"A Study to Assess the Effectiveness of Structured Teaching Program on Knowledge Regarding Care of Low Birth Weight Babies in Nursery among Staff Nurses in Selected Pediatric Hospital at Jaipur"

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Abstract- Incidence of low birth weight in our country is very high. High risk mother should be identified early during the course of pregnancy and referred for confinement to an appropriate health care facility. Nurse has to offer support and comfort to mother and reassure her of her capabilities. The management of LBW babies includes hospital management and home management which are care at birth, thermal protection, fluid and feeds, kangaroo mother care, infection control and appropriate management of specific complications. This paper is a follow-up study after 25 years that was conducted in 2005 to find the changes and the causes of IMR in the same group of villages. This is a cross-sectional study conducted in villages of Jaipur in Rajasthan, India. Data on infant deaths have been analysed at two different points in the same population with an interval of 25 years. The objective of the study is to evaluate the effectiveness of structured teaching programme on knowledge Regarding care of low birth weight Babies in nursery among Staff nurses in selected Pediatric hospital at Jaipur, Rajasthen. The research design was pre experimental one group pre test post test design. Non probability convenient sampling method was used for the selection of samples. The instrument for the data collection was a structured questionnaire. Total 60 staff nurses were participated from JK Lone Hospital , Jaipur, Rajasthan. Results: The mean post-test level of Knowledge score is significantly higher than the mean pre-test Knowledge scores that is 64.02% post test and 54.43% pre test with paired t=3.10 (at P<0.05 level of significance) and it is significant. By conventional criteria, this difference is considered to be extremely statistically significant. Statistical significance was calculated by using student"s paired „t" test. There was significant association between the findings of Knowledge with demographic variables. All variables were significantly associated with their knowledge score and it was estimated by ANOVA test. The major findings indicated that staff nurses had Moderate Knowledge in various aspects of care of low birth weight Babies in nursery before administration of structured teaching programme. Later they shown adequate knowledge in all the levels of care of low birth weight Babies. structured teaching Programme was found to be a very effective method of providing information regarding care of low birth weight Babies.

Keywords: Impact of smoking, Mass awareness programme.

INTRODUCTION

Motherhood is a beautiful experience for a woman. Maternal health is important for the birth of a healthy baby. Birth weight is a major determinant of neonatal survival and future infant growth and development. Low birth weight (LBW) refers to an infant's birth weight of 2499 g or less at term.[1]

Birth weight is the initial weight of a dead or alive baby, best weighed in the first hour of life. Low birth weight (LBW) is a term used to describe babies who are born weighing less than 2,500 grams (5 pounds, 80 ounces). In contrast, the average newborn weighs approximately 7 lbs.[1] Infants weighing less than 1500 grams (up to and including 1499 grams) are considered very low birth weight (VLBW) infants and infants weighing less than 1000 grams are considered newborns low birth weight birth weight (ELBW). types. The first are babies born before 37 weeks gestation (premature). Because birth weight is a function of pregnancy, a preterm infant is expected to be lighter. The secondary category of LBW infants includes infants with intrauterine growth restriction (IGUR). These children are malnourished (or small) because of the pregnancy in question. They are therefore referred to as low birth weight infants (SGA) or low dose infants (SFD).[3] More than 80% of all newborn deaths in developed and developing countries occur in low birth weight infants.[2]

The risk of cerebral palsy is a common physical disability in Western European children and is higher in very low birth weight (VLBW) infants, who are born with a birth weight of less than 1500 grams, and in multiple pregnancies than in normal birth weight infants.[3]

Specific nutritional monitoring and nutritional supplements are recommended for low birth weight (LBW) infants to promote optimal growth and prevent subclinical nutritional deficiencies. Infant feeding practices need to be strengthened and integrated into existing health programs to reach all beneficiaries[4].

