

A Study To Determine The Effectiveness Of Play With Toy's In Pain Management For Children Under Going Some Selective Invasive Procedure In A Selected Private Hospital Of Kolkata

Usha Mallick , Associate Professor, Dept. Of Nursing1

Aliah University, 11A/27, New Town, Kolkata – 700160, India

Abstract

Pain is a complex subjective & elusive phenomenon that presents special problems in assessment & management of children. Procedural pain in children had been included in a separate issues of pediatric pain management. Perhaps play have a special role in children's pain management. Therefore an Quasi Experimental study was undertaken to determine the effectiveness of play with toys in pain management for children under going selective invasive procedure in a selected private hospital of Kolkata. 60 samples (30 for experimental & 30 for control group) who belonged to the (2 - 5 years) of age group and had undergone I/V canulisation were taken for the study. Non probability purposive sampling technique was used. Data were collected by using interview schedule & observation checklist of pain scale (Wong Baker's Faces Pain Rating Scale). The tools were validated by 10 experts. Reliability of the tools were established by inter rater reliability method. The descriptive & inferential statistics were used for data analysis. The result revealed that 23.3% samples belonged to (2.5 -3) years of age group. Most of the samples (60%) are girl child. Difference of after procedural pain score between experimental & control group was calculated by independent 't' test and 't' value was significant ($t_{58} = 2.66$, $P < 0.01$), The findings revealed that play with toys had a definite role on pediatric pain management. The study has implication in the field of nursing practice and making future plan. On the basis of the findings ,some recommendations were made for future study.

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Keywords: – Play, Toys, Pain, Pain Scale, Children, Invasive Procedure, Effectiveness.

1. Background of the study : -

“Pain” is a complex subjective and elusive phenomenon that presents special problems in assessment and management of children. Although interest in the assessment and management of children's pain has increased dramatically over the past few years.. Nurses who are engaged in pediatric ward play a key role for advocating of proper pain management. Pain management is often not given a high enough priority, a problem compounded by a lack of training and when it comes to children the situation is worse.

The International Association for the study of pain has defined pain as “an unpleasant sensory and emotional experience associated with actual or potential tissue damage or described in terms of such damage”

As children cannot verbalize their pain they depend on others to assess and manage their pain. Therefore health care professionals should diagnose children's pain. Play is a child's work and is not a trivial pursuit. According to Alfred Alder, “play provides children the opportunities to be free, creative and expressive. Play is synonymous with being a child and it is the universal language of children. Play allows children to learn social behaviors, develop cognitive abilities as well as gross and fine motor skills and work through emotional conflict.

* Corresponding author. Tel.: +0-000-000-0000 ; fax: +0-000-000-0000 .
 E-mail address: author@institute.xxx .

The hospital is also an unfamiliar environment and hospitalization is a frightening experience to the child. Hospitalized children require more than recreational play with toys because illness and hospitalization constitute crisis in a child's life and since these situations are fought with overwhelming stress, children's needs to play out their fears and anxieties as a means of coping with these stresses. Play is used to help children cope with their stress, anxiety, fear, pain. Play represents a natural outlet for children's emotional expression. Playing with toys also help temporarily to divert their mind from pain and loneliness.

Procedural pain in children has been included in a separate issue in pediatric pain management. This issue is designed for use as a resource for health professionals who wish to better manage procedure related pain and distress in their pediatric patients.

Play has a special role in pain management, because they provide natural & familiar contexts in which essential information may be obtained about children's emotional reactions to pain inducing procedure & increase their ability to cope during painful procedure.

Pain has significant adverse emotional and social consequences for children and their families. Physical and psychological responses to pain not only affect children's health directly

Laboratory & clinical research on non pharmacological methods of pain control has increased rapidly during the past decade.

Throughout the history of man, philosophers, nurses, health workers, psychologists, educators have indicated a relationship between the children and play with toys.

Unlike medical interventions, psychological techniques can be used in the anticipatory phase as well as before, during or after a painful medical procedure. However particular types of coping behaviors are more appropriate at particular phases of the procedure.

1.1 Objectives of study :-

- To assess the level of pain experienced by the children during and after selective invasive procedure.
- To find out the effectiveness of play with toys in pain management for children.
- To compare the pain score, experienced by the children during the procedure between the experimental and control group
- To compare the pain score, experienced by the children after the procedure between the experimental and control group

1.2 Delimitations of study –

- The study is delimited to hospitalized children.
- The study is delimited to children of (2-5) yrs age .
- Subjects are taken at the time of data collection .
- The study is delimited to only children who had experienced pain caused by some selective invasive procedure.
- The study is confined to a selected private hospital in Kolkata
- Only Wong Baker's Faces Pain Rating Scale is used to assess the pain score.
- The study is delimited to only I/V cannulisation procedure.

1.3 Limitation:

- Sample size was relatively small, so its findings could not be sufficiently generalized.
- Lack of treatment in control group was unethical
- Availability of sample of that particular age group was found to be difficult.
- The study was confined to assess pain only by facial expression, which did not assess any other parameters
- Analyzing, calculation and interpretation of data was found to be difficult as individual's pain perception was different..

1.4 Conceptual Frame Work Of The Study

Conceptual frame work formalises the thinking process, so that others may read and know the frame of reference basic to the research problem. The conceptual model used for this study is based on System model adopted from a WHO SEARO Technical Publication (1985). It guides to develop plan implement and evaluate a health education programme. This model has three areas. Input, Process, Output.

1.5 Review of literature:-

The review of related literature for present study has been organized under the following headings:-

- Assessing pain in children
- Needs of play for the children,
- Age appropriate toys for children
- Non pharmacological approach in pain management for children

1.6 Methodology :-

1.6.1. Research approach

In the present study Quasi experimental research approach was selected to accomplish the objectives and thought to be appropriate .

1.6.2. Research Design -

Quasi experimental research design

The research design for the present study was selected as extended treatment and repeated post test measure with non equivalent no

treatment control group design.

1.6.3. Variables :-

Dependant variables:- pain.

