



## EFFECT OF PLANNED TEACHING ON KNOWLEDGE & PRACTICES OF MOTHERS REGARDING SELECTED ASPECTS OF LOW BIRTH WEIGHT BABY'S CARE & REINFORCEMENT OF THE SAME USING INSTRUCTIONAL VIDEO

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### ABSTRACT

A quasi experimental, quantitative, time series research design study was conducted from October to November 2008 in Bharati Hospital of Pune city to assess the effect of Planned Teaching on Knowledge & Practices of 30 mothers related to care of low birth weight (LBW) babies weighing less than 2.5 kg weight & reinforcement of the same using Instructional Video; selected through Non Probability Convenience Sampling technique. Bertalanfy's General system theory was adopted as conceptual framework. Reliability was determined by Cronbach's alpha using test retest method for the self structured questionnaire tool (0.89) and inter rater method for the observation checklist tool (0.84) which was found to be highly acceptable.

**RESULTS:** The major findings of the study indicated highly significant statistical difference between mean and Standard Deviation (SD) of Pre test and Post test Knowledge scores before and after the Planned Teaching and Instructional Video showing a mean difference of 8.2, 2.5, 10.7; Standard Deviation (SD) 3.6, 2.7, 4.0; computed "t" statistics 12.5, 5.0, 14.6 at p value < 0.05. Highly significant statistical difference between mean and SD of Pre test and Post test Practice scores related to Thermoregulation before and after the Planned Teaching and Instructional Video showed a mean difference of 2.7, 0.9, 3.6; SD of 1.2, 1.09, 0.93; computed "t" statistics 12.2, 4.5, 21.15 at p value < 0.05. Highly significant statistical difference between mean and SD of Pre test and Post test Practice scores related to Feeding before and after the Planned Teaching and Instructional Video showed a mean difference of 2.5, 0.7, 3.2; SD of 1.2, 1.0, 0.9; computed "t" statistics 11.3, 3.6, 18.9 at p value < 0.05. Thus the null hypothesis was rejected at 95% confidence level for the Knowledge and Practices scores of mothers regarding selected aspects of LBW baby's care. Highly significant association was found between the occupation of the mothers and the Practice scores of Feeding at p < 0.05 rejecting the null hypothesis.

**CONCLUSION:** The study concluded that interactive Planned Teaching was effective in increasing the Knowledge and Practices of the mothers related to selected aspects of LBW baby's care while reinforcement with Instructional Video further strengthened the said attributes by making retention easier and longer.

**KEYWORDS :** Effect, Instructional Video, Knowledge, Low birth weight, Planned Teaching, Practices, Reinforcement.

### INTRODUCTION

Birth weight is a powerful predictor of infant growth & survival. Infants born with a LBW begin life immediately disadvantaged & face poor survival rates. Approximately every 10 sec an infant from a developing country dies from a disease or infection that can be attributed to LBW.<sup>1</sup> Worldwide 25 millions LBW infants are born each year, the great majority (96%) of them in developing countries (WHO 1998).<sup>2</sup>

Low-birth-weight premature infants exhibit a broad range of health problems like hypothermia poor sucking swallowing & gag reflexes, impaired respiratory function & a high risk for acquiring infection due to poor immunity to fight the diseases.

### Background of the study:

Nearly one third of neonates in India are born with LBW weighing less than 2500 grams at birth (Deorari Ashok K et al 2008). The newborn can be LBW because he/she may be preterm being delivered before 37 completed weeks of gestation or due to IUGR or both.<sup>3</sup>

Pillitteri (1999) remarked that LBW newborns might have difficulty in maintaining normal body temperature due to inadequate brown fat stores and greater surface area in relation to their body weight.<sup>4</sup>

Singh, Harjit and Dhatt (1992) expressed that thermoregulatory mechanisms were often inadequate in newborns especially in LBW infants, predisposing them to develop hypothermia.<sup>4</sup> According to WHO (1993) one of the most critical factors in the survival of newborn babies is the satisfactory maintenance of body temperature.<sup>5</sup>