In India alone, 6-8 million underweight babies are born each year. The high incidence of IPN in our country is due to the greater

number of children with intrauterine growth retardation.(small for dates), not premature.9 The main problems of low birth weight infants are asphyxia at birth, hypothermia, feeding difficulties, infections, hypobilirubinemia, apnea, respiratory failure, hypoglycemia, meconium aspiration syndrome, etc.[5]

Management of a low birth weight baby often includes care in the NICU, exclusive breastfeeding, temperature control, kangaroo care, special feeding (nutrition and fluids) - sometimes with a feeding tube if the baby is unable to breastfeed,infection control, home care , and some other treatments for complications.8 Home care for a low birth weight baby is best done by the mother. Preventing premature birth is one of the best ways to prevent birth of low birth weight babies.Prenatal care is a key factor in preventing premature and low birth weight babies. Maternal and fetal health can be monitored during prenatal visits, since maternal diet and weight gain correlate with fetal weight gain and birth weight. Eating healthy and gaining weight during pregnancy are essential. The mother should also avoid alcohol, cigarettes, and illegal drugs, which, among other things, can contribute to poor fetal growth.[6]

MUST STUDY

Low birth weight is one of the major maternal and child health challenges in developed and developing countries. Lower birth weight; the lower the chances of survival. In recent years, the focus has been on ways to prevent underweight through good prenatal care and intervention programs, rather than treating underweight babies born later.[7] WHO estimates that around 25 million underweight babies are born worldwide each year, accounting for 17% of all live births, almost 95% of them in developing countries. In India, this accounts for around 26-30% of all live births, with more than half of these being births under government mandate. India wanted to get the problem under control andreduce the incidence to 10% by the year 2000, but has so far failed.[8]

An Indian newspaper reported that the current infant mortality rate (IMR) of 44 deaths per 1,000 live births accountsfor nearly two-thirds of global infant mortality and half of global infant mortality. The study also found that the undivided states of Uttar Pradesh, Madhya Pradesh and Bihar together accounted for more than 50% of infant mortalityin India in 2000. The study found that nearly eight million low birth weight babies are born in India every years. . It is also said that 75% of newborn deaths occur in low birth weight infants.9

Worldwide, the preterm birth rate is estimated at 9.6 percent – equivalent to about 12.9 million newborns. Althoughthis applies to all countries, the distribution is uneven worldwide: Preterm birth rates are particularly high in Africa andAsia, where more than 85% of all preterm births occur. A comparison of preterm birth rates in different regions of the world shows that the highest rate is in Africa - 11.9% or about 4 million newborns per year; followed by NorthAmerica, Asia, Latin America and the Caribbean, Oceania (Australia and New Zealand combined) and Europe.ten According to a 2010 Indian research report, the largest number of preterm births occurred in India, approximately 13%(35.19 lakh) of all preterm births. And nearly 35% of the world's preterm babies are born in India.11

In India, a study shows a 39.1% prevalence of low birth weight babies in the urban resettlement area of Delhi. The incidence of low birth weight was related to maternal age, parity, weight and height. Therefore, the prevalence of LBWremains high in the preferred cities of Delhi.12

A study was conducted in Udupit Thaluk, Karnataka to identify the socio demographic, maternal and obstetric determinants of low birth weight; The result shows that newborn mothers, older mothers and mothers who did not receive quality prenatal care had a higher risk of having a low birth weight baby.13

A study to determine which interventions, approaches or strategies to support mothers/fathers/carers and families in thehome care of preterm or low birth weight babies were effective in improving outcomes. A comprehensive search of relevant electronic databases including MEDLINE, Embase, CINAHL and the Cochrane Central Register of ControlledTrials was completed on September 22nd.Two reviewers reviewed articles on Covidence and extracted data from 41 included articles. The quality of the documents and the reliability of the evidence were rated CASP and GRADE, respectively. There is some evidence that supportive interventions can improve outcomes on infant mortality, improved infant growth, exclusive breastfeeding, infant cognitive development, immunization and reduced birth rates, maternal stress, and depression. However, in most studies the overall certainty of the evidence is low or very low. The study found that interventions aimed at helping parents care for children at home can improve outcomes in this population.There is a need for well-designed, large-scale support measures that are prioritized and developed with women and families.14

Problem Statement:
"A study to assess the effectiveness of structured teaching program on knowledge regarding care of low birth weightbabies in nursery among staff nurses in selected pediatric hospital at Jaipur."

