



Assess the Effectiveness of Sensory Nursing Interventions on Length of Hospital Stay Among Preterm Infants in Selected Setting, Nagercoil, K.k. District.

KEYWORDS

Preterm Infants, Sensory Nursing Intervention, Length of Hospital Stay.

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ABSTRACT Preterm birth is defined as childbirth occurring at less than 37 completed weeks or 259 days of gestation. Preterm birth is a global problem and evidently more than 60 % of preterm births occur in Africa and South Asia. In India preterm births is rising and presently around 21 % of babies were born preterm. Neonatal intensive care unit stimuli may interfere with brain development in premature infants and contribute to developmental delays. Statement of the Problem: A Quasi Experimental Study to Assess the Effectiveness of Sensory Nursing Interventions on Length of Hospital Stay among Preterm Infants in Selected Setting, Nagercoil, K.K District. A Quantitative Research Approach- Quasi experimental research design was adopted. The study was conducted on 125 each on study and control group. The investigator provided Sensory Nursing Intervention care on study group preterm infants along with routine hospital and control group was obtaining routine hospital care. Both the group was assessed with Length of hospital stay. The study concludes that Length of hospital stay showed mean improvement of study and control groups were 14.5 ± 1.7 and 10.9 ± 2.3 respectively. The mean difference on length on hospital stay was statistically very highly significant ($P < 0.001$).

Introduction:

Preterm birth is defined as childbirth occurring at less than 37 completed weeks or 259 days of gestation. Late preterm refers to infants born between 34 and 36 weeks of gestation.

An estimation states 15 million babies born worldwide were preterm that is almost one in 10 live births. About one million infants die on each year due to complications of preterm birth. Many preterm survivors face a lifetime disability, including learning disabilities, visual and hearing problems. (WHO, November 2015)

Preterm birth is a global problem and evidently more than 60 % of preterm births occur in Africa and South Asia. On average 12% of babies are born too early in low income countries compared with 9% in higher-income countries. (WHO, 2013)

In India preterm births is rising and presently around 21 % of babies were born preterm. States such as Goa, Kerala and Manipur have infant and neonatal mortalities similar to that of developed nations, indicating advanced care of premature babies. Annually about 27 million babies were born in India, among them 3.6 million were born premature, of which 303,600 fail survival due to complications. (Indian Foundation of preterm babies, 2014).

The first and foremost of four weeks of neonatal period, is the transition time of infant from uterus to external environment, where the infant is supported entirely by the mother to independent existence. Early physical development during this transitional period includes physical growth, feeding development, brain, neuronal reflex behavior and early sensory capacity.

Preterm infant's neurodevelopment are proactively enhanced by avoidance of overstimulation, stress, pain, isolation, and deprivation. This can be enhanced by support-

ing the infant's self-regulatory competence through steady availability of reliable, consistent and familiar caregivers who supports the infant's foremost nurturers in initial transitional life.

In the intrauterine environment, rhythmic stimuli are provided by maternal activity, hormonal cycles, auditory, cutaneous and kinesthetic input through the amniotic fluid and sac. One of the common experiences for the fetus is the intermittent, regular exposure to the mother's voice. The maternal voice is minimally distorted and the intonation and melodic contour are identical to the external voice, factors critical for postnatal responsiveness to voice. These stimuli provide support for function and organization for the developing fetus.

Preterm infants have been noted to benefit from massage therapy. Massage therapy using moderate pressure showed weight gained of 31 % to 49% in average. Some studies have also shown length of preterm infants, head circumference and bone mineral density increases with massage therapy.

The rhythmic stimulation of movement and intermittent speech experienced during fetal development continues even after birth. The mother's regulatory role for system organization is significantly different for infants born prematurely than for term infants, because premature infants do not experience extended contact with their mothers early in life. Evidence exists that mother's voice can be an important positive stimulus for premature infants in the neonatal intensive care unit (NICU).

Normal sensory development requires stimulation during periods of rapid brain growth. Neurodevelopment processes evolve with consistent patterns of sensory input. A premature birth represents an abrupt change in experience for the infant's developing nervous system. In the NICU, sensory stimulation is not consistent, patterned or congruent with the types of stimulation that are required for normal neonatal development. Ne-

onatal intensive care unit stimuli may interfere with brain development in premature infants and contribute to developmental delays.

In this study, the researcher decided to find the response of physiological parameter Length of hospital stay of infants after Sensory Nursing Intervention by the mothers towards there preterm infants.

OBJECTIVES

- To assess the pre and post test level of neonatal length of hospital stay among preterm infants in study and control group.
- To determine the effectiveness of sensory nursing interventions on neonatal length of hospital stay among preterm infants.
- To associate the level of neonatal length of hospital stay with their selected demographic variables in study and control group.

RESEARCH HYPOTHESIS

H₀₁- There is significant difference in length of hospital stay between pre test and post test in study and control group.

H₀₂-There is significant difference in the neonatal length of hospital stay among preterm infants between the study and control group.

