

IMPROVING CARE OF LOW BIRTH WEIGHT INFANTS BY ENHANCING MOTHERS KNOWLEDGE AND PRACTICES

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Abstract: A Pre-Experimental study conducted to evaluate effectiveness of structured teaching programme in improving mother's knowledge and practices regarding care of low birth weight infants in one of the tertiary care teaching Hospital of NaviMumbai. A purposive sampling technique was used to select 50 mothers who met the inclusion and exclusion criteria. A structured interview was schedule to assess pre-test knowledge and post test knowledge and reported practices was assessed after 15 days. The findings of the study showed the mean post test knowledge score (43.50) which is significantly higher than the mean pre test knowledge score (13.90) with mean difference of (-29.6) and SD of (1.539) and the t- test value was (136.033) which is statistically significant at $p < 0.001$ level of significance, whereas the practices post test score was significantly higher than the pre test score at $p < 0.001$ level of significance by Wilcoxon sign rank test. Thus it is concluded that teaching programme was effective in improving the knowledge and practices of mothers regarding care of low birth weight infants.

Key Words: low birth weight infants, Mothers, structured teaching programme, knowledge, and practices.

INTRODUCTION:

Brigham Young, the founder of Salt Lake City and the first governor of Utah, had said 'You educate a man; you educate a man. You educate a woman; you educate a generation'. The importance of the role of female literacy on various health parameters, particularly with a view to reducing infant mortality rate has been corroborated in many earlier studies.¹

Infant birth weight is a significant predictor of immediate and future health status of newborn. Globally the low birth weight infant is a significant public health problem associated with short and long term consequences. It is estimated that 15% to 20% of all births worldwide are of low birth weight, representing more than 20 million births in a year.²

In 2013, nearly 22 million newborns—an estimated 16 per cent of all babies born globally that year—had low birth weight. Accurate monitoring is a challenging task. However, nearly half of the world's infants are not weighed at birth.³ out of, some 15 million babies born worldwide, more than one in 10 births, are born too early, according to the just released report⁴

Low birth weight infants are more vulnerable to hypothermia. They are lethargic, suck poorly and are prone to morbidity.⁵ With low cost intervention such as focus on prevention of hypothermia, maintaining good hygiene, breast feeding, early recognition and management of illness during the first golden weeks of life, could reduce deaths among LBW.⁶ Lack of mothers knowledge regarding care of their tiny babies can harm them and increasing risk of morbidity and mortality, therefore high risk LBW babies need to be recognised early and be given the appropriate care to enhance their survival.⁷

WHO (2009) focused on the importance of care for LBW infants, including feeding, Kangaroo Mother Care, hygiene, cord and skin care, early detection and treatment of infection and complication can remarkably reduce mortality of LBW infants.⁸

Background :

The World Health Organization defined the term "Low birth weight" as birth weight less than 2500 kilograms. It defines as the weight of an infant at birth less than 2.5 kilograms irrespective of gestational age of infant.⁹ This special group require extra care and positive interaction (Mother-Infant interaction) to minimize the risk of developmental delay and enhance their survival. WHO strongly supports that at every birth, skilled care is the foundation for preterm babies. Studies shows that morbidity and mortality among LBW depends on recognition of LBW, appropriate home care and facility for the LBW newborns, surveillance for infections.¹⁰ During the first years of children, effective intervention can cushion them from the negative effects of preterm birth. The most common types of interventions for low birth weight infants are parent-based interventions and their early education programs.¹¹

It has been generally seen that almost about half of high risk new borns, particularly the preterm and small for date babies, on their discharge from neonatal intensive care (NICU) facilities and special care neonatal nurseries(SNCU) die out in the community during their infancy in our country. It is worthwhile to know the status on a continuous follow up on home care.

Parent-based interventions are effective strategies to increase the response and warmth, which promote child development and well-being. In one broadly studied program, the mothers who were participating in the study received 10 home visits from the trained facilitators for their children who were in their first year of course. The study was intended to counsel mothers about positive parenting behaviours; increase awareness of their baby's needs, and help them incorporate effective strategies into their daily routines. It was concluded that the program increased their responsiveness and sensitised caregivers, which in turn improved the infant's social and cognitive outcomes, especially among the very low birth weight babies.¹¹ Another study conducted to assess knowledge of low birth weight baby care among postnatal mothers in Zimbabwe revealed that all the postnatal mothers had inadequate knowledge regarding low birth weight babies.¹² A similar study conducted in Karnataka pointed out lack of mothers knowledge regarding prevention of hypothermia among newborns.¹³

Therefore current study aimed to assess the knowledge of postnatal mothers related to low birth weight care and to evaluate educational programme to empower the mothers to deliver quality care which helps in reducing mortality and morbidity among LBW infants. In the locality while ascertaining the fate of NICU/SNCU graduates of their discharge from a tertiary care teaching hospital for mother and child at Kalamboli. Maharashtra.

