgraduate nurse.

With heartfelt and everlasting gratitude.
Ms. Swati Vinodkumar Jambhulkar