PSN Menon (1999) expressed that keeping warm by active metabolism of brown fat is necessary for LBW infants. Because of lack of adequate stores of brown fat, the LBW infants are vulnerable to become hypothermic at the usual ambient temperature unless

specific measures are taken to keep them warm.<sup>4</sup>

Many of LBW babies born in the home setting do not get optimum treatment and neither is weighed properly at birth. Mothers of LBW babies are scared and often hesitant to approach a health care facility at the times of neonatal illness possibly due to lack of social support & inadequate knowledge to take care of LBW babies.

The studies done by Jeffcoate, et al. (1979) revealed that the mothers expressed lack of confidence in their abilities to care for their premature LBW infants at home; and need more information about both child care and infant development.<sup>6</sup>

They also require reassurance and understanding, which cannot be given by friends or family members. They experience guilty feeling about their infants' early abilities and a greater need to talk to hospital staff than the parents of healthy, full term infants (Trause and Kramer, 1983).<sup>7</sup>

Mello DF, Rocha SMM, et al (2002) did a descriptive study on 11 Brazilian mothers' to describe their experiences of home care for their low birth weight (LBW) infants. The study identified that after hospital discharge, these mothers mainly worried about their infants' weight gain, breathing, and overall development, as well as breastfeeding, feeding.<sup>8</sup>

A research study by Pridham KF, Limbo R. et al (1998) on guided participation for supporting families in developing competencies for care of their low birth-weight infants, indicated how guided participation is best introduced to families of varying resources and life circumstances, how it is best implemented across settings as the infant moves from hospital to home, and how nurses can apply its principles with available resources and opportunities is needed.<sup>9</sup>

### Need of the study:

LBW continued to be a major health problem in India and the nation

has kept the goal to reduce the occurrence of LBW. It is only possible through good antenatal care. The birth of a LBW baby is an anxiety producing situation for the family especially for the mothers. The mothers need to acquire special knowledge on care of these tiny babies.

In developing countries 34.5 to 45 per cent of births are low birth weight babies contributed by pre-term, term and post-term (Dawn, 2001).<sup>10</sup> It is predicted that LBW newborns are almost 2.4 times likely to die during their first four weeks of life than normal birth weight newborns (Ghai, 2005).<sup>11</sup>

Thus, LBW newborns form a pediatric priority because they have less chances of survival than babies weighing over 2500 gram. Half of prenatal and 1/3<sup>rd</sup> of infant mortality are due to LBW. Its incidence in India is estimated to be 25% as compared to about 5-7% in some of the industrially advanced countries (Trivedi and Mavalankar, 1986).<sup>12</sup>

Hence to prevent the high incidences & prevalence of mortality & morbidity of LBW babies as revealed by the above statistical analysis, it is necessary to plan some fruitful interventions to take care of these tiny tots for their better life in future.

Keeping in view the above study being done it was found that the care of LBW poses a considerable challenge to the entire family especially to the newborns mother who is typically the primary caregiver. Nothing in this world can take the place of the mother. For an infant she is not only the source of warmth and nutrition but also provider of love and security. Mothers need to acquire knowledge in order to perform highly complex care taking skills that ensure survival of LBW newborns. Mothers expressed an increased need for re-assurance, understanding and support from health personnel (Censulo, 1986).<sup>13</sup>

As per the views of Dr. Armida Fernandes (2004) during the annual NNF Convention specified that there are two principles that could help selection of interventions for better LBW newborn care in a country like ours. The 1<sup>st</sup> is to "pick low lying fruit" i.e. interventions that are easily carried out and are cost effective. Ex. Breast feeding. The 2<sup>nd</sup> is to "borrow ladders" i.e. use interventions that have proven efficacy and perhaps "home based care" & KMC could be a ladder we could borrow. Hence parents must be educated how to take care of their LBW babies.<sup>14</sup>

As discharge of the LBW babies brings renewed crisis for parents, especially to mother. The stress of the LBW babies becomes compounded by the realization that, at home the mother must care for her LBW baby alone. The mother may feel over served while the infant was in the hospital and then feel abandoned after discharge; when the need for support and education may be most intense.

