

Research Article

Effectiveness of Planned Teaching Program on Knowledge of Postnatal Mothers Regarding Care of Low Birth Weight Newborns in JK Lon Hospital, Kota (Rajasthan)

Mukesh Kumar Meena¹, Ravikant Sharma²

¹Department of Nursing, Southern Railway Headquarter Hospital, Chennai, Tamil Nadu, India, ²Department of Medical Surgical Nursing, Saraswati College of Nursing, Udaipur, Rajasthan, India

ABSTRACT

Background and Aim: The birth weight of an infant is the single most important determinant of its chances of survival, healthy growth, and development. One of the factors contributing to infant mortality is low birth weight (LBW). **Aim:** The aim of this study was to evaluate the effectiveness of planned teaching program on the care of LBW newborns among postnatal mothers of LBW newborns. **Materials and Methods:** An evaluative research approach with pre-experimental design was used for the study. The study was conducted at JK Lon Hospital, Kota. The sample comprised 60 postnatal mothers of LBW newborns. Sample was selected using non-probability convenient sampling technique. Data were collected using a structured knowledge questioner. Data were analyzed using descriptive and inferential statistics. **Results:** The results of this study showed that the mean post-test knowledge score (87.62) also was higher than the mean pre-test knowledge score (48.67). The comparison of pre-test and post-test knowledge score showed that there was a significant gain in knowledge scores of mothers after PTP at 0.05 level (t -value = 16.994, $P < 0.05$). **Interpretation and Conclusion:** The findings of the study concluded that the planned teaching program on care of LBW newborns was highly effective in improving the knowledge of postnatal mothers regarding care of LBW newborns.

Keywords: Assess, Care, Effectiveness, Low birth weight newborns, Planned Teaching Program

Address for Correspondence: Mr. Ravikant Sharma, Department of Medical Surgical Nursing, Saraswati College of Nursing, Udaipur - 313 001, Rajasthan, India. Mobile: +91-8005868616. E-mail: rvkntsharma03@gmail.com

Introduction

The WHO has defined the term “low birth weight” as birth weight <2500 g. As per the definition, babies with birth weight of <2500 g are classified as low birth weight (LBW) irrespective of the duration of the gestational period.^[1-3]

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LBW newborn has 2–3 times increased risk of mortality due to infection compared to normal birth weight newborn. The common problems associated with premature babies are hypothermia respiratory distress syndrome, difficulty in feeding because of weakness, more susceptible to infection, and greater likelihood of contracting jaundice. Majority of the problems associated with LBW newborn can be prevented by providing education to the mother's regarding the identification of problems associated with LBW and care of LBW newborn.^[1,4,5] In India, about 48.1% of newborn are born with LBW. Over 80% of neonatal deaths and 50% of infant deaths occur among LBW newborn. Hence, it is important to educate the mother about the problem and how to manage the newborn with such problems.^[6] In parental education, particularly the mothers are strongly responsible to improve the health care of newborns. Education enables the mother to acquire greater knowledge and better newborn

care practices. Health education inputs for mother should be, therefore, strengthened. Even today, the mortality and morbidity in LBW newborns are high and it is mainly due to the causes that can be prevented.^[1,2,3,5,7]

Objectives of the study

The objectives of the study were as follows:

1. To assess the level of knowledge of postnatal mothers regarding care of LBW newborns
2. To assess the effectiveness of planned teaching program on care of LBW newborns
3. To find out the association between post-test knowledge score and selected sociodemographic variables.

Hypotheses

- H₁ – The mean post-test knowledge score of postnatal mothers on care of LBW newborns will be significantly higher than their mean pre-test knowledge score.
- H₂ – There will be significant association between pre-test knowledge score of postnatal mothers regarding the care of LBW newborn and sociodemographic variables.

Materials and Methods

Research approach

Evaluative approach.

Research design

One group pre-test, post-test design.

Setting of the study

JK Lon Hospital, Kota (Raj.).

Description of tools

Tools are divided into two parts.

- a) Demographic data: Which include age, education, religion, type of family, area of residence, occupation, and family income per month?
- b) The structured knowledge questionnaire: It consists 24 multiple-choice questions to assess the knowledge before and after administering the planned teaching program. The questions are further divided into three parts.
 - Part A – Basic facts about LBW newborns – 4 questions
 - Part B – Physiological alteration in LBW newborns – 7 questions
 - Part C – Management of LBW newborns – 13 questions.

