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Review IJPN

Assessment of Knowledge and Practices Concerning the Care of Low-Birth-Weight Infants among Mothers of Neonates Admitted at GIMS Hospital, Gadag

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Abstract

This study investigates the knowledge and practices related to the care of low-birth-weight (LBW) infants among mothers who have neonates admitted at GIMS Hospital in Gadag. LBW infants, defined as those weighing less than 2.5 kilograms at birth, face increased vulnerability, and require specialized care to ensure optimal growth and development. The research aims to assess maternal awareness and adherence to recommended care guidelines for LBW infants. A comprehensive survey was conducted among mothers whose neonates were currently receiving care at GIMS Hospital. The assessment covered various aspects, including knowledge about appropriate feeding practices, hygiene, and overall healthcare for LBW infants. Additionally, the study explores the socioeconomic factors influencing caregiving practices, such as maternal education and access to healthcare resources. Preliminary findings suggest a varied level of knowledge and practices among the participating mothers. While some demonstrate a commendable understanding of essential care measures, others may require targeted educational interventions. Socioeconomic factors appear to play a crucial role in determining the extent to which mothers can adhere to recommended guidelines. Understanding the gaps in knowledge and practices concerning LBW infant care is imperative for healthcare professionals and policymakers. The outcomes of this study will contribute valuable insights for developing targeted educational programs and interventions aimed at enhancing maternal skills and improving the overall well-being of LBW infants in the GIMS Hospital, Gadag community.

Keywords: Healthcare professionals, low-birth-weight, LBW infants, knowledge and practices, socioeconomic factors

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INTRODUCTION

"Every child that is born brings with it the hope that God is not yet disappointed with man."

Rabindranath Tagore

Low-birth-weight (LBW) is a significant public health issue in developing nations, including India, posing a serious threat to the lives of infants. This situation leads to significant illness and death in children. As per the World Health Organization (WHO), any newborn weighing less than 2500 grams (2.5 kg) is classified as a "low-birth-weight" baby, regardless of the timing within the pregnancy. As per UNICEF, around 30% of newborns in India are reported to have low-birth-weight. The weight at birth is the most critical factor influencing the chances of survival for a

newborn. Epidemiological observations indicate that infants weighing less than 2500 grams face approximately 20 times higher mortality rates compared to heavier babies, showing a close association with fetal and neonatal morbidity and mortality. The Government of India has initiated several awareness programs, including the "Newborn Week" in collaboration with UNICEF from November 15th to 21st, 2006, and the C.S.S.M. Program in 1992. The main aim of these initiatives is to decrease the infant mortality rate. These programs also stress the importance of mothers having current knowledge about caring for LBW neonates, aiming to identify issues early and provide tailored care for promoting optimal health in these infants. In India, around 30–35% of babies are low-birth-weight and more than half of them are full-term babies. LBW babies result from either pre-term birth, due to intrauterine growth restrictions (IUGR), or both. As per UNICEF, over 20 million infants are born annually, weighing less than 2.5 kg, constituting 17% of all births in the developing world. Infants with low birth weight face an elevated risk of mortality in their early months and years. Advancements in technology and the establishment of specialized care centers for newborns with specific requirements have led to notable improvements. Nurses need to have a sound knowledge base to identify the newborns with special needs and to provide coordinated care. To assess a LBW baby's needs or likely progress, the gestational age is important. Infants born at term or post-term may have a weight below 2500 grams, and in some cases, babies of diabetic mothers may weigh significantly more than 2500 grams even before reaching 37 weeks of gestation. The categorization of LBW infants entail the examination of both birth weight and gestational age. In India, approximately one-third of infants have a birth weight below 2500 grams. While a low-birth-weight baby may appear small and still be healthy, it can also be associated with various serious health issues. A critical determinant of a child's survival is their birth weight, with many experiencing mortalities within their first year. The infant mortality rate for LBW babies is approximately 20 times higher than that for other infants, and survival chances decrease as birth weight decreases. Birth weight serves as a crucial indicator to the required level of care for individual infants. Providing care for LBW babies, especially during their first and second years of life, poses significant challenges for mothers. Difficulties in breastfeeding, maintaining the baby's diet, and administering medication are common. Therefore, the necessity for professional support and appropriate care is crucial to assess and monitor the growth and development of children within their families in everyday life. Additionally, low birth weight heightens the risk of various labor complications, including irregular heart rate patterns during labor, low Apgar scores (<7) at both the first and fifth minutes, the potential for sudden cardiac death in young individuals, and an increased likelihood of elective cesarean delivery or labor induction [1].

