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REVIEW ARTICLE

To compare the impact of sitting and supine position on behavioral distress during immunization among children (1-3 years) in selected immunization clinics.

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ABSTRACT:

Background of the study: Immunizations cause distress in children due to its acute pain. Younger children are particularly in need of intervention because they report more pain and display more behavioral distress during painful procedures. One of the effective non-pharmacological interventions of acute management is comfort position given by the parent. Comfort position provided by the parent during immunizations has been demonstrated to be useful in infants, toddlers and pre-school children. Yet, this simple intervention is not used on a routine basis. **Aim:** The aim of the study was to compare the impact of sitting and supine position on behavioral distress during immunization among children (1-3 years) in selected immunization clinics.

Objectives of the study

1. To determine the impact of sitting position on behavioral distress of children receiving immunization (Group I - experimental group).
2. To determine the impact of supine position on behavioral distress of children receiving immunization (Group II - control group).
3. To compare the impact of sitting and supine position on behavioral distress of children during immunization.

Methods

The research design adopted for the study was post test only control group design. Immunization clinic selected based on the convenience of the investigator. Purposive sampling technique used to select the sample and the sample were assigned randomly in to Group I(experimental group) and Group II(control group).To assess the impact of position: PBRS-R was used to assess the behavioral distress of children during immunization injection.

Results

The collected data was analyzed by descriptive and inferential statistics.

1. Assessment of behavioral distress scores during immunization injection showed significant difference in mean scores in Group I (16.4±2.30) and in Group II (28.45±2.59).
2. Comparison of behavioral distress scores in Group I and Group II showed that there is a significant difference (p<0.05) in behavioral distress between experimental (Group I) and control (Group II) group.
3. Item wise comparison of behavioral distress scores in Group I and Group II showed that there is no significant difference(p<0.05) in behavioral distress between experimental (Group I) and control (Group II) group.

Interpretation and conclusion

Findings of the study revealed that the comfort position, i.e., sitting position was effective in reducing behavioral distress during immunisation. Hence, paediatric nurses ought to promote the use of comfort position to reduce behavioral distress associated with painful procedure.

KEYWORDS: Sitting position; supine position; behavioral distress.

INTRODUCTION:

Prevention of disease is one of the most important goals in child care. During infancy and childhood, preventive measures against certain infectious diseases are available. Over 80 percent of all infants and children should be immunised to decrease the likelihood that a susceptible person will come in contact with an infected person. Low immunization levels in children have occasioned scattered outbreaks of certain diseases.¹

Background of the Study:

Routine immunization injections are the most common painful procedures in childhood. Most of the immunizations are administered early in a child's life. The increased focus on pain assessment and management, infant injection related pain remains to be largely untreated. Untreated pain has immediate and measurable negative effects, most notable of which are child distress and parent distress.²

Parents want their child to be safe from diseases. For this reason they consider childhood immunization to be among the most effective preventive services, and is there for critical to monitor and evaluate.⁴ In India 63 percent of the children are receiving all the vaccination. In Karnataka 91.3 percent of the children are receiving all the vaccination.⁵ In Mangalore 7874 toddlers are getting vaccination.⁶ Although it is a relatively minor painful procedure, the fear of the "shot" is widespread, fear of injection is most frequent in children and persists in 140/1000 people at age 20.⁷ Immunization is an important and cost effective public health tool for disease control. It reduces both morbidity and mortality among children due to six vaccine preventive diseases.⁸

Pain is a complex multidimensional phenomenon that is most often expressed subjectively. Pain must be inferred through the observation of physiologic and behavioral indicators.⁹ Immunization is painful and children show behavioral distress to pain while receiving immunization. A study was conducted in Iowa University, Iowa, to examine the children's responses to a painful procedure when parents are distraction coaches. Results indicated that children appeared to be soothed by their parents distraction actions.¹⁰ This study shows that children experience behavior distress to pain while receiving immunization.

