A Study on Growth and Development of Low Birth Weight Infants from Selected Areas of Koppal Karnataka

Sunitha D* & Dr. Pratiksha Patrick**

Ph.D Scholar, Malwancha university Indore (MP)

**Professor, Guide S. S Institute of Nursing Sehore (M.P)*

ABSTRACT

A quasi-experimental study with pre- and posttest control group design was conducted to evaluate the effectiveness of a Video Assisted Teaching Module (VATM) on home care management (HCM) among postnatal mothers of low birth weight (LBW) babies in selected hospitals of Koppal Karnataka. A total of 300 postnatal mothers (150 in experimental and 150 in control group) were selected using purposive sampling from 2 private maternal Hospital Koppal Karnataka.

Baseline characteristics showed most participants were aged 26–30 years, educated up to higher secondary level, housewives, and from nuclear families.

The pretest results indicated similar levels of knowledge and practice across both groups. Post-intervention findings showed a significant improvement in the experimental group's knowledge and practice scores, indicating the effectiveness of the VATM. A statistically significant positive correlation ($r = 0.255$, $p < 0.01$) was observed between posttest knowledge and practice scores. Significant associations were found between posttest scores and selected demographic variables (age, occupation, religion, and prior source of information) in the experimental group. The study concludes that VATM is an effective educational tool for improving maternal care practices for LBW infants.

KEY WORDS: *LBW-Low Birth Weight, WHO-World Health Organization, HCM-Home Care Management, NBW-Normal Birth Weight, KMC- Kangaroo Mother Care, BMI- Body Mass Index, MCH- Maternal and Child Health*

INTRODUCTION

Birthweight is a universal, undisputed and powerful predictor of infant growth and survival. Birthweight is the first weight of the new born measured within the first hour of life, before significant postnatal weight loss has occurred. According to World Health Organization (WHO) the infant born with low birthweight (less than 2500 grams) suffer from extremely high rates of morbidity and mortality from infectious disease, and are underweight, stunted or wasted beginning in the neonatal period through childhood. The low birthweight infants have little chance of fully reaching their growth potential. Moreover, during adulthood, they face an increased risk of chronic diseases. Globally, 15% to 20% of all births worldwide are LBW (WHO, 2014). This clearly indicates that low birth weight continues to be a significant public health problem. There is considerable variation in the prevalence of low birth weight across

regions and within countries. However the incidence of low birthweight especially in developing countries is much higher comparable to developed countries. Regional estimates of LBW include 28% in south Asia, 13% in sub-Saharan Africa and 9% in Latin America.

According to UNICEF/WHO (2004) the number of low birthweight babies is concentrated in two regions of developing world - Asia and Africa. 72% of low birthweight infants in developing countries are born in Asia where most births also take place, and 22% are born in Africa. India alone accounts for 40% of low birthweight births in the developing world and more than half of those in Asia. There are more than 1 million infants born with low birthweight in China and nearly 8 million in India.

Survival rates of low birthweight children increased dramatically over the last two decades, unfortunately this increase has not been accompanied by decreased neonatal morbidity or improvement in short term outcomes, but by an increase in the absolute number of children with health and developmental problems.

Various research studies have been carried out globally to assess the magnitude of low birthweight and to identify the determinants of low birthweight. The major determinants for low birthweight in developing countries are poor maternal nutritional status at conception, low gestational weight gain due to inadequate dietary intake and short maternal stature due to the mother's own childhood under nutrition and infection (Kramer 1987), low pre-pregnancy body mass index, house hold food security,

maternal and child care quality of antenatal and other health services, sanitation and hygiene education, gender discrimination and poverty (UNICEF 1997), Some bio-social factors like mother's age, gestation period, economic condition, education especially of mothers had significant effect on incidence of low birthweight (Sreekumaran Nair et.al., 2000). Psychological morbidity of mothers in antenatal period has a role in the causation of low birthweight (Rahman et.al., 2004).

Physical growth of LBW infants during first year of life is crucial not just for the time being but it has a lifelong implication. Low birth weight babies have many adverse consequences since they have little chance of fully reaching their growth potential. The growth of low birth weight infants are known to be very different from higher birth weight or full term infants. LBW infant gets an opportunity to recover its growth deficit of intra-uterine life in postnatal period and to catch up with its normal birth weight (NBW) siblings (Borah and Baruah, 2014).

AIM:

To study the Growth and Development of Low Birth Weight Infants from Selected areas of Koppal Karnataka.

OBJECTIVES:

1. To assess the magnitude of low birthweight in Koppal Karnataka.
2. To study the socio demographic conditions of families of low birthweight infants.
3. To study the maternal and obstetrical history of low birth weight infants
4. To know the child care practices at home of low birth weight infants.