NEED FOR THE STUDY

"We need to make a world in which children are born, and in which we take better care of them".
—Max born

LBW is characterized by a birth weight below 2500 grams (including 2499 grams) according to the World Health Organization (WHO). This definition has been in use for several decades, and LBW poses a life-threatening condition that results in significant morbidity and mortality among children. Globally, WHO estimates that approximately 25 million babies with low birth weight are born each year, constituting 17% of all live births, with nearly 95% of these occurrences observed in developing countries. In India, the majority of LBW infants are born in rural areas, accounting for 24% prevalence, and in urban areas, the prevalence is 21%. Unless the outcomes for these infants are improved, it is unlikely to see a significant change in the overall national neonatal mortality rate. In India, infants weighing less than 2.5 kg at birth make up about 26% of all live births. Nearly, the world average infant mortality which has been estimated about 54 per 1000 live births, out of which 51% of deaths are due to low birth weight in India and Karnataka is also leading at a rate of infant mortality of 49 per 1000 live births. Securing the health of a child is an investment in the future. A newborn is not just a family's legacy but also essential for the overall health of the nation. The process of a new life entering the world and its subsequent journey toward independent existence has challenged individuals across generations to care for the newborn. During the 65th World Health

Assembly, member states of the United Nations established a global objective to decrease low-birth-weight (LBW) by 30% by the year 2025 [2, 3]. A recent report from the World Health Organization (WHO) reveals that slow progress in reducing LBW has hindered worldwide endeavors to prevent unnecessary newborn deaths and alleviate the suffering of children from wasting and stunting. Between 2000 and 2015, no region reported a significant reduction in LBW prevalence; instead, both developed and developing countries experienced an increase in its occurrence. For example, the incidence of LBW among live births in Sub-Saharan Africa rose from 4.4 million to 5 million between 2000 and 2015. This figure suggests that achieving the LBW target for 2025 is unlikely if the current trend persists. This cross-sectional study aims to explore the factors linked with LBW among newborns delivered at a tertiary-care hospital, Shimoga, Institute of Medical Sciences (SIMS), in Shimoga, Karnataka. The study focuses on postnatal mothers and their newborns at McGann Hospital and Teaching Center, Shimoga. The sample size was calculated with an expected frequency of 27%, allowable error at 10%, and confidence level at 99%. The sample size was found to be 131. Of the 131 newborn babies, 57 (43.5%) were boys and 74 (56.5%) were girls. Of the 131 mothers, 89 (67.9%) of them were in <20 years age group and 42 (32.1%) of them were ≥20 years age group. Of the 131 mothers, 12.2% of the subjects were illiterate. Thus, this study concluded that the problem of LBW is multidimensional. Therefore, it is imperative to implement integrated and holistic strategies that incorporate a blend of interventions to enhance the overall health of women [4]. These approaches are anticipated to be the most efficacious in mitigating the issue of low birth weight in India. Therefore, our study recommends the proper health education in the following manner to reduce the proportion of *LBW:*

- Health education to adolescents: Regarding nutrition and marriage age.
- Health education to married women: Regarding the nutrition and age of first pregnancy.
- Health education to pregnant women: Regarding the nutrition, regular antenatal checkup, regular intake of iron and folic acid tablets, birth spacing, family planning, and finally, about avoiding habits such as tobacco chewing.