H₀₃- There is significant association between neonatal length of hospital stay among preterm infants with demographic variables in study and control group.

METHODOLOGY:

Quantitative Research Approach- Quasi experimental research design. The study was conducted at neonatal preterm ICU's at Government Medical College and Hospital, Asaripallam at Kanyakumari District. Necessary ethical approval was obtained. The sample consisted of 250 patients preterm infants between the gestational ages 34 to 36 weeks who fulfil the inclusion criteria were chosen for the study by using non probability convenient sampling technique. The tool used was demographic variable, neonatal parameters on Length of Hospital Stay

Section A

A semi structured interview based questionnaire was included to assess the background variables which consists of items related to demographic data of the mother and child such as; Maternal data (age, mother's educational status, occupation, parity, type of family), Neonatal data further categorized to demographic data (gender of baby, gestational weeks during birth) and Clinical (hemodynamic stability, type of birth, infant weight) data.

Section B

It consists of assessment of neonatal parameter on Length of Hospital Stay.

Length of Hospital Stay

It is calculated with the average days of length of hospital of preterm infant.

DATA COLLECTION PROCEDURE

1. The ethical clearance of the study setting was obtained.
2. Preterm infants who met inclusion criteria were selected through convenient sampling technique in both control group and study group.
3. Before approaching parents for informal consent, con-

sent is obtained from the attending neonatologist confirming that the infant is medically stable and the consent was obtained from the mother.

4. Control group infants was selected first and concern obtained from the mother, The control group preterm babies was getting routine hospital care during observational period and periodic assessment was done as per the study.
5. Following Control Group, Study group infants were identified. A pretest was assessed and following the assessment study group preterm infants received 15 minutes of intervention twice daily for 5 days.
6. The sensory nursing intervention was taught to study group preterm infant mothers and procedure was demonstrated. The preterm infant mothers were observed by the researcher while doing the intervention at hospital.
7. The preterm infant's mother initiates directed talk through soothing voice (auditory stimulation) to her preterm infant and massages the preterm infant for 10 minutes (tactile stimulation) following massage a 5 minutes of horizontal rocking (vestibular stimulation) was performed. Throughout the 15-minute period, the mother engages eye contact with the preterm infant (visual stimulation).
8. If an infant exhibited negative disengagement cues such as hiccoughing, finger play, crying, fussing, or spitting/vomiting during the intervention, that part of the technique was discontinued and the next portion of the technique was attempted.
9. Intervention was initiated 1 hour before the next scheduled feeding.
10. The day of discharge is noted for both study and control group.

RESULTS:

In both study and control groups the maximum proportions (63.2 % and 64.4 %) of mothers were in the age bracket of 25-29 years. Regarding educational status of preterm mothers 37.6% were secondary school and 34.4 % were graduates in study group whereas 45.6% and 48.8 % of preterm mothers had attained secondary and graduates in control group respectively. The house wife / unemployed were 68.8 % in study group and 88.0 % in control group. In both groups the joint family contributions were 64 % and 76 % respectively. Regarding the parity of mother 64 % and 68 % of subjects were study and control group respectively.

The mean age of mothers in both group were 27.7± 3.3 years and 26.9±3.2 years and were not differed significantly (P>0.05). The assessment mean ages of the two groups were also not significantly different (P>0.05).

The study group subjects had stayed in the 6+ days at 12.8%. The control group subjects had stayed in the hospital for 6+ days were 83.2%. The lesser 1.8 days of average

hospital stay of study group than the control group was the impact of Sensory Nursing Intervention.

All the demographic characteristics of mothers and preterm infants were not associated with Length of hospital stay in both study and control groups.

The first objective of the study was to assess the pre and post test level of neonatal reflex and reactivity among preterm infants in study and control group.

The parameter on length of hospital stay was assessed between study and control groups in pre test and post tests.

Frequency and Percentage distribution pre and post test level of Length of Hospital stay among preterm infants in study and control group:

N=250

Length of Hospital stay	Study group N=125		Control group N=125	
	f	%	f	%
4	24	19.2	3	2.4
5	85	68.0	18	14.4
6	16	12.8	104	83.2
Total	125	100.0	125	100.0

The table describes the duration of hospital stay. Based on length of hospital stay, maximum percentage of study group preterm infants stayed for 5 days, whereas in control group maximum percentage of preterm infants showed 6 days stay.

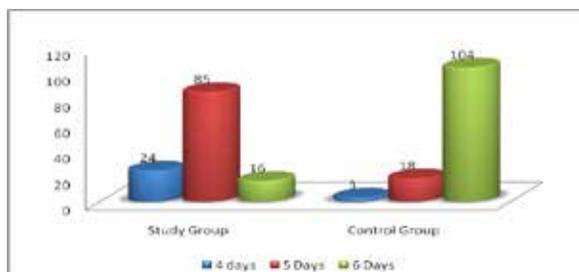


Fig 1: Bar diagram depicts Frequency and Percentage distribution of Length of Hospital stay among preterm infants in study and control group:

The second objective of the study was to determine the effectiveness of sensory nursing interventions on neonatal reflex and reactivity among preterm infants in study group.