But not all mothers of LBW babies who have had a prolonged stay in the hospital are ready to take their babies home even when the infants have attained good weight and are declared medically fit. Therefore, it is important to assess whether the mother perceives herself ready to assume the responsibility for care before the infant is discharged (Haffie, 1990) as education enables mothers to acquire greater knowledge and learn better child care practices.<sup>15</sup>

Planned and structured discharge teaching related to care, has been found to increase parent's perceptions of their states of preparedness for infant discharge. Parents who have received planned, structured discharge teaching thought that they were more adequately prepared to perform the routine care (Brooten, et al. 1988).<sup>16</sup>

Mc Cormick (1993) conducted a study on early educational interventions for mothers of VLBW infants to examine the effect of early educational interventions after discharge from the hospital and on the health and developmental status of VLBW infants below 1500gms. 250 infants weighing less than 1500gms were selected for

infant health and developmental programme. The experimental group received home visit and center based educational intervention until 36 month of age. Cognitive development, behavioral competencies and health status of infants in intervention group was higher than control group, supporting the use of early educational intervention.<sup>17</sup>

The above findings indicate the need for nursing interventions to support the mother in developing effective approaches to care for their LBW babies. Nurses are in an ideal position to bridge the gap between ignorance of child rearing habits, knowledge & practices related to the care of LBW babies. The goal of the nurses should be to send the LBW babies' home in the best physical condition and to facilitate the mother's sense of self confidence in her maternal role before the baby's discharge. The feeling of self satisfaction and maternal adequacy will foster a stronger and healthier mother child relationship. In order to carry out safe & effective care at the home it was felt that the mothers of LBW babies needs to possess knowledge in the characteristics of LBW babies, thermoregulation & feeding of LBW babies.

Nurses can help parents see their infants as individuals who have their own features and capabilities through incidental teaching; also nurses can point out specific capabilities of infant and ways in which the infant response to the environment. Schedules can be adjusted to provide opportunities for parental interactions (Cusson, 1993).<sup>18</sup>

The researcher had performed an initial record analysis from January – November 2008 in Bharati Hospital of Pune city during her clinical experience & concluded that the incidence of LBW is nearly 53%. Also while communicating with the mothers during her clinical experience came across many lacunae's which the mothers are having related to the care of LBW babies, which gave an insight to conduct a study to teach the mothers on care of their LBW babies.

Hence the investigator felt the need to undertake a study on assessment of knowledge & practices, the learning needs of mother with LBW babies with a view to prepare an Planned teaching program & implementation of the same, regarding care of the LBW babies & reinforcement of their knowledge & practical skills with an instructional video.

During the researchers clinical experience in the NICU Step down unit of Bharati hospital it was observed by her that the mothers lack in the knowledge and the practices related to the care of a LBW baby. Mothers are very apprehensive about the very idea of such a tiny baby which makes them more vulnerable to take care of these little ones. The inquisitiveness and the learning needs of the mothers for how to care for their babies LBW babies led the researcher to select this topic so that she can educate the mothers for a better prospect. They need detailed information on how to care for their LBW babies; so that they can be alert enough to prevent any devastating sequel & provide individualized, need based, comprehensive care to these high risk LBW infants, their mothers should be included in this study.

Keeping this in view, a study was undertaken to develop a planned teaching program and instructional video to educate the mothers on the selected aspects of care of LBW babies which enabled the mothers to take self responsibility for their newborns.