Independent variable:- play with Toys.

1.6.4. Setting of the study :-

Pediatric ward of a private hospital was selected for the study

1.6.5. Population of the study

Children of 2 -5 years age group who were hospitalized and admitted for the first time in the pediatric ward undergoing I/V Canulization procedure .

1.6.6. Sample :-

Children of 2- 5 years age group admitted for the first time in the pediatric ward undergoing I/V canulization procedure. 60 (30 for experimental group & 30 for controlled group) were taken for the study.

1.6.7. Sampling technique :-

Non probability purposive sampling.

1.6.8. Sample Selection:-

At first the newly admitted children were identified. The children of 2-5 years age group for I/V canulisation were selected. . The sample size for the study was 60. Out of 60, thirty subjects were selected for Experimental group, and coded as 'E' and remaining thirty subjects were selected for Control group and coded as 'C' on Their bed head ticket as well as on the prepared tool. Alternate children were selected for Experimental and Control group. In this way 30 children of experimental group were coded as E1 – E30 and 30 children of control group were coded as C1 - C30

1.6.9. Data Collection Tools and Technique :-

Part 1 - Interview schedule related to children's demographic data

Part 2 – Observation checklist, using Wong Baker's Faces Pain Rating Scale.

1.6.10. Content Validity:-

Standardized pain scale were given to 10 experts and who were selected on the basis of their clinical expertisness, experiences, and who, worked on pain management. The percentage of agreement for demographic data and appropriateness of using pain scale was 100% but 3 of the validators had given suggestion to add some of the behavioral parameters with the pain scale to assess the level of pain.

1.6.11. Reliability ;

The reliability of the tools were established by inter rater reliability method. The reliability coefficient was found 0.69 which was indicated to be reliable and it showed more than 80% agreement between the two

1.6.12. Data Collection Procedure

- Investigator introduced herself with the mothers of the children.
- Purposes of the study was explained to the mother.
- Verbal consent was taken from the mother.
- Mother were interviewed for the demographic data of the children.
- The child was separated from the mother.
- The subjects were taken to the procedure room 10 minutes prior to the selected procedure that is I/V canulisation..
- Toys were provided each child of the experimental group and investigator herself talked with the child about toys and procedure whenever required..
- The investigator herself administered the tool.
- Assessment of pain was done during canulisation by the Wong Baker's Faces Pain Rating Scale.
- Each baby was allowed to continue play with the toys for another 5 mints.
- Again assessment of pain was done after 5 minutes of the procedure.

Every steps were followed for the children in control group, except there was no provision of providing toys to play for this group.

1.7. Major Findings Of The Study:

Findings related to sample characteristics of the children

- Majority of the sample (23.3%) belongs to 2.5 - 3 years of age group.
- Findings shows that both the age group that is 2 - 2.5 years and 4 - 4.5 years having 16.2% of the sample.
- 13.3% samples belongs to the age group of both 3.5 - 4 years and 4.5 - 5 years of age group.

- Findings shows that both the experimental & control group have the equal no of sample in 3.5 - 4 and 4 – 4.5 years of age group
- Findings shows that the samples of other age group belongs to experimental & control group are almost same.
- Majority (60%) of the samples are girl child in the study.
- 40% of the samples are boy.

Findings related to assessment of pain score

- Majority of the subjects 16 (53.3%) had experienced worst pain (10) in control group during procedure and in experimental group maximum subjects 14 (43.6%) had experienced pain score (8) during procedure.
- Only 4 subjects (13.3%) had experienced pain score (6) after procedure in control group and in experimental group only 12 subjects (40%) had experienced pain score (6) after the procedure.
- Mean, mean difference, SD, SE and independent 't' value showed the difference in mean of during-procedure pain score between control group and experimental group was found statistically significant at 0.05 level of significance.
- Mean, mean difference, SD, SE and independent 't' value showed the difference in mean of after-procedure pain score between control group and experimental group was found statistically significant at 0.01 level of significance.

1.8. Implication of the study

- Nursing practice
- Nursing administration
- Nursing educator
- Nursing research

1.9. Conclusion

On the basis of the findings of present study the following conclusion can be drawn that play with toys had been proved to be very effective in children as a measure to be relieved from pain perception. The children looked more relaxed and the compliance was better during painful procedures. Play with toys could be an integral part of pain relief management for children.

Table -1 Age wise sample distribution in experimental & control group

n = 60			
Age in year	No of samples	Experimental group	Control group
2 – 2.5	10	6	4
2.5 - 3	14	6	8
3 – 3.5	10	4	6
3.5 - 4	8	4	4
4 – 4.5	10	5	5
4.5 – 5	8	5	3

Table 2 Frequency and percentage distribution of subjects according to their severity of the pain score in Experimental group.

Pain Score	Frequency of Exp Group		Percentage of Exp. group	
	During Procedure	After Procedure	During Procedure	After Procedure
0	0	0	0	0
1 or 2	0	0	0	0
2 or 4	0	0	0	0

3 or 6	7	12	23	40
4 or 8	14	15	46.3	50
5 or 10	9	3	30	10

Table 3 Frequency and percentage distribution of subjects according to their severity of the pain score in control group.