RESEARCH METHODOLOGY:

2.1 study design, setting and sample size

The research approach in this study adopted is Quantitative pre-experimental research approach with pre-test- post-test group design. Samples of 50 postnatal mothers were selected. Purposive sampling technique was used to select the participants by obtaining formal written consent from these mothers

The inclusion criteria were set to select the postnatal mothers who had Low Birth Weight infants and willing to participate in the study. The exclusion criteria were postnatal mother whose LBW infants were admitted with congenital anomaly or has any kind of medical or surgical problems and those who were critically ill. Permission from administrative authority was obtained to conduct the study at selected postnatal wards. Prior approval of the institutional Ethics Committee of MGMIHS, NaviMumbai was obtained.

2.2 Data Collection, Measurement

Data consisted of two sections. Section-I was on Socio-demographic variables like; age, education, occupation of the mother, type of delivery, type of family, family income, total number of children. Section-II consisted of structured knowledge Questionnaire which has 46 multiple choice questions and each of having only one correct answer and three distracters. Section-III consisted of 34 items structured questionnaire on self reported practices based on likert scale.

The tool was validated by the tool validation committee of MGMIHS, and other experts from nursing, PSM department, Paediatricians. Content validity of tools was established. Tool was translated by language experts in Hindi and Marathi. The reliability of the tool was computed for structured questionnaire by applying split half method, using Karl Pearson's product moment correlation formula. The reliability coefficient was found to be reliable (0.86). The teaching content developed for Care of Low birth weight infants was based on review of research publications, literature reviews, discussions with experts and personal experience of the investigator. The content outline of the teaching plan included general information of low birth weight infant, prevention of infection, immunization, thermoregulation; kangaroo mother care, breast feeding, and complementary feeding of low birth weight infants. Teaching plan was also translated by language experts in Hindi and Marathi.

Data collection was done from first day onwards; starting with a pre-test conducted. Each participant was administered the knowledge and self reported practices questionnaire. The average time was given to fill the questionnaire on care of low birth weight infants. Thereafter group of two to three mothers were given teaching with practical demonstration of kangaroo mother care and feeding practices. Post test was administered after fifteen days for the same participants and the same training was reinforced. The descriptive statistics i.e. frequency, percentage were used to show socio-demographic characteristics. Chi- square was applied to analyse the association between knowledge and selected demographic variables. Item wise analysis for practices was done using Wilcoxon sign rank test at $p < 0.005$.

3.0 Results

3.1 Socio demographic variables

Table-1. Socio-demographic Variables

N=50

Sr.No	Demographic Variables	Frequency	Percentage%
1.	Age of the Mother(yrs)		
	<=20	14	28
	21-25	18	36
	26-30	13	26
	>31	05	10
2.	Mother's Education		
	illiterate	05	10
	primary school	04	8
	secondary school	33	66
	higher secondary school	04	8
	graduate and above	04	8
3.	Mother's Occupation		
	service	00	0
	house wife	50	100
4.	Type of delivery		
	LSCS	15	30
	Vaginal delivery	35	70
5.	Type of family		
	Joint	16	32
	Nuclear	34	68
6.	Monthly family income		
	5001-10000	24	48
	10001-15000	17	34
	15001- 20000	04	8
	20001-25000	03	6
	>25001	02	4
7.	Total no. of children		
	One	27	54

	Two	19	38
	Three	2	4
	>Three	2	4

Data presented in the Table 1 shows the socio- demographic characteristics of the participants. Overall 50 postnatal mothers were selected. Finding reveals that majority

(36%) mothers were between the age group of 21-25years of age, (10%) were >31years of age. Related to educational background of mothers, most of the mother (66%) had secondary school education and 10%) mothers were illiterate.

All the mothers (100%) were house wife. Majority of the mothers (70%) had normal vaginal delivery whereas (30%) had caesarean section. Most of the mothers (68%) belong to the nuclear family and (32%) mothers belong to joint family. Out of 50, (48%) mothers had a monthly income between Rs.5001-10000, And (34%) mother had income of Rs.10,001-15000, (8%) had monthly income of Rs. 15,001-20,000 . out of 50 mothers (54%) had one child, 38% had two children and only (4%) had more than three children.