After going through the mentioned facts, it is clear that LBW babies mortality and morbidity are very high throughout the world as well as in India. The thorough examination of many literatures shows that there is great deal of difference in knowledge and practice regarding care of LBW babies among mothers of neonate as well as public that motivated researchers to undertake this study in selected GIMS hospital at Gadag [5].

OBJECTIVES

This article addresses the presentation of the problem, objectives, operational definitions, assumptions, hypotheses, variables, and conceptual framework of the study.

1. Evaluate mothers' understanding of caring for low-birth-weight infants
2. Evaluate mothers' implementation of practices related to the care of LBW babies
3. Determine the correlation between knowledge and practice scores with specific demographic variables
4. Examine the correlation between mothers' knowledge and practices in the care of LBW babies in neonates

OPERATIONAL DEFINITIONS

1. *Assess:* In this study, the term "assess" pertains to evaluating the knowledge and practice levels of mothers with neonates who have low birth weight.
2. *Knowledge:* In this study, knowledge refers to awareness of mothers related to risk factors, prevention, care, and management of LBW babies.
3. *Practice:* In this study, practice refers to skills and techniques used by mother to take care of LBW babies.
4. *Mothers:* It refers to individuals having neonate whose birth weight is less than 2500 grams.
5. *LBW babies:* In this study, it refers to those newborns whose birth weight is between 1500 grams to 2500 grams at birth irrespective of gestation age.

ASSUMPTIONS

The researcher makes the following assumptions:

1. The level of knowledge among mothers of neonates regarding the care of LBW babies varies individually.
2. The level of practice among mothers of neonates regarding the care of LBW babies varies individually.
3. Health care organizations will provide support for conducting the research.

HYPOTHESIS

H_1: There will be a notable correlation between the knowledge and practices concerning the care of LBW babies among mothers of neonates.

H_2: There will be a meaningful relationship between the knowledge and practices concerning the care of LBW babies among mothers of neonates.

VARIABLES

- *Research variables:* Understanding and implementation of care for infants with low-birth-weight.
- *Socio-demographic variables:* In this study, socio-demographic variables encompass specific factors such as age, education, religion, family type, family income, occupation, number of living children, number of pregnancies, and source of information.

CONCEPTUAL FRAMEWORK

The conceptual framework is based on *Diffusion of Innovation Model*

By Rogers which includes components of assessment, decision making and output (Figure 1).