Objectives of The Study:
1.   To assess the existing knowledge regarding care of low birth weight babies among staff nurses.
2.   To determine the effectiveness of Structured Teaching Programme regarding care of low birth weight babiesamong staff nurses.
3.   To find out the association between pre-test knowledge scores regarding care of low birth weight babiesamong s t

aff nurses with their selected demographic variables

HYPOTHESIS :
H1 : There is a significant difference between pre-test and post-test knowledge score regarding care of low birth weightBabies in nursery in selected hospitals at Jaipur
H2 : There is a significant association between the selected demographic variables of staff nurse and pre-test knowledgescore regarding care of low birth weight Babies in nursery in selected hospitals at Jaipur.

OPERATIONAL DEFINITIONS :
Assess : It refers to the statistical measurement of the knowledge of nursing personnel regarding the care of low birth weight Babies from scores based on questionnaires.

Effectiveness   : It is statically measurement of difference between the pre and post-test knowledge. Refers to the extent to which the STP on care of low birth weight Babies achieved desired effect in improving the knowledge of staffnurses as evidence from the gain in knowledge score.

Structured Teaching Programme: It is a systemically developed programme designed to improve knowledge regarding care of low birth weight Babies. And STP also Refers to instructional method such as lecture cum discussionand teaching aids as slides, poster, designed for nurses to provide information regarding Care of LBW.

Knowledge : In this study knowledge refers to awareness and understanding of nursing personnel regarding care of low birth weight Babies. It refer to the appropriate response from the staff nurse about care of low birth weight Babies through the items of Structured Questionnaire
Low birth weight (LBW): Birth weight of an infant of 2,499 g or less, at a term baby.

Management – Management includes medical, surgical, and nursing management of low birth weight babies.

Staff Nurses. - In this study the staff nurse defined as a health professional (male or female) who has been working in one of the pediatrics hospital at Jaipur**.**

ETHICAL CONSIDERATION : Prior permission was obtained from the research committee of Jaipur Hospital College of Nursing, Jaipur, Rajasthan. The participants were assured of anonymity and total confidentiality ofinformation, and that any information obtained from them was solely for the purpose of the study.

METHODOLOGY

RESEARCH APPROACH : The research approach adopted for this study was an evaluative approach.
RESEARCH DESIGN : A pre-experimental research design with pre and post-test approach was used to this study.

VARIABLES:
Independent variable : Independent variable refers to structured teaching programme.
Dependent variable : Knowledge of staff nurses regarding care of low birth weight Babies in nursery is the dependent variable.

RESEARCH SETTING : This study was undertaken in J.K. Lone Hospital, at Jaipur

POPULATION : Population for the study were the staff nurses working in, J.K. Lone hospital at Jaipur, Rajasthan.

SAMPLE : Sample of this study was 60 staff nurses working in Nursery ; J.K. Lone hospital at Jaipur.

SAMPLING TECHNIQUE : 60 samples was selected by using convenient sampling technique.

SAMPLING CRITERIA:
Inclusion Criteria: -
•   Nurses who were working in Nursery.
•   Nurses who were willing to participate in the study.

Exclusion criteria:-
•   Staff nurse who were not available during data collection.
•   Staff who had attended the same programme in last 6 month.

DESCRIPTION OF THE TOOL : The instruments used in this study consisted of two sections.

SECTION A: Socio-Demographic data included age, gender, education qualification, total clinical experience, totalexperience

in nursery and any additional information received regarding Care of LBW

SECTION B: Structured knowledge questionnaire, It consisted of 30 items divided into 4 sections. there were 30maximum obtainable scores.

The data obtained was analyzed by using descriptive and inferential statistics in terms of frequency, percentage, mean, standard deviation, paired„t‟ test and Chi-square test. The anonymity and confidentiality of the study subjects was maintained throughout the study.

REVIEW OF LITERATURE
A study was conducted to understand the risk factors responsible for hearing loss in children in the NICU and WBN and to assess the prevalence of deafness. A total of 800 NICU (n = 402) and WBN (n = 398) infants underwent hearing screening in a tertiary care facility. Hearing screening was performed using a two-step screening protocol according to JCIH guidelines using Distortion Otoacoustic Emissions (DPOAE) and Automatic Brasstem Responses (A-ABR). According to the DPOAE test, 311 of the NICU and 383 of the WBN passed the test, and at the second screening 80 of 91 of the NICU and 11 of 13 of the WBN passed the DPOAE test. In addition, BERA was performed at the corrected age of 3 months, with 6 of 11 infants responding positively to the NICU and 3 infants with WBN showing profound hearing loss.Data analysis showed that deafness, anemia, and family history of hypertension in CPN, maternal TORCH, low Apgar score, and neonatal hyperbilirubinemia were the major risk factors for hearing loss. We conclude that early detection of hearing loss due to various risk factors is important since appropriate therapeutic intervention and rehabilitation would help children to develop.[15]