Pain is common among children. Optimal pain management depends on accurate assessment of the child's behavior.¹¹

Recent progress in management of children's pain is a result of the development and validation of effective measurement tool.¹³ Pain is a subjective experience, and self-report often is considered the gold standard in pain measurement.¹⁴ However, in many situations it is not appropriate or available from children. Some investigators have questioned the reliability of self-reports by children who are younger than three years,¹⁵ who have severe cognitive impairments,¹⁶ who have limited ability to communicate,¹⁷ or who are sedated after surgery.¹⁸ In these contexts, observational behavior have a critical role in paediatric pain assessment.

Pain assessment in children is a challenging task. There are several ways to assess pain in children. In behavioral measures, behavioral responses to pain are coded and used individually or as composite pain scores. Coded behaviors often include facial expression, torso and limb movements, crying, sleep patterns, breathing, and muscle tension.¹⁹ Adequate reliability and validity documentation is lacking for behavioral observations, even though clinicians often attribute greater importance to non-verbal expression than to self-report.²⁰

Non-pharmacological methods of pain control are widely accepted and can be used with or without analgesics. One or more of non-pharmacologic methods may provide adequate relief of low levels of pain. When used in association with a medical procedure, remember to use an intervention before, during and after the procedure to have the full effect of the distraction. Distraction, imagery, relaxation technique, hypnosis and comfort positions are common non-pharmacological methods.²¹

A non-pharmacological intervention that diverts attention from a noxious stimulus through passively redirecting the subject's attention or by actively involving the subject in the performance of a diversion task. Decrease in availability of health professionals to provide non-pharmacological interventions to children during procedures, having parents function as "distraction coaches" is an appealing alternative.⁹ Alternative positioning for painful procedures is a part of a recommended technique to comfort children experiencing stressful procedures.²² The positioning involves the child sitting up and being held by a parent is called "position of comfort".³

A study conducted in Minnesota shows that children are significantly less fearful of an immunization injection when they are sitting up as compared to when they are lying down. A smaller percentage of children cried prior to the injection, and crying time post injection was significantly less for children who were sitting up.²³ This study showed that a child's physical position during injections can affect the child's level of fear. The

position provided and held by a parent will decrease the distress in young children during some painful procedures.²¹

One of the dramatic advances in paediatrics has been the decline of infectious diseases during the twentieth century because of the widespread use of immunizations for preventable diseases. The recommended primary immunizations schedule begins during infancy and with the exception of boosters, is completed during early childhood. Therefore health promotion during infancy includes a discussion of childhood immunizations.²²

Immunizations are among the most aversive medical procedures for healthy infants and children and one of the commonest causes of childhood iatrogenic pain.²² Children often experience considerable anxiety during routine immunizations.³ Most of these injections are administered early in a child's life. ² Children identify injections as one of the most feared and painful events. Fear is a potentially uncontrolled variable for minimising pain of intramuscular injections, if a child was particularly anxious it is possible that pain reduction intervention might not have been successful.²³

Position involves the child sitting up and being held by a parent will decrease the distress in young children during some stressful procedures .²³ A study conducted in children's hospitals and clinics of Minnesota explored the impact of children's positioning on fear and perception of pain during immunizations. One hundred and seven children, aged 4-6, participated in a random assignment two group design study to evaluate the effect of positioning on fear and perceived pain. Group 1 was placed in the supine position and groups 2 in the sitting position prior to immunizations. Researcher found that children are significantly less fearful about receiving an injection when they are sitting up as compared to when they are lying down .²³

Many procedures can be performed when a child is held in a secure, comfortable manner that provides close physical contact with the parent or caregiver. The investigator found that from her past experience nurses have traditionally used restrain the child in supine position when performing painful medical procedures. Being restrained by multiple people and held flat is frightening and results in less control and greater distress for the child. Nurses should understand children's behavior distress of medical experiences. Through this study the investigator is assessing the impact of supine and sitting position for reducing behavior distress during immunizations.