3.2 Knowledge score of postnatal mothers.

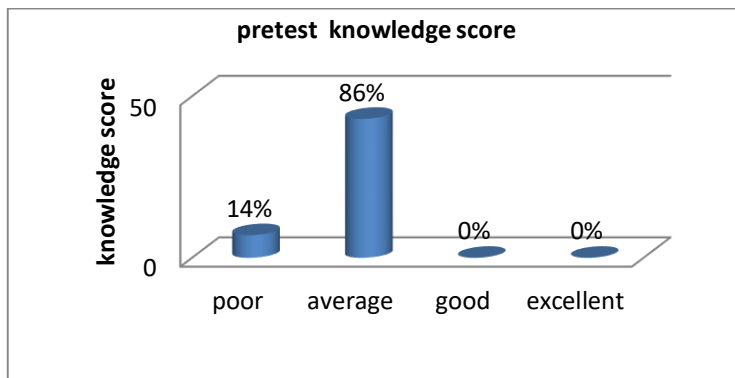


Figure 1 Pre test Knowledge score of postnatal mothers.

When considering the area of knowledge Figure 1 reveals that in pre-test majority (14%) mothers had poor knowledge on care of low birth weight infants, (86%) mothers had average knowledge, and no one had good/ excellent knowledge score. As per results the mothers had inadequate knowledge regarding care of low birth weight infants including prevention of infection, thermoregulation, kangaroo mother care and feeding.

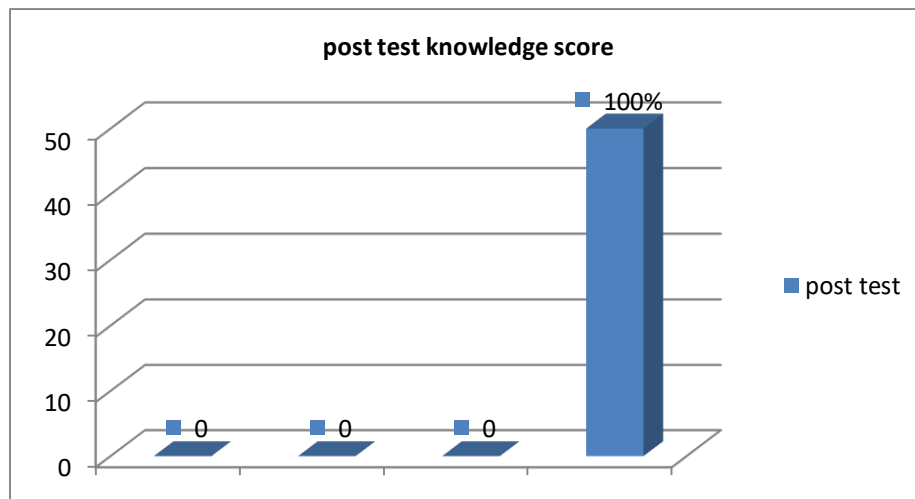


Figure 2 Post test knowledge score of Postnatal mothers

Fig 2 depicts that after teaching session, in the post-test (100%) postnatal mothers had increased in knowledge score to excellent.

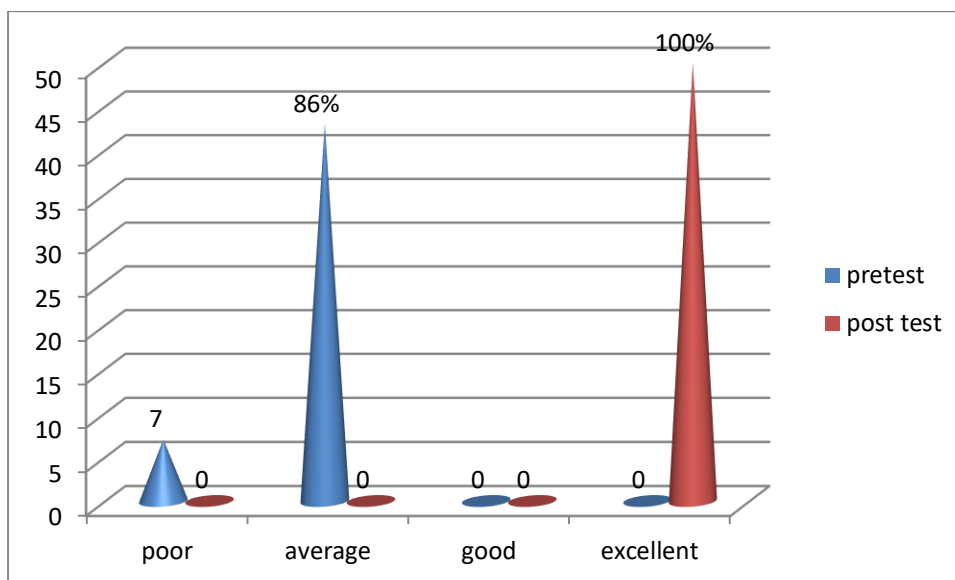


Figure- 3. Comparison of Pre-test and Post-test knowledge score of postnatal mothers

3.3 Effectiveness of the structured teaching programme regarding care of low birth weight infants among postnatal mothers.