Pain Score	Frequency of Con. Group		Percentage of Con. group	
	During Procedure	After Procedure	During Procedure	After Procedure
0	0	0	0	0
1 or 2	0	0	0	0
2 or 4	0	0	0	0
3 or 6	2	4	6.6	13.3
4 or 8	12	16	40	53.3
5 or 10	16	10	53.3	33.3

Table 4 Mean, Mean difference, SD, SE and paired 't' value showing difference in pain score of children between two observations in the experimental group.

n = 30					
Group	Mean	Mean (D)	SD	SE	't' value
Experimental (during procedure)	8.1		2.12	0.386	
Exeperimental (after procedure)	7.4	0.7	1.64	0.299	2.80**
't' df (29) = 2.76 , P < 0.01					

Table 5 Mean, Mean difference, SD, SE and paired 't' value showing difference in pain score of children between two observations in the control group.

n = 30					
Group	Mean	Mean (D)	SD	SD	't' value
Control (during procedure)	8.9		1.53	0.279	
Control (after		0.5	1.70	0.312	1.49
	8.4				

procedure)

't' df (29) = 2.04, $P > 0.05$

Table 6 Mean, Mean difference, SD, SE and independent 't' value showing the difference in mean of during procedure pain score between control group and experimental group.

n = 60

Group	Mean	Mean (D)	SD	SE	't' value
Control (during procedure) without toys	8.9		1.53	0.279	
Experimental (during Procedure) with toys	8.1	0.8	2.12	0.386	2.25*

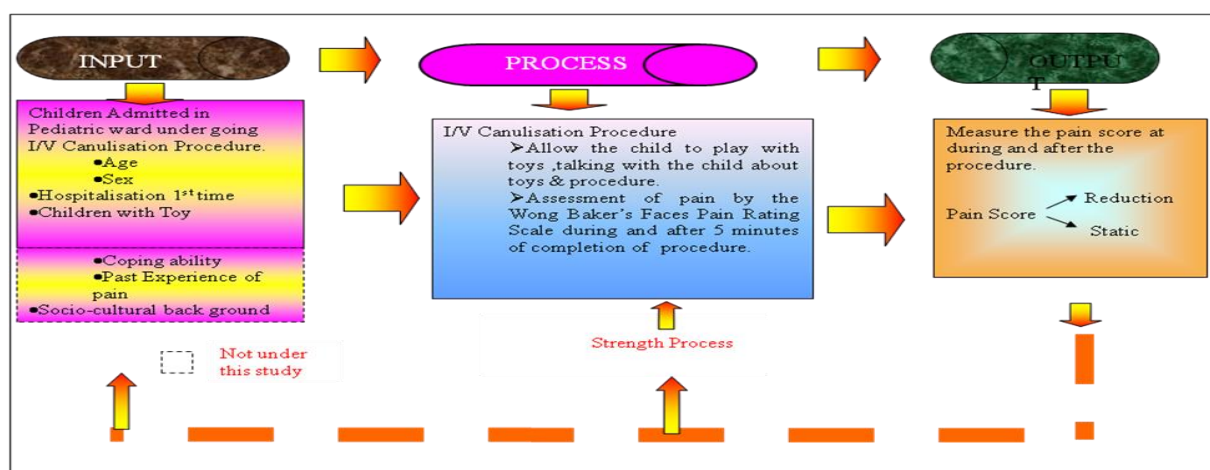
't' df (58) = 2.00, $P < 0.05$

Table 7 Mean, Mean difference, SD, SE and independent 't' value showing the difference in mean of after-procedure pain score between control group and experimental group.

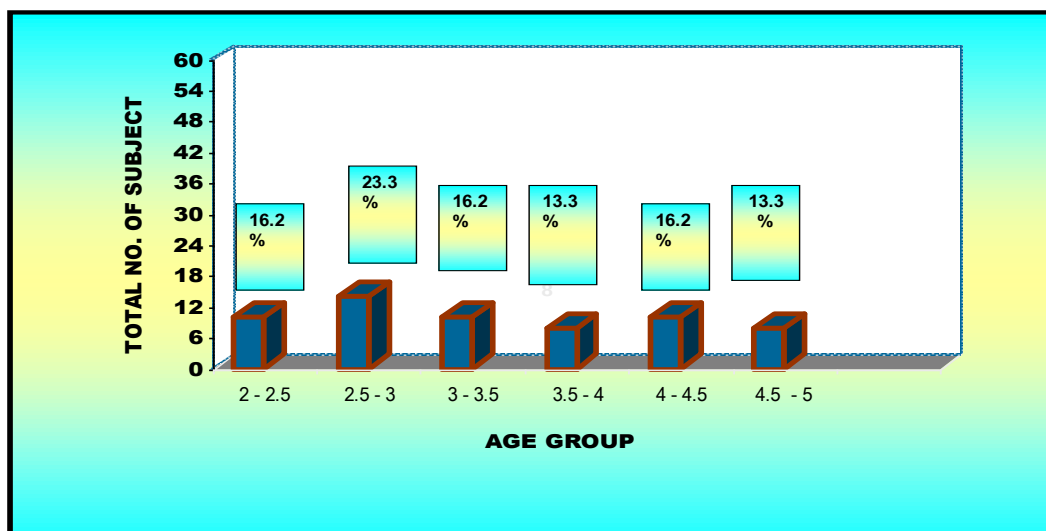
n = 60

Group	Mean	Mean (D)	SD	SE	"t" value
Control (after procedure) without toys	8.4		1.70	0.312	
Experimental (after procedure) without toys	7.4	1	1.64	0.299	2.94**