Scoring key

It was prepared coding for section “A,” which consists of demographic variable and for section “B,” 1 mark was given for correct answer and 0 for incorrect answer. Thus, a total of 24 marks were allotted under knowledge.

To interpret the level of knowledge, the score is distributed as

- Inadequate knowledge $\leq 50\%$
- Moderately adequate knowledge 51–75%
- Adequate knowledge $> 75\%$.

Population of the study

Postnatal mothers of LBW newborns, from JK Lon Hospital, Kota (Raj.).

Sample size

The sample size consists of 60 postnatal mothers of LBW newborns in JK Lon Hospital, Kota (Raj.).

Sampling technique

Non-probability convenient sampling technique.

Procedure for data collection

The study is carried out during August 24, 2017–September 23, 2017, with 60 postnatal mothers selected by non-probability convenient sampling technique.

Reliability of tools

The reliability of the split test was found using Spearman–Brown’s prophecy formula and the reliability of the test was found to be 0.89.

Statistics

Descriptive statistics

1. Frequency and percentage distribution are used to analyze the demographic data and level of knowledge of postnatal mothers
2. Mean, mean percentage, and standard deviation are used to assess the level of knowledge of postnatal mothers.

Inferential statistics

1. Paired *t*-test to assess the effectiveness of planned teaching program on knowledge regarding care of LBW newborns
2. Chi-square test to study the association between post-test knowledge and selected demographic variables of postnatal mothers.

Results

The data were entered into master sheet for tabulation and statistical processing the obtained data were analyzed, organized, and presented under the following headings:

Section-I: Description of demographic variables of the samples.

Section-II: Pre-test level of knowledge of postnatal mothers regarding care of LBW newborns.

Section-III: Post-test level of knowledge of postnatal mothers regarding care of LBW newborns.

Section-IV: Effectiveness of planned teaching program on care of LBW newborns.

Section V: Association of post-test level of knowledge with selected demographic variables.

Section I - Description of demographic variables of the samples

This section deals with analysis of the distribution of samples according to frequency and percentage.

Interpretation

Data presented in Table 1 show out of 60 samples, regarding the age of majority of samples 35% belongs to the age group of 26–29 years, 20 (33.3%) were belong from secondary/senior secondary, 31 (51.7) were belong Hindu, 36 (60%) of them were belong to joint family, 33 (55.0%) of them were belong to rural area, 19 (31.7%) were belong to laborer, family income per month wise distribution of postnatal mothers, and that 22 (36.7%) were belong to BPL.

Section II - Pre-test level of knowledge of postnatal mothers regarding care of LBW newborn

This section deals with percentage distribution, mean and standard deviation of overall knowledge levels, and in specific areas regarding care of LBW newborns in pre-test.

Interpretation

Table 2 depicts area-wise mean, mean percentage, and overall score in pre-test knowledge scores of postnatal mothers comprising basic facts about LBW maximum score of 4 and mean score, mean percentage, and standard deviation were consequently 2.50, 62.50%, and 0.97. Physiological alteration in a LBW newborn maximum score was 7, mean score, mean percentage, and standard deviation were consequently 2.77, 39.57%, and 1.65. Management of LBW newborns maximum score was 13, mean score, mean percentage, and standard deviation were consequently 6.42, 49.23%, and 2.77. Finally, overall maximum score was of 24 and overall mean score, mean percentage, and standard deviation were 11.68, 48.67%, and 3.06, consequently.

Table 1: Frequency and percentage distribution of samples based on their demographic variables. $n=60$

Sample	Frequency	Percentage
Age (years)		
18–21	16	26.7
22–25	8	13.3
26–29	21	35.0
30 and above	15	25.0
Education		
Illiterate	13	21.7
Primary school	7	11.7
Secondary/senior secondary	20	33.3
Graduation	13	21.7
Others (PG/diploma)	7	11.7
Religion		
Hindu	31	51.7
Christian	4	6.7
Muslim	22	36.7
Other	3	5.0
Type of family		
Joint	24	40.00
Nuclear	36	60..
Area of residence-		
Urban	27	45.00
Rural	33	55.00
Occupation		
Government/private	16	26.7
Housewife	17	28.3
Self-business	8	13.3
Laborer	19	31.7
Family income per month		
BPL	22	36.7
Up to 10,000 pm	18	30.0
10,000–30,000 pm	15	25.0
30,000 pm and above	5	8.3