5. To assess physical growth and nutritional status of low birthweight infants.

6. To study the developmental pattern of low birthweight infants.

7. To study the magnitude of the postnatal catch-up growth and development of low birth weight infants in comparison to full term normal birth weight infants.

8. To know morbidity pattern of low birthweight infants.

9. To understand the influence/or association of various factors such as socio-demographic, maternal and obstetrical factors, postnatal care factors with low birthweight infants.

REVIEW OF LITERATURE

Anand, et al. (2015) conducted a study on incidence of low birth weight babies in Haryana. Stated that during the study period of two years there were 660 births in 4 villages and the incidence of preterm labour was 8.8% and6.2% were low birth weight babies[54].

Kandpal SK, (2016) conducted a study to determine the epidemiological factors influencing the LBW babies. He stated that the average birth weights of all the newborn

was 2.67±0.42 and 23.84% of newborn were LBW babies. The factors which are significant were antenatal care, parity, inter pregnancy interval, gestational weight and bad obstetric history and however the relationship between maternal age and height with LBW babies was found to be statistically significant[55].

Mithila Dayanithi, (2018)[68] conducted a study to low birth weight and premature births and their associated maternal factors. He Stated that prevalence of LBW was 31.8% and prematurity was 25.6% in the study. LBW and premature babies were more associated with joint families, maternal illiteracy and house wives[59].

Peters KL, et al. (2015) stated that improvement in short and long term outcomes for LBW babies through the new born individualized developmental care and assessment programmes[60].

Singh et al. (2024) conducted a mixed-method study in Uttar Pradesh to evaluate the attitude of parents toward KMC. They found that while 70% of parents believed KMC is beneficial, many lacked confidence in its long-term effectiveness due to cultural myths and fear of harming the fragile baby.

Rajeshwari & Thomas (2023) studied the impact of counselling on parental attitude toward KMC in a neonatal unit. The pre-counselling attitude score was moderate in 60% of the participants, which significantly improved after structured counselling sessions, indicating that attitude is modifiable through education.

Shrestha et al. (2022) explored maternal attitude toward KMC in Nepal and found that although 85% of mothers supported the idea of skin-to-skin care, practical barriers like discomfort, embarrassment, and family pressure limited sustained practice at home.

Adeyemi et al. (2021) assessed parental attitude in a Nigerian hospital. Results showed positive overall attitude (mean score: 4.2/5), but fathers showed less willingness to engage in or support KMC compared to mothers, pointing to a gender gap in KMC involvement.

Gupta & Verma (2020) evaluated the attitude and barriers of mothers in urban slums of Delhi. Most mothers had a favourable attitude toward KMC but reported lack of privacy and support at home as major challenges in continuing KMC after discharge.

RESEARCH METHODOLOGY

3.1 Research approach

The research approach involves description of the plan to investigate the phenomenon under study in a structured (Quantitative), unstructured (Qualitative) or a combination of both (Integrated approach). The study approach helps to decide about presence or absence as well as manipulation and control over variables. Descriptive and exploratory approach has been used for this study.

Methodology of research generate the general pattern of organizing the procedure for collecting valid and reliable data for the purpose of investigation (Kothari CR, 2012).

Methodology of this study focus the research design and approach, setting of the study, population, sample and sampling technique, development of the tool, data collection procedure and the method of analysis based on the statement and objectives of the study.

RESEARCH DESIGN AND APPROACH

The design selected for the present study was quasi experimental research design in which pre and posttest with control group and evaluative approach.

3.1 Research design

The research design is the plan, structure and strategy of investigation conceived so as to obtain answers to research questions and to control variance. Quasi experimental one group Pre-test, Post-test, time series design was used to assess home care management of Low birth weight infants and its impact on growth and development, morbidity and mortality. Here, the Pre-test observation of dependent variable was made before and after planned intervention. Post-test observation of dependent variables were carried out every three months just prior to the subsequent teaching intervention. A non- intervention group was recruited as control group from hospital records of on data of all LBW babies born at the same hospital during preceding one year; and further calling these babies at pediatric follow-up clinic, besides interviewing their parents / caregivers about their growth, development, morbidity and mortality by recall method.

Research Design

$$Y \quad = \quad O_1 \text{--------} R \text{----------} O_2$$

$$X \quad = \quad X_1 \text{--------------------}_2$$

$$Y\text{-}X = E$$

The symbols used are,

O_1 : Pre test in experimental group before implementation of VATM.

O_2 : Post test in experimental group after implementation of VATM.

X_1 : Pre test in control group.

X_2 : Post test in control group.