#### **Objectives:**

1. Assess the existing Knowledge & Practices of mothers regarding selected aspects of care of LBW newborns before the administration of Planned Teaching & Instructional Video.
2. Assess the Knowledge & Practices of mothers regarding selected aspects of care of LBW newborns after administration of Planned Teaching & Instructional Video.
3. Compare pre & post Knowledge & Practices of mothers regarding selected aspects of care of LBW newborns.
4. Find the association between the Knowledge & Practices of mothers regarding selected aspects of care of LBW babies with selected demographic variables.

**Hypotheses:**

- H<sub>1</sub>: There will be significant difference of Planned Teaching & Instructional Video on the Knowledge & Practice scores of mothers regarding care of LBW babies.
- H<sub>2</sub>: There will be significant association between the Knowledge and Practices of mothers regarding the selected aspects of care of LBW baby with the selected demographic variables.

**Research Methodology:**

**Research approach & Design:** Quantitative, Quasi- experimental, time series research design

**Variables:**

**Independent:** Planned Teaching & Instructional Video.  
**Dependant:** Knowledge & Practices

**Description of Tool:**

**TOOL I:** Structured questionnaire: consisting of two sections:-

**Section I:** Consisting of 15 items:- Demographic profile of **A) MOTHER:** Age ,sex, type of family, religion ,education ,working status of mothers, monthly family income, nativity, number of live children, previous history of LBW babies. **B) BABY:** sex of the child, date of birth, birth weight, date of admission & gestational age.

**Section II:** Consisting of 26 self structured questionnaire:-

Part A – Knowledge regarding common characteristics of LBW baby  
 Part B – Knowledge regarding Thermoregulation.  
 Part C – Knowledge regarding Feeding.

**The level of Knowledge was classified and scored as: Poor (0 - 8), Average (09 - 17), Good (18 – 26)**

**TOOL II:** Self structured Observation checklist consisting of 20 items categorised into:

Part A: Related to **Thermoregulation** classified and scored as **Poor (0 – 1), Average (02 – 03), Good (04 -05)**

Part B: Related to **Feeding:-** Breast Feeding Katori – Spoon Feeding **Classified and scored as Poor (0 – 2), Average (03 – 05), Good (06 -08)**

**Validity & Reliability of the tool:** Content validity of the tools, Planned Teaching and Instructional Video was determined by 15 experts. Reliability was determined by Cronbach's alpha using test retest method for the self structured questionnaire tool (0.89) and inter rater method for the observation checklist (0.84) which was found to be highly acceptable.

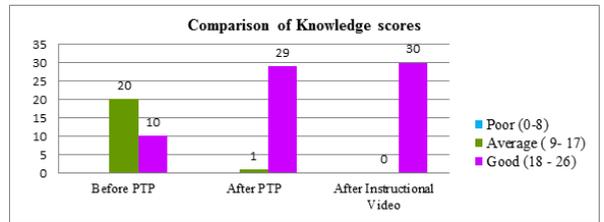
**RESULT AND DISCUSSION:** The Knowledge (K), Thermoregulation (T) and Feeding (F) scores of mothers showed a marked increase after the administration of Planned Teaching (K: 96.67%, T: 76.67%, F: 83.33%) and reinforcement with the Instructional Video (100%), which indicated that though the Planned Teaching was effective in increasing the Knowledge of the mothers related to the selected aspects of care of the LBW babies but reinforcement with the Instructional Video made retainment easier for a longer period of time strengthening the Knowledge further.

There was a significant difference in the mean score and SD of Knowledge, Thermoregulation and Feeding of mothers before and after the administration of Planned Teaching and Instructional Video.