Table 2: Area-wise mean, mean percentage, and standard deviation of knowledge variables of postnatal mothers in pre-test. $n=60$

Knowledge variable/area	Maximum score	Mean	Mean percentage (%)	Standard deviation
Basic facts about LBW	4	2.50	62.50	0.97
Physiological alteration in a low birth weight newborn	7	2.77	39.57	1.65
Management of low birth weight newborns	13	6.42	49.23	2.77
	24	11.68	48.67	3.06

Interpretation

Data presented in Table 3 reveal that pre-test level of knowledge of postnatal mothers regarding care of LBW

newborns, 31 (51.7%) had inadequate knowledge score, 14 (23.3%) had moderately adequate knowledge score, and 15 (25.0%) postnatal mothers had adequate knowledge score regarding care of LBW newborns.

Section III - Post-test level of knowledge of postnatal mothers regarding care of LBW newborn

This section deals with percentage distribution, mean and standard deviation of overall knowledge levels, and in specific areas regarding care of LBW newborns among postnatal mothers in post-test.

Interpretation

Table 4 depicts area-wise mean, mean percentage, and overall score in post-test knowledge scores of postnatal mothers comprising basic facts about LBW maximum score of 4 and mean score, mean percentage, and standard deviation were consequently 3.62, 90.50%, and .715. Physiological alteration in a LBW newborn maximum score was 7, mean score, mean percentage, and standard deviation were consequently 6.52, 93.14%, and .770. Management of LBW newborns maximum score was 13, mean score, mean percentage, and standard deviation were consequently 10.90, 83.84%, and 2.66. Finally, overall maximum score was of 24 and overall mean score, mean percentage, and standard deviation were 21.03, 87.62%, and 3.19, consequently.

Interpretation

In Table 5, post-group of postnatal mothers regarding care of LBW newborns 20 (33.3%) had inadequate knowledge score, 12 (20.0%) had moderately adequate knowledge score, and 28 (46.70%) postnatal mothers had adequate knowledge score regarding care of LBW newborns.

Section IV - Effectiveness of planned teaching program among postnatal mothers regarding care of LBW newborns by comparing the pre-test and post-test assessment score

This section presents the findings on mean, standard deviation, and paired “*t*” value for the mean difference between the pre- and post-test assessment knowledge score regarding care of LBW newborns.

Interpretation

Table 6 describes that overall findings revealed that the mean percentage of post-test knowledge score was more compared to the mean percentage of the pre-test knowledge scores. The effectiveness of planned teaching program was observed in all the areas suggesting that it was effective in

Table 3: Pre-test knowledge. *n*=60

Knowledge score (%)	Grade	Frequency	Percentage
≤50	Inadequate knowledge	31	51.7
51–75	Moderately adequate knowledge	14	23.3
>75	Adequate knowledge	15	25.0
		60	100

Table 4: Area-wise mean, mean percentage, and standard deviation of knowledge variables of postnatal mothers in post-test. *n*=60

Knowledge variable/area	Maximum score	Mean	Mean percentage	Standard deviation
Basic facts about LBW	4	3.62	90.50	0.715
Physiological alteration in a low birth weight newborn	7	6.52	93.14	0.770
Management of low birth weight newborns	13	10.90	83.84	2.66
	24	21.03	87.62	3.19

Table 5: Post-test. *n*=60

Knowledge score (%)	Grade	Frequency	Percentage
≤50	Inadequate knowledge	20	33.3
51–75	Moderately adequate knowledge	12	20.0
>75	Adequate knowledge	28	46.7
		60	100.0

increasing the knowledge of the postnatal mothers regarding care of LBW newborns.