Table 2 Mean, Mean Difference, S.D and t value of Pre-test and Post-test knowledge score

N=50

Paired Samples Statistics					
		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	Pre test knowledge	13.90	50	2.837	0.401
	Post test knowledge score	43.50	50	1.446	0.205

N=50

Paired Sample Test									
		Paired Differences				t	df	Sig(2-tailed)	
		Mean	Std. Deviation	Std. Error Mean	95% Confidence interval of the difference				
Pair 1	Pretest Knowledge - Post Test Knowledge Score	-29.600	1.539	0.218	Lower	Upper			
					-30.037	-29.163	136.033	49	0.000 HS

P<0.05* p<0.01** p<0.001*** HS – Highly significant

According to the study findings Table 2 depicts that the mean post-test knowledge score (43.5) is apparently higher than the mean pre-test knowledge score (13.9). The mean difference (-29.6), S.D is (+_ 1.539) and ‘t’ value shows a highly significant improvement in the knowledge score, thus the structured teaching programme was effective in improving knowledge of postnatal mothers.

4.4 Reported practices scores of Post Natal Mothers.

Self reported questionnaire of 34 items based on 3 point likert scale was developed to assess practices of home care management of low birth weight infants. Item wise analysis is done by applying Wilcoxon sign rank test. Table-3 depicts that the median of differences between pre-test and post-test practices scores after intervention at the level of p=0.00, hence null hypotheses is rejected and research hypotheses is accepted.

Table- 3Pre-test and Post-test self reported practices score

N=50

	posttest Q1 - pretest Q1	posttest Q2 - pretest Q2	posttest Q3 - pretest Q3	posttest Q4 - pretest Q4	posttest Q5 - pretest Q5	posttest Q6 - pretest Q6	posttest Q7 - pretest Q7	posttest Q8 - pretest Q8	posttest Q9 - pretest Q9	posttest Q10 - pretest Q10	posttest Q11 - pretest Q11	posttest Q12 - pretest Q12
Z	-5.745 ^b	-4.564 ^b	-5.962 ^b	-6.500 ^b	-5.648 ^b	-5.841 ^b	-4.642 ^b	-4.359 ^c	-6.329 ^b	-6.223 ^b	-4.419 ^c	-4.583 ^b
Asymp. Sig. (2-tailed)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

posttestQ13 – pretestQ13	posttestQ14 – pretestQ14	posttestQ15 – pretestQ15	posttestQ16 – pretestQ16	posttestQ17 – pretestQ17	posttestQ18 – pretestQ18	posttestQ19 – pretestQ19	posttestQ20 – pretestQ20	posttestQ21 – pretestQ21	posttestQ22 – pretestQ22	posttestQ23 – pretestQ23	posttestQ24 – pretestQ24	posttestQ25 – pretestQ25
-1.732 ^c	-5.072 ^b	-5.964 ^b	-3.667 ^b	-3.873 ^b	-3.162 ^b	-3.470 ^b	-5.894 ^b	-6.132 ^b	-6.799 ^b	-6.398 ^b	-6.289 ^b	-4.914 ^b
0.083	0.000	0.000	0.000	0.000	0.002	0.001	0.000	0.000	0.000	0.000	0.000	0.000

posttestQ26 – pretestQ26	posttestQ27 – pretestQ27	posttestQ28 – pretestQ28	posttestQ29 – pretestQ29	posttestQ30 – pretestQ30	posttestQ31 – pretestQ31	posttestQ32 – pretestQ32	posttestQ33 – pretestQ33	posttestQ34 – pretestQ34
-5.811 ^b	-4.400 ^b	-5.292 ^c	-.943 ^b	-6.058 ^b	-5.069 ^b	-4.613 ^c	-6.019 ^b	-6.092 ^b
0.000	0.000	0.000	0.346	0.000	0.000	0.000	0.000	0.000

4.4 Association between Socio- Demographic variables and pre test knowledge score of postnatal mothers.

Table 4 Association between Socio-Demographic variable and pre test knowledge score of postnatal mothers.