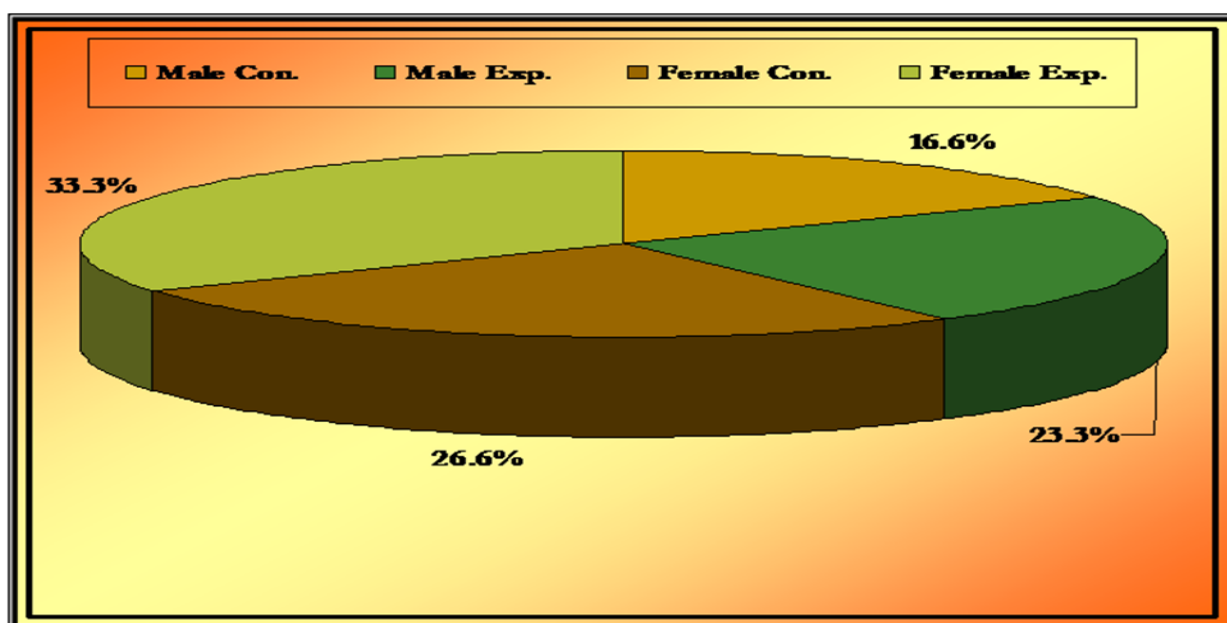
't' df (58) = 2.66, $P < 0.01$

2. Figures

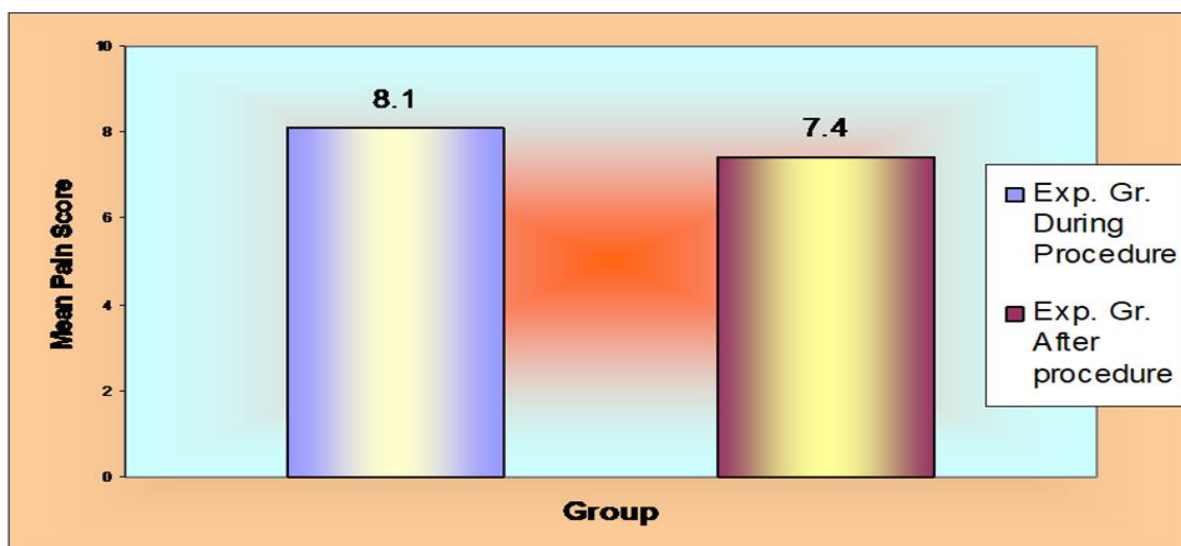
Conceptual frame work based on system model .



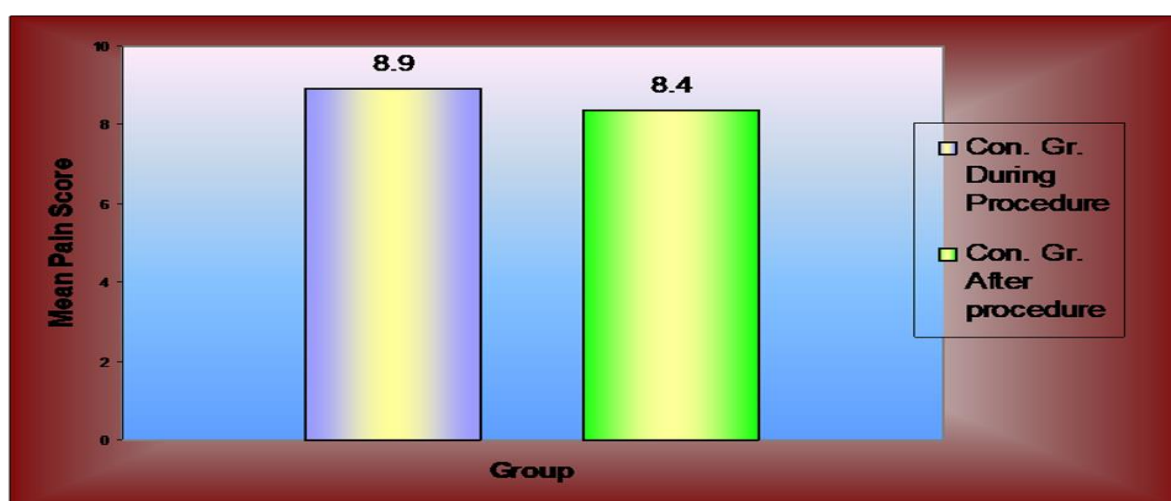
Bar diagram showing percentage distribution of samples according to their age