Interpretation

Table 7 shows the comparison of knowledge score physiological need of patients receiving radiation therapy before and after intervention. The mean score about basic facts about LBW was 1.12, mean percent 28.00, and S.D. 0.255 with paired “*t*” value of 7.329. Physiological alteration in a LBW newborn the mean score was 3.75, mean percent 53.57, and SD 0.88, with the paired “*t*” value of 15.728. Management of LBW newborns the mean score was 4.48, mean percent 34.61, and S.D 0.11 with paired “*t*” value of 9.990. The overall mean score was 9.35, mean percent 38.98, and S.D 0.13 with the paired “*t*” value of 16.994. Thus, it was revealed that the post-test mean score was significantly higher than the pre-test mean score. The table value of paired “*t*” test at 0.05 level of significance and 59 degrees of freedom is 1.98. Hence, the table value was less than the calculated “*t*” value, the investigator rejected the null hypothesis.

Table 6: Area-wise effectiveness of planned teaching program by comparing the pre-test and post-test assessment score. $n=60$

Remarks	Max	Pre			Post			Effectiveness (Y-X)		
		Mean	S.D	Mean%	Mean	S.D	Mean%	Mean	S.D	Mean%
Basic facts about LBW	4	2.50	0.97	62.50	3.62	0.715	90.50	1.12	0.255	28.00
Physiological alteration in a low birth weight newborn	7	2.77	1.65	39.57	6.52	.770	93.14	3.75	0.88	53.57
Management of low birth weight newborns	13	6.42	2.77	49.23	10.90	2.66	83.84	4.48	0.11	34.61
Total	24	11.68	3.06	48.67	21.03	3.19	87.62	9.35	0.13	38.98

Table 7: Area-wise difference between pre-test and post-test knowledge scores of postnatal mothers. $n=60$

Knowledge variable	Mean	Mean percent	Standard deviation	Paired “t” value
Basic facts about LBW	1.12	28.00	0.255	7.329*
Physiological alteration in a low birth weight newborn	3.75	53.57	0.88	15.728*
Management of low birth weight newborns	4.48	34.61	0.11	9.990*
Overall knowledge	9.35	38.98	0.13	16.994*

df=59, * $P < 0.05$ level of significant

Section V - Association of post-test level of knowledge with selected demographic variables

This section deals with data analysis and interpretation of the association between knowledge of postnatal mothers regarding care of LBW newborns with sociodemographic variables using Chi-square value.

Interpretation

The data presented in Table 8, depicted that computed Chi-square values between knowledge of postnatal mothers regarding care of LBW newborns in selected sociodemographic variables, that is, age, education, religion, type of family, area of residence, occupation, and family income per month are found not significantly.

Discussion and Conclusions

The first objective was to assess the level of knowledge of postnatal mothers regarding care of LBW newborns

The overall knowledge of postnatal mothers reveals that 51.7% of subjects had inadequate knowledge. The mean score obtained for overall knowledge score was 48.67%, which shows that the subjects had inadequate knowledge on care of LBW newborns.

Ms. Ramya (2015) Nellore, India, conducted study on assess the knowledge of mothers regarding care of LBW babies. Twelve (40%) mothers had average knowledge, 16 (53.3%) mothers had inadequate knowledge, and 2 (6.7%) of mothers had adequate knowledge regarding care of LBW babies.^[8]

The second objective was to assess the effectiveness of planned teaching program on care of LBW newborns

The comparison of pre-test and post-test knowledge on care of LBW newborns among postnatal mothers reveals that the

overall improvement mean score was 38.98% with standard deviation of 0.13. The paired “t” test value was 16.994 which is highly significant at $P < 0.05$. Hence, the hypothesis H_1 that there is no significant difference in pre-test and post-test knowledge among postnatal mothers were rejected. This indicates that the planned teaching program was effective as there was a significant gain in knowledge score.

Komal *et al.* (2017), Moga, Punjab, India, conducted a study to assess the effectiveness of STP on knowledge of postnatal mothers regarding kangaroo mother care. In pre-test, majority of postnatal mothers (80%) had average knowledge and 20% of had below average knowledge regarding kangaroo mother care. After STP in post-test, majority of postnatal mothers (95%) had good knowledge and 5% of had average knowledge regarding kangaroo mother care.^[9] Patil *et al.* (2016), Karad, Maharashtra, India, conducted a study to assess the effectiveness of planned health education for motherhood in primigravida women. Pre-test mean 9.96 and SD 2.75 and post-test mean 17.64 and SD 2.49 $P < 0.0001$ and $t = 14.605$ show that there is a significant rise in knowledge after the intervention. Calculated values showed that there is no any significant association between pre-test knowledge of postnatal mothers and sociodemographic variables.^[10]

The third objective was to study the association between post-test knowledge score and selected demographic variables

The analysis was done to find the association between of post-test level of knowledge and selected demographic variables. The variables such as age, education, religion, type of family, area of residence, occupation, and family income per month, to topic do not show any significant association. As computed Chi-square value was lesser than the table value at $P > 0.05$, the hypothesis H_2 that is no significant association between the post-test level of knowledge with selected demographic variables was accepted.