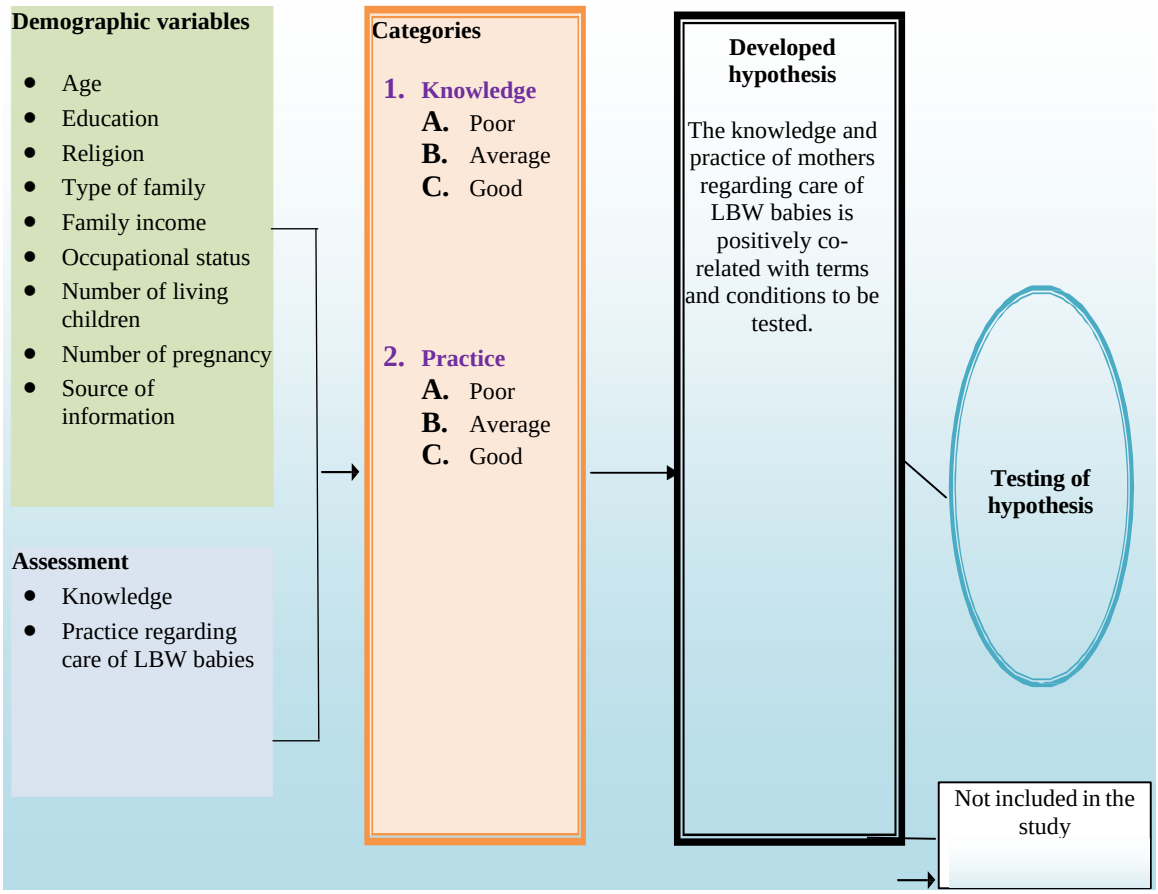

Figure 1. Conceptual model based on modified Carl Rogers diffusion of innovation model.

REVIEW OF LITERATURE

"Our high respect for a well-read person is praise enough for literature."

—T. S. Elliot

This article provides a literature review pertaining to the current study. A literature review, a crucial and nearly indispensable aspect of scientific research projects involves a comprehensive summary of existing research on a topic of interest. It is typically prepared to contextualize a research problem or serve as the foundation for an implementation project. In this article, a review of studies conducted by previous researchers is presented, contributing to a thorough exploration of the identified problem. Various sources, including internet searches, textbooks, published journals, editorials, conference proceedings, and both published and unpublished theses, were consulted to gather extensive information on the selected topic. In this study, the literature review is presented under the following headings:

a. Literature related to risk factors of LBW babies.
b. Literature related to specific management of LBW babies.
c. Literature pertaining to the prevention of LBW infants.