**Table 1: Knowledge of mothers related to selected aspects of care of LBW babies before and after administration of Planned Teaching and Instructional Video. N=30**

Knowledge Score	Before Planned Teaching (Observation 1)		After Planned Teaching (Observation 2)		After Instructional Video (Observation 3)	
	Frequency	%	Frequency	%	Frequency	%
Poor (0 – 8)	0	0	0	0	0	0
Average (9 – 17)	20	66.67	1	3.33	0	0

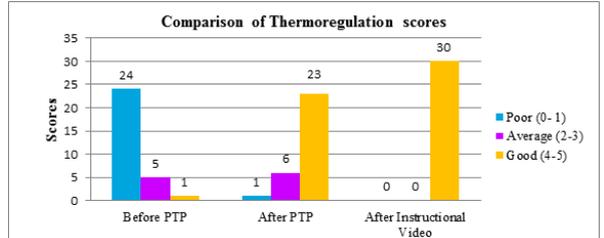
Good (18 – 26)	10	33.33	29	96.67	30	100
Total	30	100	30	100	30	100



**Fig 1: Bar diagram showing comparison of Knowledge scores of mothers in pre test and post test after the administration of Planned Teaching and Instructional Video.**

**Table 2: Practices of mothers related to Thermoregulation of LBW babies before and after administration of Planned Teaching and Instructional Video. N = 30**

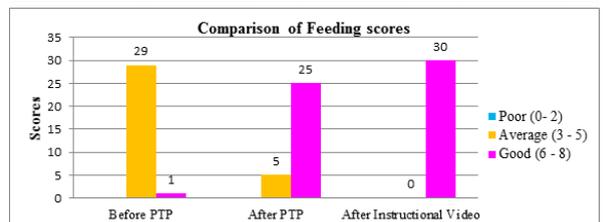
Thermoregulation Score	Observation 1		Observation 2		Observation 3	
	Frequency	%	Frequency	%	Frequency	%
Poor (0 - 1)	24	80	1	3.33	0	0
Average (2 – 3)	5	16.67	6	20	0	0
Good (4 – 5)	1	3.33	23	76.67	30	100
Total	30	100	30	100	30	100



**Fig. 2: Bar diagram showing comparison of Practice scores of mothers related to Thermoregulation in 1<sup>st</sup>, 2<sup>nd</sup>, 3<sup>rd</sup> observation before and after the administration of Planned Teaching and Instructional Video.**

**Table 3: Practices of mothers related to Feeding of LBW babies before and after administration of Planned Teaching and Instructional Video N = 30**

Feeding Score	Observation 1		Observation 2		Observation 3	
	Frequency	%	Frequency	%	Frequency	%
Poor (0 - 2)	0	0	0	0	0	0
Average (3 – 5)	29	96.67	5	16.67	0	0
Good (6 – 8)	1	3.33	25	83.33	30	100
Total	30	100	30	100	30	100



**Fig. 3: Bar diagram showing comparison of Practice scores related to Feeding in 1<sup>st</sup>, 2<sup>nd</sup>, 3<sup>rd</sup> observation before and after the administration of Planned Teaching and Instructional Video**

The major findings of the study indicated highly significant statistical difference between mean and Standard Deviation (SD) of Pre test and Post test Knowledge scores before and after the Planned Teaching and Instructional Video showing a mean difference of 8.2, 2.5, 10.7; Standard Deviation (SD) 3.6, 2.7, 4.0; computed “t” statistics 12.5, 5.0, 14.6 at p value < 0.05. Highly

significant statistical difference between mean and SD of Pre test and Post test Practice scores related to Thermoregulation before and after the Planned Teaching and Instructional Video showed a mean difference of 2.7, 0.9, 3.6; SD of 1.2, 1.09, 0.93; computed "t" statistics 12.2, 4.5, 21.15 at p value < 0.05. Highly significant statistical difference between mean and SD of Pre test and Post test Practice scores related to Feeding before and after the Planned Teaching and Instructional Video showed a mean difference of 2.5, 0.7, 3.2; SD of 1.2, 1.0, 0.9; computed "t" statistics 11.3, 3.6, 18.9 at p value < 0.05. Thus the null hypothesis was rejected at 95% confidence level for the Knowledge and Practice scores of mothers regarding selected aspects of LBW baby's care.