N=50

Sr. No	Selected demographic variables	Pre test knowledge score			df	X ²
		Poor	Average	Good		
1.	Age of the Mother					
	<=20	7	7	0		
	21-25	0	18	0	6	0.000**
	26-30	0	13	0		
	>31	0	4	1		
2.	Mother’s Education					
	Illiterate	0	4	1		
	primary school	4	10	0		
	secondary school	3	20	0	10	0.817
	higher secondary school	0	4	0		
	graduate and above	0	4	0		
3.	Type of delivery					
	LSCS	3	12	0	2	0.342
	Vaginal delivery	4	30	1		
4.	Monthly family income					
	5001-10000	3	21	0		
	10001-15000	2	14	1	8	0.745
	15001- 20000	1	3	0		
	20001-25000	1	2	0		
	>25001	0	2	0		
5.	Total no. of children					
	One	7	20	0		
	Two	0	19	0	6	0.001**
	Three	0	2	0		
	More than three	0	1	0		

**=significant

The computed chi- square value in table-4 shows that there is no significant association between pre-test knowledge score and demographic variables(mother’s education, occupation of the mother, type of delivery, and type of family) at p<0.05, but shown a significant association between pre-test knowledge score and Age of the mother and Total no.of children at p<0.05.

DISCUSSION:

Parents and caregivers need to have sufficient knowledge to care for low birth infant. Parental education promotes warmth, bonding and attachment with low birth weight infant also helps to increases responsiveness in providing care.

The study findings shows high prevalence of low birth weight babies born to mothers between age group of 21-25 yrs and was found to be highly significant as well as mothers having secondary level education. Similar study findings were supported by the study conducted by Koirala A K etal in Nepal.¹⁴ Though the level of education plays important role in caring their infants, in this study the mothers were from rural community they were not aware of low birth weight babies and lack in knowledge regarding prevention of

infection, kangaroo mother care, importance of providing warmth to baby, feeding practices. Similar findings were supported by the study conducted by Nabiwemba E et al¹⁵ in this study the mothers scored poor to average score in pre-test knowledge score and one mother scored good knowledge score. Hence the Post Test mean score 43.50 is higher than 13.90 in the Pre Test mean score.

In this study pre test and post test knowledge score shows high significant difference at $p < 0.05$ level. Similar findings were matched with study conducted by Sheoran P et al Ambala¹⁶, where increase in the knowledge score was found to be significant at $p < 0.05$ level. This study showed strong association between pre test knowledge with age of the mother and total number of children in the family. Whereas the association between knowledge score and demographic variables like mother's education, mother's occupation/ employment status, mode of delivery, family income, and type of family were not significant these findings were similar to the literature.¹⁶

The present study results highlighted the effectiveness of structured teaching programme, which helped the mothers and care givers to improve their knowledge in care of low birth weight babies. It was seen that there was an increase in knowledge level of mother's after demonstration on hand hygiene and kangaroo mother care and feeding practices. It was observed that the mothers learned the steps of kangaroo mother care and feeding technique for their babies. Therefore the structured programme was found to be effective in improving postnatal maternal knowledge. Same findings were found to be consistent with the study conducted by Batra K et al¹⁷ where the structure programme on kangaroo mother care was found to be effective among staff nurses. Also similarly study conducted by Maurya A shows significant improvement in knowledge regarding risk factors related to low birth weight babies among antenatal mothers after planned teaching programme.¹⁸

It is undoubtedly concludes that the planned teaching by the investigator facilitated the mothers to improve their knowledge on care of low birth weight infants.

IMPLICATIONS:

Low birth weight infants are physiologically handicapped, they are immature, they need special attention and care. Health of these tiny babies depends on health care provider. We as a health care provider can create a difference. Considering this health care provider need to impart knowledge and educate mothers about importance of care of Low birth weight infants. As nurse administrators we can educate mothers during hospitalization, ANC visits and at the time of discharge, as well as we can our service through home visits by community nurse. The nurse administrators can conduct workshops for staff nurses who are in direct contacts of mothers while working in ANC, PNC, NICU department. Health education in the form of Role plays can be conducted in the community at primary health centre to create awareness regarding care of low birth weight infants.

CONCLUSION:

The present study identified the level of knowledge and practices among mothers who had low birth weight babies and was found to be inadequate. After imparting knowledge through structured teaching programme and demonstration there was an improvement in the knowledge level as well increase in interest of the mothers through practices in caring their own babies thus safeguarding the future generation.

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