Table 8: Association between knowledge of postnatal mothers with their post-test knowledge score regarding care of low birth weight newborns in with sociodemographic variables. $n=60$

Samples	Frequency	Knowledge score			D.F	χ^2	Table value
		Poor	Average	Good			
Age (years)					6	5.652 ^a	NS
18-21	16	7	3	6			12.59
22-25	8	1	1	6			
26-29	21	9	4	8			
30 and above	15	3	4	8			
Education					8	10.128	NS
Illiterate	13	5	2	6			15.51
Primary school	7	0	1	6			
Secondary /senior secondary	20	6	5	9			
Graduation	13	4	3	6			
Others (PG/diploma)	7	5	1	1			
Religion					6	1.399	NS
Hindu	31	11	7	13			12.59
Christian	4	1	1	2			
Muslim	22	7	4	11			
Other	3	1	0	2			
Type of family					2	1.329	NS
Joint	24	6	5	13			5.99
Nuclear	36	14	7	15			
Area of residence					2	2.173 ^a	NS
Urban	27	9	6	12			5.99
Rural	33	11	6	16			
Occupation					6	4.551	NS
Government/private	16	5	5	6			12.59
Housewife	17	4	2	11			
Self-business	8	3	2	3			
Laborer	19	8	3	8			
Family income per month					6	2.304	NS
BPL	22	6	6	10			12.59
Up to 10,000 pm	18	6	2	10			
10,000–30,000 pm	15	6	3	6			
30,000 pm and above	5	2	1	2			

Sig: Significant, NS: Non-significant. *Level of significance at $P>0.05$

The following conclusion was made from the following finding of the study. When the sample was taken for study, the sample has less knowledge regarding care of LBW newborns. The planned teaching program regarding care of LBW newborns was found to be effective in increasing the knowledge of postnatal mothers. The sample had significant gain in knowledge after the planned teaching program.

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References

1. Ghai OP, Paul VK, Bagga A. Essential Pediatrics. 9th ed. Nepal: CBS Publishers and Distributors; 2018.
2. Datta P. Pediatric Nursing. 4th ed. New Delhi: Jaypee Brothers Medical Publishers; 2017.
3. Dutta DC. Textbook of Obstetrics. 9th ed. New Delhi: Jaypee Brothers Medical Publishers; 2017.
4. Sarkar S. Textbook of Pediatric Nursing. 1st ed. New Delhi: Jaypee Brothers Medical Publishers; 2018.
5. Hockenberry MJ, Wilson D. Wong's Essential Pediatrics Nursing. 2nd ed. Netherland: Elsevier Publication; 2018.
6. Mortality by Birth Weight. Sick India Pediatrics 2010-13. Office of the Registrar General and Census Commissioner, India. Available from: https://www.censusindia.gov.in/vital_statistics/causesofdeath.html. [Last accessed on 2020 Aug 30].

7. Premature Babies India Parenting. Available from: http://www.indiaparenting.com/articles/data/art06_003.shtml.
8. Ramya K. A study to assess the knowledge of mothers regarding care of low birth weight babies in Narayana Medical College Hospital, Nellore. NNJ 2015;4:29-32.
9. Komal, Latha P, Sharma U. Effectiveness of STP on knowledge of postnatal mothers regarding kangaroo mother care in selected hospital, Moga, Punjab. Int J Health Sci Res 2017;7:196-9.
10. Nitanjali VP, Vadana S, Vaishali RM, Joyti AS. A study to assess the effectiveness of information booklet on postnatal care among primigravida postnatal mother in Krishna Hospital Karad. Int J Res Adv Dev 2016; 5:176-80.