## DISCUSSION:

**1. Knowledge and Practice scores of mothers related to selected aspects of LBW baby's care:** Knowledge score before and after the administration of Planned Teaching and Instructional Video- mothers scored average (66.67%) in pre test and good (96.67%) in post test 1, 100% (good) in post test 2. Practice scores related to Thermoregulation before and after the Planned Teaching and Instructional Video showed that majority of mothers scored poor (80%) in 1<sup>st</sup> observation and good (76.67%) in 2<sup>nd</sup> observation followed by a 100% (good) result in 3<sup>rd</sup> observation. Practice scores related to Feeding before and after the Planned Teaching and Instructional Video showed that majority of mothers scored average (96.67%) in 1<sup>st</sup> observation and good (83.33%) in 2<sup>nd</sup> observation followed by a 100% (good) result in 3<sup>rd</sup> observation. Since  $t_{cal} > t_{table}$  at  $p < 0.05\%$  hence null hypothesis was rejected at 95% level of significance for Knowledge and Practice related to selected aspects of LBW baby's care. These findings showed that Planned Teaching was effective in increasing the Knowledge and Practice of the mothers related to selected aspects of LBW baby's care while reinforcement with Instructional Video further strengthened the said attributes by making retention longer. The following studies and proverbs supported the present study:

As remarked by Gigliotti, Eileen (1994), teaching through the use of audio visual aids ensures the novelty needed to catch the learner's interest. It sparks lively discussion. If a picture is worth a thousand words then a poignant slide can evoke a thousand words.<sup>4</sup>

A popularly said Chinese proverb "If I hear, I forget. If I see, I remember. If I do, I know." illustrates the importance of learning by seeing & doing; as learning by doing is an action process not a memorising one in the narrow sense.<sup>19</sup>

A research study done by Jyoti Pathare (2008) to assess the effectiveness of Planned Teaching Vs. CD-ROM presentation on Knowledge of the third year B.Sc nursing students regarding growth & development of the infant showed that there was change in the Knowledge scores of students who attended the CD ROM presentation method.<sup>20</sup>

**2. Association between Knowledge and Practice scores of mothers with the selected demographic variables:** The present study revealed that there was no significant association of Knowledge and Practice scores with the selected demographic variables as  $p > 0.05$  (5%). Hence Null hypothesis was accepted. But there existed a highly significant association between the occupation of the mothers and the Practice scores of Feeding as  $p < 0.05$ .

**Implications:** The findings of the study have valuable implications towards Nursing education, Nursing Practice, Nursing administration and Nursing research. The Nurse educators can use the result of the study as an informative illustration for imparting education in an effective way by conveying various informations, assisting the community in developing potentials and utilising the informatics. Nursing Practice requires a blend of the most current Knowledge and Practice standards on LBW baby's care with an insightful and human approach to the early neonatal period care, so the researcher's generally integrate findings into practice which

should be evidenced based in order to overcome the altered physiological problems in the LBW babies. The health care administrators should be able to motivate and initiate the health professionals in organising, conducting and participating in various educational programs that would contribute to better health care delivery system thus reducing the occurrence of LBW. There is a wide scope in this area, as by providing evidence based care in a cost effective way during the antenatal period, can further prevent the incidence of LBW babies and its long term devastating sequels thus curbing the neonatal/infant mortality and morbidity rate.

**CONCLUSION:** The conclusion inferred, was that interactive method of teaching with the help of Planned Teaching and reinforcement with Instructional Video was an effective method of enhancing the Knowledge and Practices of the subjects under study supporting the general systems theory indicating that every individual has an innate ability to learn and perform activities successfully pertaining to the care of LBW babies when educated and guided.

**Recommendations:** The study can be replicated to a larger sample with a control group or a comparative study can be done between pre term and small for date baby.

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**Conflict of Interests:** The authors declared no conflict of interests.

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