R : Video Assisted Teaching Module

E : Effectiveness of video assisted teaching module regarding HCM of LBW babies.

Variables

In this study,

1. Independent Variable : Video assisted teaching module

2. Dependent Variable : Knowledge and practice of home care

Setting of the Study

The study was conducted in selected hospitals of Koppal Karnataka.

Population

Target population of the study was postnatal mothers with LBW baby who delivered during the period of data collection in selected hospitals, Koppal Karnataka.

Sample

The sample of this study was postnatal mothers who had LBW baby in selected maternity hospitals Koppal Karnataka.

Sample size

The sample size for this study was three hundred postnatal mothers who had LBW baby, 150 in each control and experimental group were selected by power analysis method.

Sampling technique

Purposive sampling technique was used to conduct this study.300 postnatal mothers were found meeting the selection criteria, out of which,150 mothers were placed in experimental group and remaining 150 mothers were placed in control group. There were two dropouts in experimental group.

The present study is used the purposive sample technique

Criteria for selection of sample

The postnatal mothers who was admitted in the selected maternity hospitals, Koppal Karnataka.

- Postnatal mothers who delivered LBW baby.
- Postnatal mothers who able to read and understand Karnataka.

Exclusive criteria

- Postnatal mothers who had congenital anomaly babies
- Not willing to participate in the study
- Any postnatal complications

Instruments

➢ Structured interview schedule
➢ Observational checklist and VATM.

Method of data collection

A. Development of the tool

The following tools was used for this study

1. Video assisted teaching module regarding HCM of LBW babies.
2. Structured interview schedule to assess the knowledge of postnatal mothers regarding HCM of LBW babies.
3. Observational checklist to assess the practice of postnatal mothers regarding HCM of LBW babies.

Steps of preparing tools

The module was prepared based on the following steps.

o Review of literature
o Preparation of blue print
o Preparation of tool
o Organization of content of tool
o Description of tool
o Validity
o Translation and retranslation of the tool
o Reliability
o Consultation with guide and research committee
o Preparation of the final draft

RESULT AND SUMMARY

A quasi experimental design, pre and posttest with control group was undertaken to assess the effectiveness of video assisted teaching module (VATM) regarding HCM on knowledge and practice among postnatal mothers of LBW babies in selected hospitals, Salem. 300 postnatal mothers of who had LBW baby were selected at 2 Private Hospital of Koppal Karnataka. (150 were placed in control group and the 150 placed in their experimental group) by using Purposive sampling technique.

The postnatal mothers taken for the study belonged mainly to the age group of 26 – 30 years (42.7 %, 62%), majority of the (46%, 49.3 %) postnatal mothers were studied in higher secondary education, highest percentage were housewives (54%, 60.7%). 83%, 68%were belonged to Hindu religion, (55.3%, 53.3%) of the postnatal mothers were from urban. 82%, 83.3% of them were from nuclear family. According to their parity 72%, 63.3% of them were multigravida. 64%, 78.7%of them were no previous history of LBW baby. 45.3%, 64.7% of them had 2001-2250kg birth weight of baby. 37.3%, 64.7% of them got information through TV& Radio.

The findings of the study revealed that during pretest both control and experimental group of postnatal mothers have similar knowledge and practice on HCM of LBW baby. With the implementation of VATM, there was an increase in knowledge and practice of postnatal mothers in experimental group shows that VATM was effective as their level of knowledge and practice has increased. Paired–„t‟ test was calculated to analyze the significant difference was found in knowledge and practice scores. Correlation between posttest knowledge and practice scores of HCM of LBW babies reveals that there was a positive correlation r-0.255 which is significant at 0.01 levels. In control group no significant association was found between the posttest knowledge and practice scores of the postnatal mothers to their demographic variables. In experimental group there was a significant association between posttest knowledge and practice scores such as age, occupation (p<0.05), religion (p<0.05) and previous source of information (p<0.001).

CONCLUSION:

The present study concludes that the Video Assisted Teaching Module (VATM) on home care management (HCM) of low birth weight (LBW) babies was significantly effective in enhancing the knowledge and practice among postnatal mothers in the experimental group. The findings indicated that there was a notable improvement in both knowledge and practice scores following the intervention, with a statistically significant difference observed through paired *t*-test analysis. Additionally, a positive correlation between knowledge and practice was established, affirming that improved knowledge positively influenced caregiving practices. The study also identified significant associations between post-test scores and selected demographic variables in the experimental group. These results emphasize the importance and efficacy of structured video-assisted teaching as a practical educational tool to empower mothers in delivering quality home care for LBW infants, thereby potentially improving neonatal outcomes.

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