Statement of the problem:

A comparative study to assess the impact of sitting and supine position on behavioral distress during

immunization among children (1-3 years) in selected immunization clinics, Mangalore.

Objectives of the study:

4. To determine the impact of sitting position on behavioral distress of children receiving immunization. (Group I - experimental group)
5. To determine the impact of supine position on behavioral distress of children receiving immunization. (Group II - control group)
6. To compare the impact of sitting and supine position on behavioral distress of children during immunization.

REVIEW OF LITERATURE:

An experimental study was conducted in Integral Health Paediatrics, Iowa, USA to compare distress behaviors and perceptions of distress in 4- to 6-year-old children who received two immunization injections simultaneously with those in children who received their immunizations sequentially. A convenience sample of 46 children scheduled for pre-kindergarten examinations. The children were randomly assigned to either a sequential injection or a simultaneous injection group. Distress behaviors were analyzed with the Observation Scale of Behavioral Distress-Revised, and perceptions of distress were obtained from both children (with the Wong-Baker Pain Rating Scale [FACES]) and parents (with the Visual Analogue Scale). Results of the Observation Scale of Behavioral Distress-Revised showed no significant differences in children's distress behaviors between the two groups either before or after injection. The children's self-reports of distress also showed no group differences. Parents' perceptions of the children's distress before and after injection were lower for the sequential group but were judged to be unrelated to the intervention.²⁴

A study was conducted in Shriners Burns Hospital-Boston, USA to assess the effects of music therapy on pain and anxiety in paediatric burn patients during nursing procedures. Nine subjects were randomly selected to participate in this study. Qualitative and quantitative data was collected on the patients' pain, anxiety, heart rate, blood oxygenation, and engagement level through measurement tools and interviews. The results from the qualitative and quantitative data indicated that music therapy reduced pain, anxiety, and behavioral distress. The quantitative data was analyzed and an inverse relationship between engagement in music therapy and lower behavioral distress scores was noted. The results from the qualitative data from the interviews with the patients, parents, nurses and music therapist indicated that music therapy reduced pain and anxiety, and that engagement in music therapy enhanced relaxation.²⁵

A comparative study was conducted at the University of

British Columbia, Canada to describe verbalization of pain among children receiving a preschool immunization and to examine and self-report pain intensity. Fifty eight children between the ages of 4 years 8 months and 6 years 3 months (67% female) were videotaped while receiving their routine preschool immunization. Results indicated that many young children do not spontaneously use verbalizations to express pain from immunization. When 5 year olds use verbalizations to express pain, the verbalisations are most often brief statements that express negative effect and directly pertain to pain.²⁶

A study was conducted in the Department of paediatric and adolescent medicine, Mayo clinic, Rochester, USA to make vaccines more acceptable-methods to prevent and minimise pain. In the study 10 children in each of 2 age-groups approximately 20% of the subjects suffered serious distress or worse. During the procedural phase, approximately 90% of the 15 to 18 month old children and 45% of the 4 to 6 year old children showed serious distress or worse.²⁷

A study was conducted in St. Louis on parental holding and positioning to decrease distress in young children age group of 9 months to 4 years. A convenience sample of 118 children was held in an upright position by a parent or lying flat on an exam table in an urgent or emergent care. Distress score was rated by the procedural behavior rating scale, Researcher found that distress is significantly lower in the upright positioning group ($p = 0.000$), parents were more satisfied with the upright position.²⁸

A study conducted in children's Hospitals and clinics of Minnesota explored the impact of children's positioning on fear and perception of pain during immunizations. One hundred seven children, ages 4-6, participated in a random assignment two group design study to evaluate the effect of positioning on fear and perceived pain. Group I was placed in the supine position and group 2 in the sitting position prior to immunizations. The Researcher found that children are significantly less fearful about receiving an injection when they are sitting up as compared to when they are lying down.²³