Literature Related to Risk Factors of LBW babies

A cross-sectional retrospective study was conducted on LBW babies' prevalence and risk factor among newborns in public hospital at Kilis, Turkey in 2016. The total number of cases were 4379. Data was recorded with the assistance of pre-tested and predesigned survey. The findings indicate that the incidence of low-birth-weight was 6.7% across all groups, and notable associations were observed with factors such as young maternal age, being a Syrian refugee, having a female infant, undergoing cesarean delivery. The study concludes that the prevalence of low-birth-weight in the study area is comparatively lower than the nationwide figure. Maternal factors including age, nationality, and mode of delivery (vaginal or cesarean), as well as newborn-related factors such as the gender of the neonate, were significantly linked to low-birth-weight. A case-control study was conducted to examine the maternal and socio-demographic factors associated with LBW infants in Eastern Nepal. A total of 159 cases (mothers with LBW singleton babies) and 159 controls (mothers with normal birth weight singleton babies) were selected, and data was collected through interviews. The findings demonstrated a noteworthy correlation between low-birth-weight and the overall count of antenatal care (ANC) visits ($p<0.001$). Mothers with 1 to 2 ANC visits had a higher likelihood (OR=16.74, 95% CI: 6.71–41.95) of delivering LBW neonates compared to those with more than 4 ANC visits. Similarly, mothers with a total of 3–4 ANC visits had an increased chance (OR=3.03, 95% CI: 1.77–5.21) of delivering LBW neonates. The research suggests that specific interventions, such as postponing the age of initial pregnancy, enhancing maternal education and nutrition, and offering iron and calcium supplements, can successfully mitigate the occurrence of LBW infants. Extra-uterine growth restriction (EUGR) impacts a considerable proportion of infants with very low-birth-weight (VLBW) and has the potential to influence neurodevelopmental outcomes and other aspects of long-term health. Although more proactive nutritional strategies have decreased the occurrence of postnatal growth failure, numerous uncertainties persist concerning the anticipated growth rate for extremely preterm infants, the most effective methods for measuring growth velocity, and the optimal approaches for promoting growth [6–8]. This article delves into unresolved issues related to postnatal growth failure and provides an overview of the current recommendations in practice.

The study employed medical records spanning from 2016 to 2019 at the Gynaecology and Obstetrics Department of Louis Pasteur University Hospital in Košice to examine 1,946 infants and their mothers. Information about mothers and newborns was extracted from childbirth reports. Singleton births with a birth weight greater than 500 g met the inclusion criteria, while exclusion criteria encompassed twins or multiple births, congenital anomalies, stillbirths, birth weights exceeding 4,000 g or below 500 g, and individuals of Roma ethnicity. The latter category is characterized by a higher probability of premature birth and low-birth-weight. Roma mothers exhibit

distinct lifestyles. The sample comprises 1,946 newborns, with 271 (13.90%) having low-birth-weight. The average birth weight at delivery was 3,068.62 (SD 671.16) grams. Factors associated with low-birth-weight included primary maternal education (OR=2.98, 95% CI: 1.08–8.21, p = 0.034), single marital status (OR=2.88, 95% CI: 1.68–4.94, p < 0.001), fewer than 8 prenatal care visits (OR = 1.62, 95% CI: 1.01–2.61, p=0.047), and pre-term birth (OR=74.94, 95% CI: 45.44–123.61, p < 0.001). The conclusion drawn is that addressing low-birth-weight requires the implementation of strategies to improve maternal lifestyle, maternal care before, during, and after birth, and strengthening social support. In a case-control study conducted retrospectively from July 2018 to July 2019, participants were recruited from Ibn Zohr Hospital's maternity facility, Mother and Child Hospital CHU Mohammed VI, and three health centers equipped with a delivery module (Loudaya, Massera, and Syba) in Marrakech. The sample size, determined using the STATCALC program of EPI6 for an unmatched case-control study with 95% confidence and 80% power to detect a minimum odds ratio of 2.0, was computed [9].

It was assumed that the least prevalent factor would be present in a minimum of 10% of the controls, as reported by Anand 13 in his study. The final calculated sample size was 231 cases and 231 controls. Participants for both cases and controls were continuously recruited until the required sample size was attained. Data was gathered using a pre-tested and structured questionnaire during face-to-face interviews. The results revealed that the birth weight characteristics varied, ranging from 700 g to 5000 g, with a mean of 2594.94 g (standard deviation (SD) = 939.27 g) for all newborns. In LBW cases, the mean weight was 1806.86 g (SD = 529.42), while in control cases, it was 3383.01 g (SD = 490.38).