The purpose of this descriptive cross-sectional study was to assess nurses' knowledge of caring for low birth weight infants. The researcher recruited 54 nurses who work in the BPKIHS children's wards. A pre-tested response questionnaire was used that focused on six areas: knowledge of caring for LBW infants, caring for kangaroo mothers, adequacy of breastfeeding, immunization, bathing LBW infants, and infection prevention.The results showed that the majority (83%) had a nursing education certificate, 11% had a bachelor's degree in nursing, and only 6% had a bachelor's degree in general nursing. More than half (55.6%) of nurses have 1 to 5 years of work experience. The overall score for nurses' knowledge (mean ± standard deviation) of caring for low birth weight infants was 86.5 ± 2.3. Nurses with a bachelor's degree had better knowledge scores (85.5 ± 15.4) than nurses with a residency (75.1 ± 15.9) (p=0.003). The investigations carried out show that the knowledge of the nurses working in the children's wards of the BPKIHS regarding the care of a low-birth-weight infant appears to be excellent. Knowledge was better among well- trained nurses[16].

A study was conducted to understand the barriers and promoters to the practice of MMC in tertiary and middle-level health care settings in southern Malawi from a health-care professional's perspective. This study is part of the Malawi Neonatal Health Package Integration Maternal and Child Health Innovation Project in Africa. Between May and August 2019, in-depth interviews were conducted with a deliberate sample of providers and supervisors working in neonatal health at major tertiary level hospitals and three district hospitals in southern Malawi. Data were analyzed using a thematic approach using NVivo 12 software (QSR International, Melbourne, Australia). The results showed that a total of 27 district nurses, physicians, pediatricians and health management officials were interviewed. Recruitment, inadequate resources and dependency on families emerged as key issues. Health professionals in Malawi have positively described MMK's practice as a low-tech, low-cost solution suitable for resource-constrained health facilities. However, staff perceptions that SMK children were clinically stable was associated with lower treatment priority and poor follow-up practices. Neglect of SMK services by medical staff, staff shortages, and reliance on health care providers for care have been linked to premature self-registration by women. The study found that while regular use of MMK was the guideline for stable low birth weight and preterm infants in four hospitals, there were gaps in monitoring and maintenance practice.While designed as a low-cost intervention, sustainable implementation requires investment in technology, human resources, and the provision of hospital supplies such as food, bedding, and KMC wraps. Strengthening the capacity of hospitals to support MMK is needed as part of continuity of care for preterm infants.[17]

A cross-sectional study was conducted to obtain baseline data on HMC knowledge, attitudes and practices (KAP) among 65 nurses caring for mothers and newborns in a hospital in Indonesia. The study involved 29 nurses in the maternity ward, 21 nurses and midwives in the postpartum ward, and 15 midwives in the maternity ward. KAP-KMC data were collected using a self-administered closed questionnaire.Each questionnaire can be completed in about 1 hour. The results showed that of the enrolled nurses, 12.3% (8/65) received specific training on HMC, while 21.5% (14/65) received more general training on HMC content. about 46 years old.2% of nurses had a good knowledge of MMC, 98.5% had a good knowledge of the benefits of MMC and 100% had a positive attitude towards MMC. All perinatal nurses had some experience of caring for and performing MMK. Some KAPs observed among caregiverswere a lack of knowledge about the weight of infants eligible for MMC and weight gain of infants receiving MMC, lack of education/training about MMC, and concerns about the equipment needed for MMC services . Study completedThis study identified several issues that need to be addressed, including knowledge of nutrition and weight gain, workload, use of incubators, and the need for well-resourced HMC services. We recommend that hospitals improve their nursing staff's HMC skills and set up well-equipped HMC departments.[18]

RESULTS

A total of 60 patients with care of low birth weight Babies in nursery among nursing personnel
Section-1: Description of socio-demographic characteristics of samples