A study was conducted in USA to determine the effectiveness of parental positioning and distraction on the pain, fear and distress of paediatric patients undergoing venipuncture. An experimental comparison group design was used to evaluate 43 patients age group of 4 to 11 years old. Experimental group used parental positioning and distraction and children in the comparison group received standard care which included the presence of the parent during the procedure. All participants rated their pain and fear, parent and child life specialists (CLS) rated the child's fear and CLS rated the child's distress self reported pain and fear were

highly corrected ($P < .001$) but not significantly different between the two groups. Fear rated by CLS ($P < .001$) and parents ($p = .003$) were significantly lower in experimental participants. No differences were found in distress between the two groups. The parental positioning and distraction intervention has the potential to enhance positive clinical outcomes with a primary benefit of decreased fear.²⁹

A quasi experimental study was conducted in USA on effectiveness of two forms of distraction on injection pain in a convenience sample of 105 preschool children. Study children were randomly assigned to receive one of the three treatments with their DTP injection, touch, bubble blowing or standard care. Prior to injection, a measure of medical fear was obtained and pain was measured through use of the Oucher scale. Both forms of distraction, touch and bubble blowing, significantly reduced pain perception.³⁰

A randomized, un-blinded controlled study conducted in the Department of Paediatrics, Ohio State University, Columbus, was to assess the effect of an active distraction technique on pain receiving diphtheria, pertussis, and tetanus immunization on 149 four to seven year-old children. Children were taught to blow out air repeatedly during the injection, as if they were blowing bubbles. Results showed that Children who were taught to blow out air during their shots had significantly fewer pain behaviors ($P < .04$) and demonstrated a trend towards lower subjectively reported pain ($P = .06$).³¹

A quasi experimental study was conducted in Iran to determine the effect of local refrigeration prior to venipuncture on pain related responses by using purposive sampling of 80 children 6 to 12 years of age. In the test group, the injection site was refrigerated for three minutes using an ice bag. In the control group, the procedure was performed according to usual routine. The behavioral responses rated by using the children's Hospital of eastern ontario pain scale: CHEOPS, and subjective responses rated by ouchers scale were measured in two groups. The researcher found that there was a significant difference i.e.: $P = 0.0011$ between the test and control groups with regard to the behavioral responses to the painful procedure.⁶⁰

Methods:

The research design adopted for the study was post test only control group design. Immunization clinic selected based on the convenience of the investigator. The study population comprised of children in the age group of 1-3 years who were undergoing parenteral immunization. Purposive sampling technique used to select the sample and the sample were assigned randomly in to Group I(experimental group) and Group II(control group).Sample consisted of 40 children,20 each in

experimental (GroupI), and control(GroupII) group. Formal administrative permission were taken from selected hospitals. The data collection period extended from 10th August to 10th September. To assess the impact of position: PBRs-R was used to assess the behavioral distress of children during immunization injection. The data analyzed by using descriptive and inferential statistics. To compare the behavioral distress

to pain in GroupI and GroupII, Mann whitney 'U' test was computed.

RESULTS:

Section A: Sample characteristics:

This section deals with the description of sample characteristics of the subjects.

Table 1: Frequency and percentage distribution of sample characteristics N₁ = 20, N₂ = 20

Variable	Group I		Group II		Total	
	f	%	f	%	f	%
1. Age of the child in month						
a. 12-17	10	50	4	20	14	35.0
b. 18-23	9	45	16	80	25	62.5
c. 24-29	1	5	-	-	1	2.5
2. Sex of the child						
a. Male	10	50	7	35	17	42.5
b. Female	10	50	13	65	23	57.5
3. Name of Immunization child is going for						
a. MMR	10	50	4	20	14	35.0
b. DPT Booster	10	50	15	75	25	62.5
c. Hib	-	-	1	5	1	2.5
4. Child's recent past experience to immunization injection						
a. Calm and quiet	-	-	1	5	1	2.5
b. Minimal resistance	12	60	9	45	21	52.5
c. Rebellious and high resistance	8	40	10	5	18	45.0
5. Child's reaction towards health personnel increases in general						
a. Accept early	7	35	6	30	13	32.5
b. Withdrawal with minimal resistance	11	55	12	60	23	57.5
c. Totally reluctant to accept 2 them	10	2	10	4	10	24.0