N=250

Variable	From		TO		Improvement		“t”	df	Significance
	Mean	SD	Mean	SD	Mean	SD			
Hospital Stay Days	4.9	0.6	6.7	1.4	1.8	13.075	248	P<0.001 s = ***	Hospital Stay Days

P <0.001= ***very highly significant

Length of hospital stay showed mean improvement of study and control groups were 14.5±1.7 and 10.9±2.3 respectively. The mean difference on length on hospital stay was statistically very highly significant (P<0.001).

The third objective of the study was to associate the level of neonatal reflex and reactivity with their selected demographic variables in study and control group.

The demographic characteristics of study subjects of study groups were associated with their pre test assessment neonatal statistic and outcome such as age, occupation, education, type of family and parity of mother and gestational age, birth and sex of neonatal.

Association between the level of neonatal parameters (Length of Hospital Stay) with their selected demographic

variables in Study and control group.

N=250

No	Demo-graphic Variables	Study Group (N =125)				Control Group (N = 125)			
		≤ Med	>Med	Total	Result	≤ Med	>Med	Total	Result
1	Maternal Data								
1	Maternal Age (in yrs)								
	20-29	84	10	94	$\chi^2 = 1.587$	80	25	105	$\chi^2 = 1.105$
	30-39	25	6	31	df = 1	13	7	20	df = 1
	Total	109	16	125	P>0.05 s=ns	93	32	125	P>0.05 s=ns
2	Educational status								
	Non Educated	2	0	2	$\chi^2 = 1.167$	-	-	-	$\chi^2 = 2.930$
	Primary school Education	30	3	33	df = 3	7	0	7	df = 2
	Secondary school Education	41	6	47	P>0.05 s=ns	43	14	57	P>0.05 s=ns
	Degree and above Education	36	7	43		43	18	61	
	Total	109	16	125		93	32	125	
3	Occupation								
	Skilled	11	11	22	$\chi^2 = 0.708$	5	4	9	$\chi^2 = 0.890$
	Non Skilled	7	10	17	df = 2	3	3	6	df = 2
	House wife/ unemployed	45	41	86	P>0.05 s=ns	72	38	110	P>0.05 s=ns
	Total	63	62	125		80	45	125	
4	Type of family								
	Nuclear	39	6	45	$\chi^2 = 0.018$	24	6	30	$\chi^2 = 0.650$
	Joint	70	10	80	df = 1	69	26	95	df = 1
	Total	109	16	125	P>0.05 s=ns	93	32	125	P>0.05 s=ns
5	Parity								
	Primi	69	11	80	$\chi^2 = 0.938$	66	19	85	$\chi^2 = 2.039$
	Second Delivery	37	4	41	df = 2	26	13	39	df = 2
	Third (or) above	3	1	4	P>0.05 s=ns	1	0	1	P>0.05 s=ns
	Total	109	16	125		93	32	125	
II	Neonatal Data								
6	Gender								
	(i) Male	44	8	52	$\chi^2 = 0.533$	49	25	74	$\chi^2 = 6.378$
	(i) Female	65	8	73	df = 1	44	7	51	df = 1
	Total	109	16	125	P>0.05 s=ns	93	32	125	P>0.05 s=ns

7	Gesta-tional weeks during birth								
	Babies born between 34 to 35 weeks of gesta-tion	56	13	69	$\chi^2 = 5.035$	57	21	78	$\chi^2 = 0.191$
	Babies born between 35 to 36 weeks of gesta-tion	53	3	56	df = 1	36	11	47	df = 1
	Total	109	16	125	P<0.05 s=ns	93	32	125	P>0.05 s=ns
III	Clinical Data								
8	Type of Birth								
	Normal vaginal delivery	61	6	67	$\chi^2 = 1.912$	46	21	67	$\chi^2 = 2.501$
	Cesarean Birth	48	10	58	df = 1	47	11	58	df = 1
	Total	109	16	125	P>0.05 s=ns	93	32	125	P>0.05 s=ns

P <0.001= ***very highly significant, ns = P >0.05- no significant, s = P <0.05-significant

The table describes the association between demographic variables such as ages, education, occupation, parity of preterm infant mothers and their type of family with Length of hospital stay of preterm infants. Similarly genders, type of birth, gestational week on birth of preterm infants were also been associated with Length of hospital stay for preterm infants. On pretest assessment there was no significant association mentioned between demographic variable and Length of hospital stay for preterm infants on both study and control group (P>0.05).

CONCLUSION:

The effectiveness of Sensory Nursing Intervention was analyzed and interpreted by measuring the length of hospital stay of the babies. The lesser 1.8 days of average hospital stay of Study group than the control group was the impact of Sensory Nursing Intervention. The above three statistics were compared within the groups to assess the improvement of Sensory Nursing Intervention and its effectiveness and was also compared between the study and control groups of the respective statistics.

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