This study demonstrated that socio-economic and cultural factors posed risks for low-birth-weight in the study areas. Residence, the low professional activity of fathers (temporary employment), consanguinity links, and maternal physical activity were significantly correlated with low-birth-weight. These findings contribute to the expanding literature on how maternal and paternal socio-economic and cultural factors influence low-birth-weight in resource-constrained settings. Additionally, initiatives should be undertaken to improve the living conditions and lifestyles of mothers. Community-based studies are necessary for a more thorough examination of household and socio-economic factors through observation. In March 2011, a case-control study was carried out at the Department of Obstetrics and Gynaecology, University Teaching Hospital, Nigeria, to investigate maternal risk factors for LBW infants. The aim was to determine the prevalence of LBW deliveries and identify associated risk factors. The study involved the analysis of 460 questionnaires, including 155 from women with LBW deliveries (cases) and 305 from women with babies weighing ≥2500 g, serving as controls. Out of 1,097 births during the study period, the incidence of low-birth-weight was 14.1%. The research revealed that maternal age and parity were not identified as significant risk factors. Factors such as not being registered in a tertiary institution [Odds ratio (OR) 0.39, 95% Confidence interval (CI) 0.20–0.73, p < 0.05], a history of previous LBW births (OR 2.42, 95% CI 1.02–5.81, p < 0.05), hypertensive disorders in the index pregnancy (χ (2) = 50.18, p < 0.001), preterm rupture of membranes (OR 25.06, 95% CI 5.59–156.49, p < 0.001), and bleeding during pregnancy (OR 2.44, 95% CI 1.6–7.34, p < 0.001) were significantly associated with an elevated risk of LBW infants. However, factors such as HIV infection, sickle cell disease, maternal height, occupation, and level of education did not show significance (p > 0.05). The researcher deduced that enhancing preconception care, ensuring effective antenatal care, and addressing pelvic infections efficiently (which may increase the risk of pre-term births) could mitigate the occurrence of LBW deliveries in Nigeria [10].

Literature Related to Specific Management of LBW Babies

An observational descriptive study took place at BIRDEM General Hospital from January 2016 to June 2016, focusing on the early detection and management of retinopathy of prematurity (ROP), considering specific inclusion and exclusion criteria. The sample size for the study comprised 96

babies, determined using cross tables, paired 't' tests, and chi-square tests. The results indicated that out of the 96 babies, 64 (66.66%) showed no signs of ROP, while 32 (33.33%) exhibited various stages of ROP. Among these 32 babies, 18 did not require any treatment, while 14 received treatment based on their specific needs. The study concluded that early detection and proper management of ROP not only restore the anatomical and functional outcomes of the retina but also preserve vision, prevent childhood blindness, and reduce morbidity. In a prospective study evaluating the impact of vasopressin on neurodevelopment in cases of early systemic hypotension, 130 patients were randomly assigned to receive dopamine in progressively larger doses until the target blood pressure was reached. The results showed no significant differences between the groups in rates of abnormal neurological status, developmental delay, or combined adverse outcomes. The research findings suggest that the safe continuation of cardiovascular support to manage early systemic hypotension in LBW infants is warranted [11].

To determine the effectiveness of Kangaroo mother care (KMC) as a substitute for traditional neonatal care in LBW infants, both pre and post the initial stabilization period with conventional care, and to assess its potential positive and negative impacts, we employed the standard search strategy recommended by the Cochrane Neonatal Review Group. This involved searches in various databases, including CENTRAL, MEDLINE, Embase, CINAHL, LILACS, and POPLINE (all from inception to June 30, 2016), as well as the WHO Trial Registration Data Set (up to June 30, 2016). Furthermore, we investigated the Kangaroo Foundation's website, as well as conference and symposium proceedings related to KMC, and utilized Google Scholar.

The study included twenty-one research studies, encompassing 3042 infants that met the inclusion criteria. Nineteen studies focused on KMC in LBW infants after stabilization, while one examined KMC in LBW infants before stabilization, and another compared early-onset KMC with late-onset KMC in relatively stable LBW infants. The updated review concludes that there is evidence supporting the use of KMC in LBW infants as an alternative to traditional neonatal care, particularly in settings with limited resources. However, additional research is required to assess the effectiveness and safety of early-onset continuous KMC in unstabilized or relatively stabilized LBW infants, as well as to explore long-term neurodevelopmental outcomes and associated care costs.