Majority (62.5%) of children in groups were 18-23 months of age where as least percentage of children (2.5%) were from 24-29 months of age. Majority (57.5%) of children in the group were female. Majority (62.5%) of children were undergoing DPT immunization, whereas least percentage of children (2.5%) was undergoing Hib vaccine. Highest percentage (52.5%) of the children showed minimal resistance to previous immunization where as least percentage of children (2.5%) was calm and quiet. Majority (57.5%) of children showed withdrawal with minimal resistance whereas least percentage (10%) of children was totally reluctant to accept them.

Section B: Assessment of behavioral distress to pain among children receiving immunization:

This section deals with the analysis and interpretation of the data of the behavioral distress of children receiving immunization in Group I and Group II.

The behavioral distress of children was recorded. Total score obtained by each respondent in behavioral distress was tabulated in a master sheet. The data are presented in tables and diagrams.

Table 2: Range of score, mean, median, SD and level of behavioral distress to pain among children N₁=20, N₂=20

Group	Range of score	Mean	Median	Standard deviation	Severity of behavioral distress
Group I	13-22	16.4	16	2.30	Less severe
Group II	24-33	28.45	28.5	2.59	Severe

Table 2 shows that mean score of behavioral distress to pain of Group II (28.45±2.59) was greater than that of Group I (16.4±2.30). Overall behavioral distress in Group I was less severe and was severe in Group II.

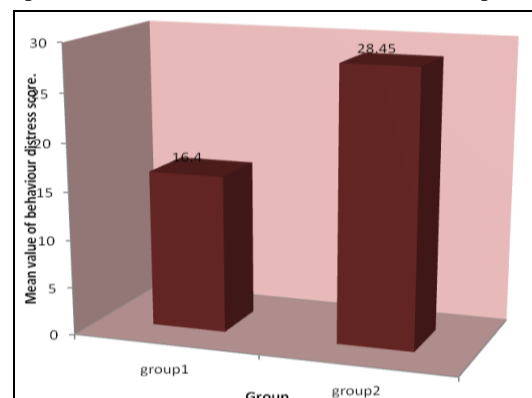


Figure 1: Behavioral distress score in Group I and Group II

Table 3: PBRS-R mean scores of Group I and Group II
N₁=20, N₂=20

Position	Total PBRS-R	T ₁	T ₂	T ₃
Upright (Group I)	16.4	0.20	0.65	2.40
Flat (Group II)	28.45	0.85	1.10	3.20

(T₁=Placing the child in position, T₂=Prenumb swab, T₃=Actual procedure until needle is out)

Table 3 shows that the total mean score for the control group (Group II) was 28.45, as compared to the experimental group's (Group I) 16.4. All three period scores (T₁, T₂, T₃) were lower in the experimental group, indicating less distress for children held by parents in an upright position.

Table 4: Item wise assessment of behavioral distress scores among Group I and Group II children of mean, standard deviation and mean % N₁=20, N₂=20

Item	Max. possible score	Range	Group I			Group II		
			Mean	SD	Mean%	Mean	SD	Mean%
Cry	3	0-2	0.35	0.49	11.67	0.70	0.923	23.33
Cling	8	0-4	1.20	1.51	15.00	0.50	0.89	6.25
Pain	9	0-3	1.20	1.51	13.33	0.90	1.41	10.00
Scream	12	0-8	2.60	1.96	21.66	5.00	2.20	41.65
Stall	15	0-5	0.50	1.54	3.33	1.00	2.05	6.65
Flail	18	0-6	0.90	2.20	5.00	1.80	2.82	10.00
Refusal position	21	0-7	0.70	2.15	3.33	1.40	2.87	6.65
Restrain	24	0-16	0.80	2.50	3.33	6.00	4.40	25.00
Muscular rigidity	27	0-9	4.50	4.62	16.65	4.95	4.59	18.33
Emotional support	30	0-10	2.00	4.10	6.65	3.00	4.70	10.00
Requests termination	33	0-11	1.65	4.03	5.00	2.75	4.89	8.33