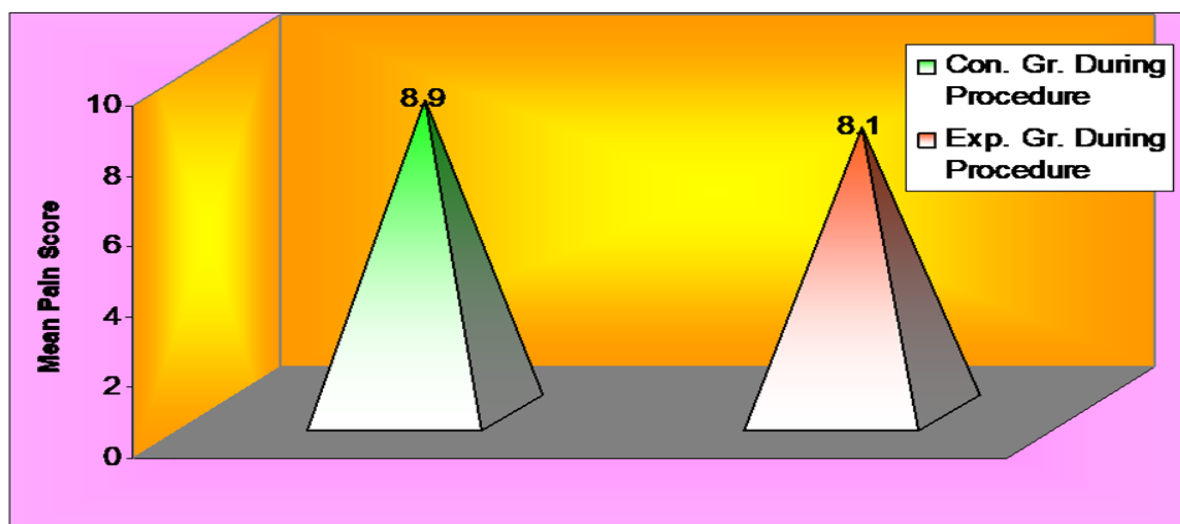
Pie diagram showing Percentage Distribution Of Samples according to Sex



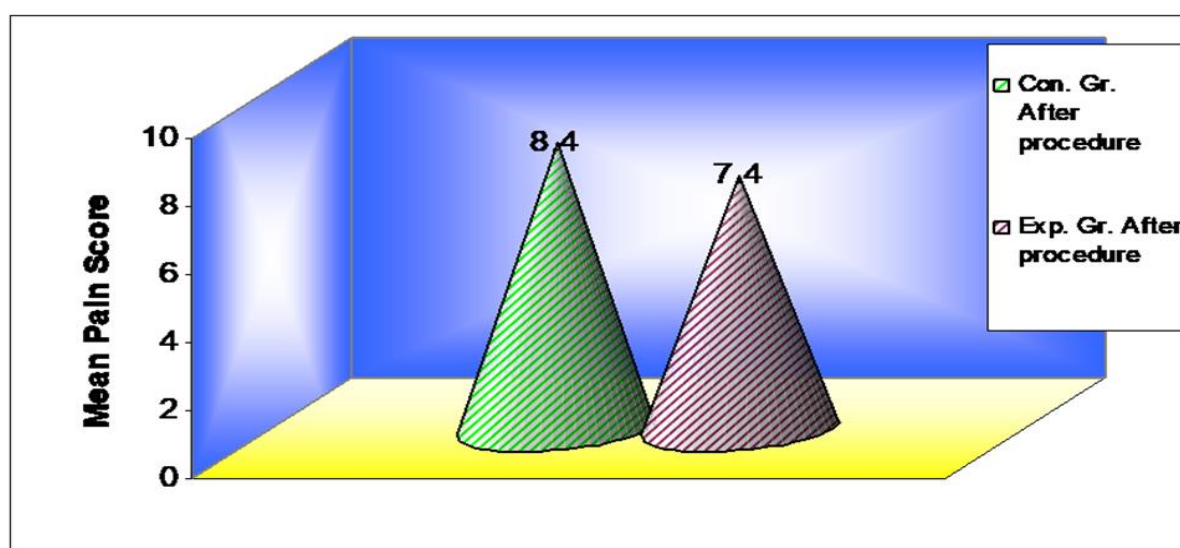
Comparison of Mean Pain Score for Experimental Group in 2 Observations



Comparison of Pain Scores for Control Group in 2 Observations



Bar diagram showing difference in pain score between experimental and control group during i. v. cannulisation



Bar diagram showing difference in pain score between experimental and control group after i. v. cannulisation

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Appendix A

Evaluation Criteria Check List For Validation Of Interview Schedule And Pain Assessment Scale.

Introduction: The expert is requested to go through the following evaluation criteria check list prepared for data collection for proposed study. There are three columns given for response and a column for remarks. Kindly tick (✓) mark in appropriate column and facilitate your remarks in the remark's column.

Interpretation of Column

1. Appropriate.....Column- I
2. Need modificationColumn – II
3. Inappropriate Column – III

Sl. No.	Criteria	I	II	III	Remarks
1	Content • Content reflects objectives • Content is relevant • Content is adequate				
2	Organisation • Logical sequence • Continuity • Integration				
3	Language • Simple and understandable • Comprehensive at the level of subjects				
4	Feasibility and Practicability • Accepted to the subjects • Suitable for hospital setting				
5	Overall Organisation • Attractive • Relevant • Interesting				

Any other suggestion

Appendix B

List Of Experts For Content Validity Of Interview Schedule ,Standardized Pain Assessment Scale

1	Dr . Shyamal Sardar	Assistant Professor , Department of Neonatology, S.S.K.M Hospital , Kolkata
2	Dr. Tapas Shome	Assistant Professor ,Department of Neonatology , S.S.K.M Hospital , Kolkata
3	Smt. Parul Dutta	Sister Tutor , Nursing Training Centre , S.S.K.M Hospital , Kolkata
4	Smt, Sikha Maity	Sister Tutor , Nursing Training Centre , N. R. S. Medical College and Hospital, Kolkata
5	Smt Ratna Biswas	Vice Principal, College of Nursing, Apollo Gleneagles Hospital, Kolkata
6	Smt. Abanti Gopan	Director & P.G. Co-ordinator, Sahyadri College of Nursing, Mangalore
7	Smt. Alpanamayee Bera	Sr. Sister Tutor, School of Nursing, Lady Dufrin Hospital, Kolkata
8	Smt. Sabina Yasmin	Nursing Superintendent, Bhagarathi Neotia Women and Child Care Centre, Kolkata
9	Dr. Aparna Bhaduri	Former professor of College of nursing, Mahe..
10	Dr. Supratim Dutta	Professor, Department of Pediatrics, S. S. K. M. Hospital, Kolkata

Appendix –C**Structured Interview Schedule For Background Data**

Section –I

Purpose : Structured interview schedule is developed to obtain personal data of the subjects.