Table-1 : Frequency and percentage distribution of selected demographic variables

SL.NO	Demographical variables	Frequency	Percentage
1.	Age of the mother		
	a) 21-25 years	25	41.7
	b) 26-30 years	19	31.7
	c) 31-35 years	12	20.0
	d) 35 and above	04	06.7
2.	Gender		
	a) Male	32	53.33
	b) Female	28	46.66
3.	Educational qualification		
	a) GNM	22	36.70
	b) B.Sc. Nursing	23	38.30
	c) Post B.Sc. Nursing	12	20.00
	d) M.Sc. Nursing	03	05.00
4.	Total Clinical Experience		
	a) 0-1 Year	22	36.70
	b) 2-3 Year	18	30.00
	c) 4-5 Year	19	31.70
	d) 5 and Above	01	01.70

	Total Experience in Nursery (In Year)		
5	a) 0-1	30	50.00
	b) 2-3	22	36.70
	c) 4-5	04	06.70
	d) 5 and above	04	06.70

6	Anyother Information Related to care of LBW(Conferences Seminars, Workshop)		
	a) Yes	18	30.00
	b) No	42	70.00

1.   Out of 60 nursing personal majority 25 (41.70%) were in the age group of 21.25 years.
2.   Out of 60 nursing personal majority 32 (53.33%) were belong to male.
3.   Out of 60 nursing personal majority 22 (36.70%) were done GNM.
4.   Out of 60 nursing personal majority 22(36.70%) were had 3-4 year experience.
5.   Out of 60 nursing personal majority 30(50.00%) respondence were had experience in Nursery.
6.   Out of 60 nursing personal majority 42(70.00%) respondence were not attended any educational programme.

TABLE – 2: Percentage distribution of overall knowledge level N=60

Knowledge Level	% of score	Pre test		Post test	
		Frequency	Frequency %	Frequency	Frequency %
Poor	0-40	2	3.3	0	0
Average	41-60	39	65	0	0
Good	61-74	19	31.7	21	35
Very Good	75 and above	0	0	39	65

The Table. 2 shows the knowledge was classified in four aspects includes poor (0-40%), average (41-60), good (61-74) and very good (75 and above).The data of table no. 2.1 shows that in pre -test majority of the subjects 31% (19) had good knowledge, 65% (39) had average knowledge and 3.3% (2) subjects had poor knowledge about the topic, and none was found in category of good and very good. Data present above: revels that in the assessment of post-test knowledge of staff nurse, majority 65 %(39) of subject had very good knowledge while 35%(21) of them had good knowledge about the topic and none were found to be average and poor in knowledge. .

Table 3 Aspect wise knowledge effectiveness of Structured Teaching Programme   N=60

S. No	Area	Score	Pre-test(x)			Post- test(y)			Effectiveness(y-x)		
			Mean	Mean %	S.D.	Mean	Mean %	S.D	Mean	Mean %	S.D
1.	Items related to introduction & definition	2	1.71	85%	.49	1.81	90.5%	.39	0.1	5	0.10
2.	Items related tocause	3	1.03	34.33 %	.84	1.53	51%	1.01	0.5	16.66	0.17

3.	Items related to clinical manifestation	7	4.58	65.42 %	.84	4.93	70.42 %	1.10	0.35	5	0.25
4.	Items related to management	6	2.91	48.5%	1.18	3.45	57.5%	1.30	0.54	21.66	0.12
5.	Items related to care	12	6.10	50.83 %	1.25	7.51	62.58 %	1.80	1.41	15	0.55
	Overall	**30**	**16.33**	**54.43 %**	**4.62**	**19.25**	**64.16 %**	**5.62**	**2.9**	**9.66%**	**1.77**

Table no. 3 describes that overall findings revels that the mean% of post -test knowledge score was more compare to the mean% of the pre- test knowledge score. The effectiveness of STP was observed in all the areas suggesting that it was effective in increasing the knowledge of staff nurses regarding care of low birth weight Babies in nursery.