Table 4 shows that:

- Cry: 11.67% of children in Group I was crying whereas 23.33% children were crying in Group II.
- Cling: In Group I 15% of children was clinging whereas 6.25% of children were clinging in Group II.
- Pain: 13.33% of children in Group I and 10% of children in Group II had pain during immunization.
- Scream: In Group I 21.66% of children was screaming whereas 41.65% of children were screaming in Group II.
- Stall: 3.33% of children in Group I was stalling whereas 6.65% of children were stalling in Group II.
- Flail: In Group I 5% of children was flailing whereas 10% of children were flailing in Group II.
- Refusal position: 3.33% of children in Group I and 6.65 % of children in Group II refused the position.
- Restrain: 3.33% of children in Group I were restrained whereas 25% of children were restrained in Group II.
- Muscular rigidity: In Group I 16.65% of children showed muscular rigidity whereas 18.33% of children showed muscular rigidity in Group II.
- Emotional support: In Group I 6.65% and in Group II 10% of children were in emotional support.
- Requests termination: 5% of children in Group I and 8.33% of children in Group II were Requests for termination.

Section C: Comparison of behavioral distress to pain Group I and Group II:

To compare the behavioral distress to pain in Group I

and Group II, Mann Whitney 'U' test was computed. In order to test the statistical significance the following null hypothesis H₀₁ was stated:

H₀₁: There will be no significant difference in behavioral distress score among children receiving immunization in Group I and Group II.

Table 5: Comparison of behavioral distress scores in Group I and Group II N₁=20, N₂=20

	Mean	SD	Mean difference	'Z' value
Group I	16.40	2.30	12.05	5.41*
Group II	28.45	2.59		

Z=1.96, p<0.05

* = Significant

Table 6 shows that behavioral distress score to immunization injection was higher in Group II (28.45±2.59) than Group I (16.4±2.30). Calculated value (Z=5.41) was more than table value (1.96) at 0.05 level of significance. Hence the null hypothesis H₀₁ was rejected and research hypothesis was accepted.

To compare the item-wise behavioral distress to immunization injection in Group I and Group II, Mann Whitney 'U' test was computed. In order to test the statistical significance the following null hypothesis H₀₂ was stated:

H₀₂: There will be no significant difference in the item-wise behavioral distress scores in Group I and Group II.

Table 6: Item wise comparison of mean and standard deviation of Group I and Group II behavioral distress scores of children
N₁=20, N₂=20

Item	Group I		Group II		Mean Diff.	'Z' value
	Mean	SD	Mean	SD		
Cry	0.35	0.49	0.70	0.92	0.35	0.18
Cling	1.20	1.51	0.50	0.89	0.70	1.28
Pain	1.20	1.51	0.90	1.41	0.21	0.54
Scream	2.60	1.96	5.00	2.20	2.40	2.68*
Stall	0.50	1.54	1.00	2.05	0.50	0.54
Flail	0.90	2.20	1.80	2.82	0.90	0.81
Refusal position	0.70	2.15	1.40	2.87	0.70	0.54
Restrain	0.80	2.50	6.00	4.40	5.20	3.58*
Muscular rigidity	4.50	4.62	4.95	4.59	0.45	0.27
Emotional support	2.00	4.10	3.00	4.70	1.00	3.50*
Requests termination	1.65	4.03	2.75	4.89	1.10	0.54

Z=1.96, p<0.05

* = Significant

Data in Table 6 shows that the mean behavioral distress score of Group II was higher than Group I in majority for the items like cry (0.70 v/s 0.35), scream (5 v/s 2.6), stall (1 v/s 0.5), flail (1.8 v/s 0.9), refusal position (1.4 v/s 0.7), restrain (6 v/s 0.8), muscular rigidity (4.95 v/s 4.5), emotional support (3 v/s 2), and requests termination (2.75 v/s 1.65). The calculated Z value was greater in three areas (scream, restrain, emotional support) than the table value (Z=1.96) at p<0.05 level of significance.