Instructions : The investigator will write the answer in the appropriate space given by the respondents.

Code No. :

Age :

Sex :

Date of Admission :

Bed No. :

Any experience of previous hospitalization :

Choice of toys : Dolls, Different types of animals (soft toys), Colorful Ball, Colorful flower, Train, Car, Cell phone

Toys provided :

Appendix – D

List Of Toys According to Childs Age Group.

Infancy : Soft, Stuffed animals, Dolls, Rattles, Soft ball , Cradle gym

Toddler : Dolls, Cell phone, Ball, Colorful flower, Cooking article, Rhymes, Clay pots, Drums. Rocking horse

Pre-school: Crayons, Paints with Large brushes, Finger Paints, Simple puzzle, Large Wooden beads, Floating boats, House hold furniture, Cooking article, Rhymes , Simple musical instrument

School age: Dolls, Dolls house, Handicrafts, Bicycle, Puppet, Cars, Trains, Musical instruments. Video tapes.

Sources ; Eleenord and Thomson . (1995) , *Maternity and Pediatric Nursing* . W. B . Saunders Company . New Delhi. 867 – 871.
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Appendix – E,

Faces pan rating scale

Section – II

Observation Check List

Wong – Backer's Faces Pain Rating Scale

Observation during procedure (O₁)

Observation Check List

Wong – Backer's Faces Pain Rating Scale

Observation after 5 minutes of I/V canulisation (O₂)