Table4 Significance difference between pre-test and post-test knowledge scores   N=60

S.No	Score	Mean	S.D	Std.error	Mean difference	D.F	„t‟table	
							Calculatedvalue	Tabulated value
1	Pre-test	16.33	4.6	0.93	2.9	59	3.1078	2.0010
2	Post - test	19.25	5.6					

Table: 4 describe the comparison of knowledge score on care of low birth weight Babies in nursery before and after intervention. The post-test mean score was significantly higher than the pre- test mean score. The tabulated value of„t‟ score at 0.05% level of significance and 59 degrees of freedom is 2.0010 and the table value was less than the calculated‟ value (3.10)which represents the significant gain in knowledge through the structured Teaching Program. Thus it suggests that the STP has been effective in increasing the knowledge of staff nurses about care of low birth weight Babies in nursery. (p<0.05 HS)

Table 5 Association between the knowledge of staff nurses on care of low birth weight Babies in nursery withselected demographic variables
N=60

Demographic Variables	Category	Sample	Chi Squire		DF	Level of Significance
			Calculated value	Tabulated value		
Age group (years)	21-25 years	25	3.523	16.9	9	0.05(S)
	26-30 years	19				
	31-35 years	12				
	35 and above	04				

Gender	Male	32	3.056	7.81	30	0.05(S)
	Female	28				
Education Qualification	GNM	22	2.487	16.9	9	0.05(S)
	B.Sc. Nursing	23				
	PB B.Sc. Nursing	12				
	M.Sc. Nursing	03				
Total Clinical Experience (In Years)	1-2	22	1.488	16.9	9	0.05(S)
	3-4	18				
	5-7	19				
	7 and Above	01				
Total Experience in Nursing (In year)	0-1	30	11.697	16.9	9	0.05(S)
	2-3	22				
	4-5	04				
	5 and above	04				
Attended any Educational Programme	Yes	18	1.186	7.81	3	0.05(S)
	No	42				

* Significant at 5% Level,   NS : Non-significant

The above table no: 5 shows that the obtained chi- square values of variables of age, gender, education qualification, total clinical experience, total clinical experience in nursery, additional information received so there is no significant association between the knowledge scores and these variables at the 0.05 level of significance. Hence the hypothesis is accepted. This association was statistically significant and it was calculated using ANOVA Test.

NURSING IMPLICATION
The findings of the study will help the investigator in the following ways:

The challenge that neonatal and pediatric nurses face is enormous. Scientific and medical inventions are helping to improve the care of underweight infants in kindergarten practice, which requires an improvement in the knowledge of nursing staff. The staff development program through continuing education and teaching materials such as the Structured Curriculum (STP) are key factors in shaping the future of nursing. The study results have several implications for nursing practice, nursing education, nursing administration, and nursing research. The test result can be used in the following areas of care.

Nursing Practice: The STP prepared in this study is a way to improve your practice through appropriate knowledge. It serves as a guide for experienced and novice caregivers. This STP can be a way to guide and guide a continuing professional development program for nurses. Milestones can be highlighted and written on a chalkboard or chart inthe delivery room and NICU for quick understanding.

Nursing education: Nurses should be encouraged to take special courses in the care of low birth weight infants.Specific courses and training programs should be organized within the Ministry. A structured curriculum serves as good teaching and learning material. More emphasis should be placed on the regular development and updating of the PTS. The curriculum for elementary and college nursing should detail the care of a low birth weight infant in a day care center.

.**Nursing Administration**: This underscores the need for nursing administrators to employ performance assessments, nursing audits, guidance and nursing standards updates. Clinical expertise and experience help nurses assess what truly is the best evidence of neonatal care. Nursing leadership should strive to update the nursing staff's knowledge of the care of low birth weight infants in the nursery and to develop appropriate teaching strategies to ensure quality care.

Nursing Research: This is only a preliminary review of nurses' knowledge of caring for low birth weight infants in thenursery. There are many ways to explore this area.Further research can be conducted on factors influencing nurse knowledge, the care of low birth weight infants in nurse practice and the care of mechanically ventilated infants. The

use of research results should be part of quality assurance evaluation to strengthen the profession as a whole.

CONCLUSION

As part of the study, 60 nurses received a structured curriculum. The program helps nurses expand their knowledge of caring for a low birth weight infant in the nursery. Ultimately, this helps caregivers in caring for underweight children in day care centers. The study results indicate that the nursing staff's knowledge of how to manage a low birth weight infant has improved, suggesting that the intervention program is effective in improving the nursing staff's knowledge.

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