Implications:

The present study has implications for nursing practice, nursing education, nursing administration and nursing research.

Nursing practice:

It is important for nurses who care for infants and toddlers to prevent or eliminate pain as much as possible to promote positive neurodevelopment outcomes during infancy and also in later childhood and adulthood. Pain management is now considered one of the key "vital signs" for every patient.

Pain management in children is now considered as a key area in paediatric nursing, as comfort position is inexpensive and requires no additional training. So it can be easily used by nurses in immunization clinics. But as comfort position is not used routinely during immunization so nurses should be encouraged to use sitting position as a comfort position while immunising the children to alter the behavioral distress.

Nursing education:

In education for advanced nursing practice, students develop clinical expertise needed to work with particular groups of patients, in order to enable the students to practice as advanced level practitioners in their career, the nursing curriculum should include in depth information about various aspects depending on the type of programme or specialization. To help the students to develop knowledge and skill in assessment and

management of pain extensive information on the developmental aspects of pain mechanisms and pain perception in children of different age groups, as well as knowledge of specific instruments and intervention methods appropriate only for children should be included in the curriculum.

In paediatric nursing curriculum immunization is an important topic but comfort position to alter the behavioral distress associated with the immunization pain is given least importance. To help the student to develop knowledge and skill in assessment and management of distress to pain the faculty needs orientation in various methods. The use of non-pharmacological pain relieving interventions such as comfort position is now one of the most important aspects to be included in the clinical nursing practice. Students should also be taught to develop behavioral distress assessment tools.

Nursing administration:

Nursing administrators may be involved in policy making and budgeting. Nursing administrators should make a policy in using comfort position along with immunization as a routine. They should develop nursing practice standards, protocols, and manuals of behavioral distress assessment and pain management in children of various age groups which include comfort position as an important strategy to relieve the pain for children. Administrators should ensure that staff nurses are using comfort position in immunization clinic in proper way and supervise it.

Nursing research:

The main objective of nursing research should be to improve patient care. Since the health care system today is driven by cost, research about outcomes related to cost is especially important. Pain and its consequences can prolong the hospital stay which will invariably increase patient care cost. Today's healthcare environment continually places increasing demands on nurses to communicate, share, and synthesize information and

plan care based on research. Appropriate utilization of research helps nurses make decisions based evidences for patient care. Immunization is an important and universal experience for children and comfort position is an effective means for reducing behavioral distress in children associated with immunization pain. Further research in this area will help the nurse to find out other effective non-pharmacological interventions to reduce the behavioral distress. Emphasis should be given to the utilization of the research findings. Appropriate utilization of research helps nurses to make evidence based decision regarding care of the children.

Limitations of the study:

All the age groups were not equally represented in the sample.

Suggestions:

The entire immunization clinic should use sitting position to reduce the behavioral distress in children receiving immunization.

Recommendations:

Based on the findings of the present study, the recommendations offered for the future research are:

- The study can be replicated on a large sample; thereby the findings can be generalized for a large population.
- Similar study can be conducted on the other age groups and can compare with other intervention.
- Similar study can be conducted on the same age groups in IV catheterization

CONCLUSION:

Findings of the study revealed that the comfort position, i.e., sitting position was effective in reducing the behavioral distress during immunization. Hence, paediatric nurses ought to promote the use of comfort position to reduce behavioral distress associated with painful procedure.

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