Appendix - F



Setting of the Study

Appendix - G



PEDIATRIC WARD OF SETTING

Appendix - H



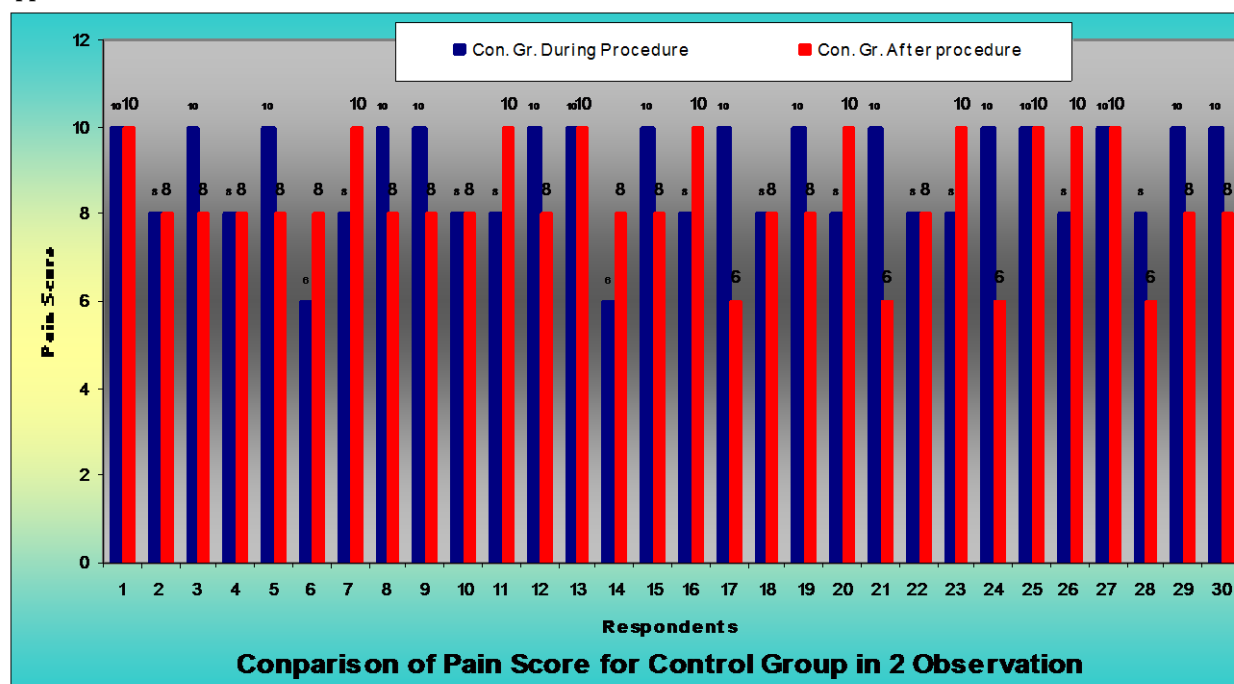
PEDIATRIC PROCEDURE ROOM OF THE SETTING

Appendix - I

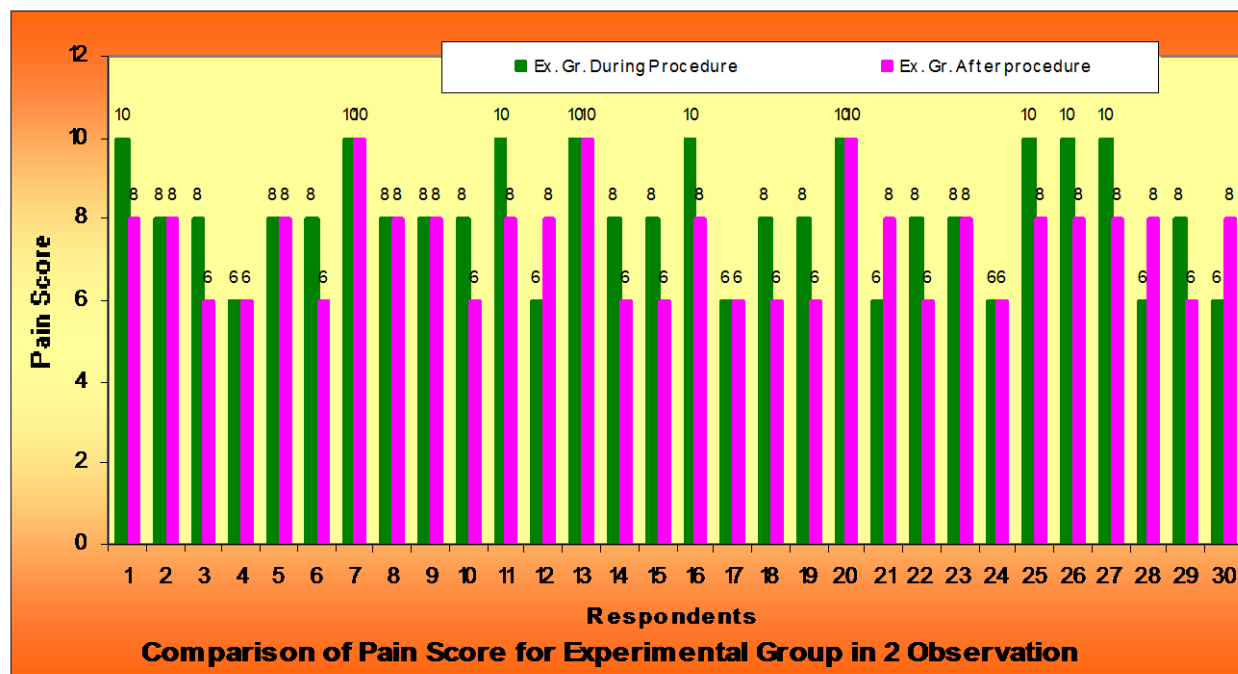


Different types of toys used in study

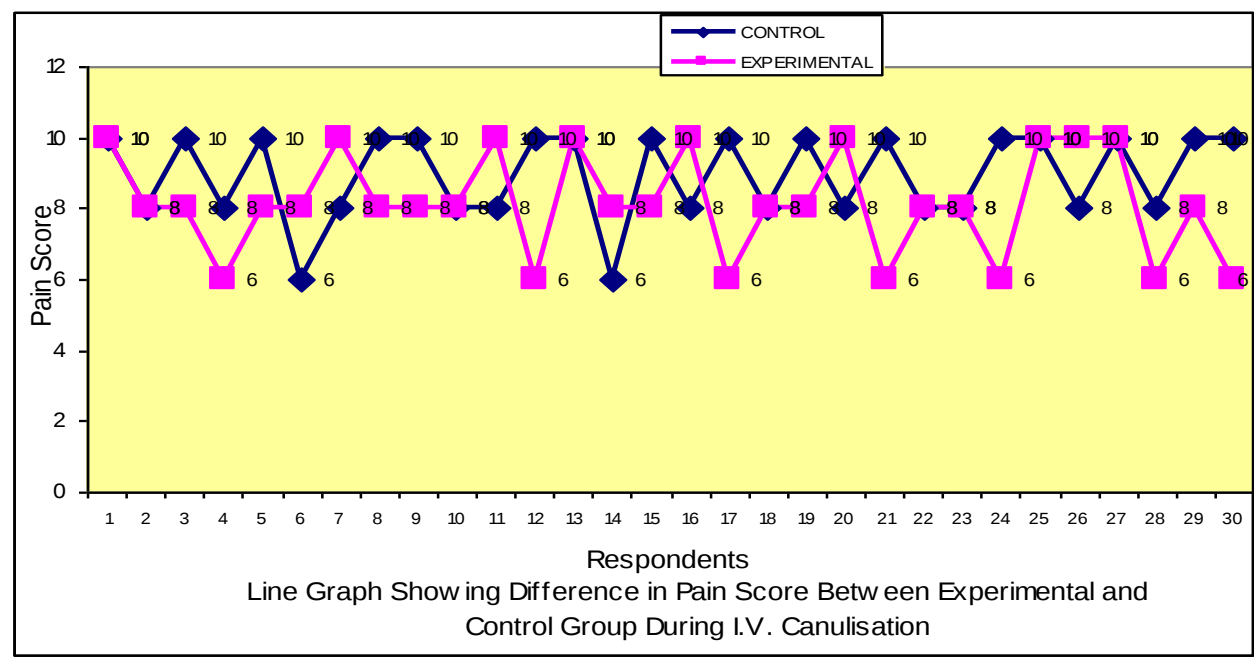
Appendix - J



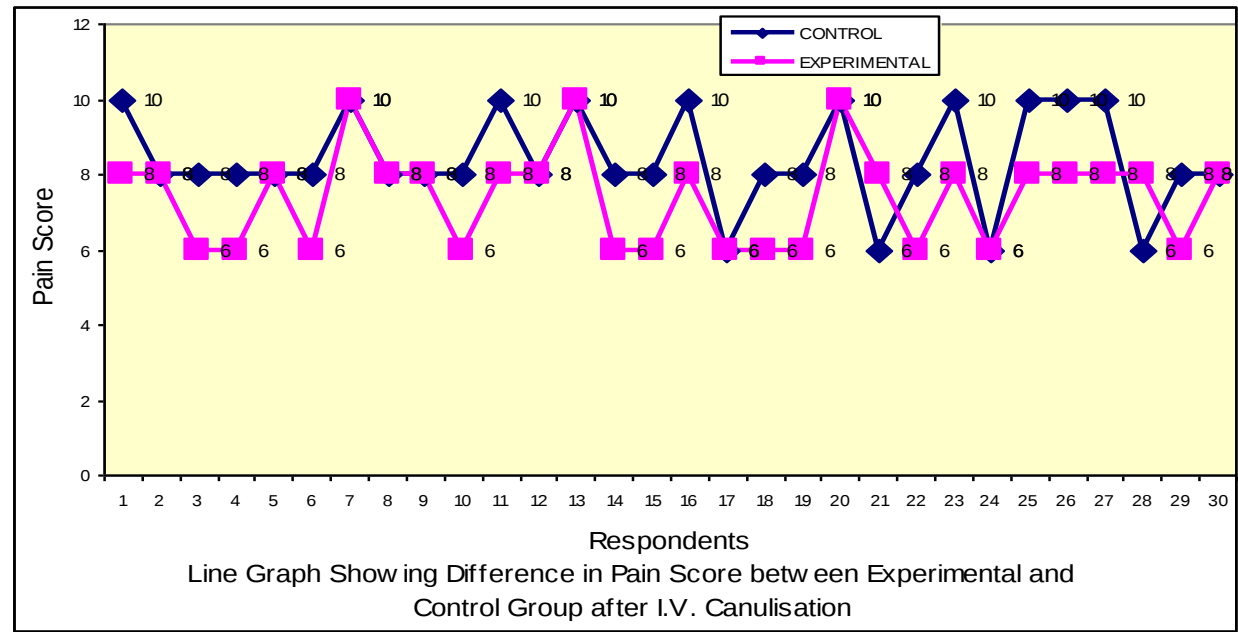
Appendix - K



Appendix - L



Appendix - M



Appendix - N

Master data sheet for experimental group

Code no	Age (year)	Sex	Date of admission	Bed no	Any previous experience of hospitalization	Toys provided	Pain score during procedure	Pain score after 5 minutes of procedure
E1	2.4	F	12/1/09	P6	Nil	Car	10	8
E2	2.1	F	12/1/09	P4	NIL	Doll	8	8
E3	2.0	M	13/1/09	P2	Nil	Soft toys	8	6
E4	3.2	M	13/01/09	P1	Nil	Soft toys	6	6
E5	3.4	F	14/01/09	P12	Nil	Soft toys	8	8
E6	4.1	F	15/01/09	P6	Nil	Soft toys	8	6
E7	2.9	F	16/01/09	P5	Nil	Car	10	10
E8	4.1	M	17/01/09	P2	Nil	Soft toys	8	8
E9	4.7	F	17/01/09	P1	Nil	Ball	8	8
E10	4.4	F	18/01/09	P11	Nil	Mobile	8	6
E11	3.3	F	19/01/09	P10	Nil	Car	10	8
E12	4.6	M	20/01/09	P2	Nil	Soft toys	6	8
E13	3.7	F	21/01/09	P4	Nil	Soft toys	10	10
E14	2.8	F	21/01/09	P16	Nil	Soft toys	8	6
E15	4.7	F	22/01/09	P17	Nil	Car	8	6
E16	3.6	M	23/1/09	P1	Nil	Ball	10	8
E17	2.3	F	24/01/09	P2	Nil	Doll	6	6
E18	4.2	F	24/01/09	P3	Nil	Soft toys	8	6
E19	4.0	M	25/01/09	P16	Nil	Mobile	8	6
E20	2.4	F	25/01/09	P10	Nil	Mobile	10	10
E21	2.2	F	26/01/09	P2	Nil	Ball	6	8
E22	4.8	M	27/01/09	P1	Nil	Soft toys	8	6
E23	2.7	F	27/01/09	P4	Nil	Car	8	8
E24	3.0	M	28/01/09	P7	Nil	Soft toys	6	6
E25	3.6	F	28/01/09	P8	Nil	Soft toys	10	8
E26	3.8	F	29/01/09	P9	Nil	Soft toys	10	8
E27	4.6	F	29/01/09	P1	Nil	Ball	10	8
E28	2.9	M	30/01/09	P13	Nil	Mobile	6	8
E29	2.11	M	30/01/09	P14	Nil	Ball	8	6
E30	2.10	F	31/01/09	P6	Nil	Car	6	8

Appendix - O**Master data sheet for control group**

Code no	Age	Sex	Date of admission	Bed no	Any previous experiences of hospitalisation	Toys provided	Pain score at during procedure	Pain score after 5 minutes of procedure
C1	4.4	M	12/01/09	P2	Nil	Nil	10	10
C2	3.2	F	12/01/09	P5	Nil	Nil	8	8
C3	3.1	F	13/01/09	P3	Nil	Nil	10	8
C4	2.8	M	13/01/09	P6	Nil	Nil	8	8
C5	2.3	F	14/01/09	P4	Nil	Nil	10	8
C6	2.7	M	14/01/09	P11	Nil	Nil	6	8
C7	2.10	M	15/01/09	P10	Nil	Nil	8	10
C8	3.2	F	15/01/09	P3	Nil	Nil	10	8
C9	3.5	F	16/01/09	P17	Nil	Nil	10	8
C10	3.6	M	17/01/09	P8	Nil	Nil	8	8
C11	3.0	M	17/01/09	P9	Nil	Nil	8	10

C12	2.2	F	18/01/09	P1	Nil	Nil	10	8
C13	3.4	M	18/01/09	P7	Nil	Nil	10	10
C14	3.0	F	19/01/09	P9	Nil	Nil	6	8
C15	3.1	F	19/01/09	P4	Nil	Nil	10	8
C16	2.8	M	20/01/09	P6	Nil	Nil	8	10
C17	4.9	F	20/01/09	P17	Nil	Nil	10	6
C18	5.0	M	21/01/09	P5	Nil	Nil	8	8
C19	3.9	M	21/01/09	P11	Nil	Nil	10	8
C20	4.6	F	22/01/09	P8	Nil	Nil	8	10
C21	4.2	M	23/01/09	P1	Nil	Nil	10	6
C22	3.7	M	24/01/09	P12	Nil	Nil	8	8
C23	4.1	F	24/01/09	P13	Nil	Nil	8	10
C24	4.2	F	25/01/09	P7	Nil	Nil	10	6
C25	2.6	F	25/01/09	P5	Nil	Nil	10	10
C26	3.8	M	26/01/09	P11	Nil	Nil	8	10
C27	2.1	F	27/01/09	P18	Nil	Nil	10	10
C28	2.5	M	28/01/09	P6	Nil	Nil	8	6
C29	2.6	F	29/01/09	P3	Nil	Nil	10	8
C30	4.1	F	30/01/09	P16	Nil	Nil	10	8