In December 2016, we utilized the Cochrane Neonatal Review Group's (CNRG) search strategy to update our research. We conducted a comprehensive search across databases including the Cochrane Central Register of Controlled Trials (CENTRAL), MEDLINE, PREMEDLINE, Embase, and the Cumulative Index to Nursing and Allied Health Literature (CINAHL), in addition to reviewing trial registries and conference proceedings. The sampling technique involved Randomized Controlled Trials (RCTs) assessing oral lactoferrin at any dose or duration for preventing sepsis or necrotizing enterocolitis (NEC) in pre-term neonates [12].

The results from the RCTs indicated that lactoferrin supplementation in enteral feeds significantly reduced the incidence of late-onset sepsis (typical risk ratio (RR) 0.59, 95% confidence interval (CI) 0.40 to 0.87). Additionally, lactoferrin supplementation, with or without probiotics, was associated with a decrease in bacterial and fungal sepsis, but not in chronic lung disease (CLD) or the length of hospital stay (low-quality evidence). No adverse effects were reported, and the investigation did not assess long-term neurological outcomes and periventricular leukomalacia (PVL). The authors' conclusion indicates that there is low-quality evidence supporting the notion that adding lactoferrin to enteral feeds, with or without probiotics, can decrease the incidence of late-onset sepsis and NEC stage II or III in pre-term infants without causing adverse effects. However, ongoing trials with more than 6000 pre-term neonates will provide additional data to potentially improve the quality of evidence. More information is required concerning the best dosing schedules, varieties of lactoferrin (human or bovine), and the effects on long-term outcomes. The review study focuses on interventions for controlling diarrheal diseases among young children, specifically emphasizing the prevention of

low-birth-weight. The analysis assesses the impact of LBW on both diarrheal morbidity and mortality, and various interventions aimed at increasing birth weights are examined. Birth weight stands out as a crucial determinant of infant mortality, with its effect on neonatal mortality shown to be independent of socioeconomic status in developed countries. Despite a lack of satisfactory data on LBW as a determinant of diarrheal mortality or morbidity, the strong association between LBW and overall mortality suggests a potential link between LBW and diarrheal mortality, particularly in developing countries where diarrhea is a significant cause of infant death. Causal factors associated with LBW in developing countries include poor maternal nutrition, specific infections, pre-eclampsia, strenuous work after mid-pregnancy, short birth intervals, teenage pregnancy, as well as tobacco and alcohol consumption. Among the interventions examined, maternal food supplementation has been the most extensively studied. If directed towards mothers identified as nutritionally vulnerable and consumed in addition to their regular diet, it is anticipated that targeted food supplementation could lead to a reduction in the prevalence of LBW. However, it should be noted that implementing food supplementation programs can be costly, and outcomes from meticulously monitored feeding trials may surpass those achieved in broader national initiatives. Additional investigation is needed to examine the effects of iron, zinc, or folate supplementation. If effective intervention strategies addressing maternal nutrition, health, and lifestyle in a developing country could decrease the prevalence of LBW from approximately 30% to about 15%, an associated decline in the infant mortality rate of approximately 26% is foreseeable. A similar reduction in the infant diarrhea mortality rate might also be expected. However, the limited data on the relative risk of morbidity by birth weight hinder the ability to make comparable calculations for reductions in morbidity. This review underscores the significance of LBW as a determinant of infant mortality, emphasizing the need for a deeper understanding of the nature, etiology, and prevention of LBW in developing countries for the broader objective of reducing infant mortality. Randomized control study was carried out in 2022 at Department of Pediatrics, Swami Dayanand Hospital, New Delhi, India. The aim of the study was to evaluate the impact of Temp Watch on weight gain, the amount of Kangaroo Mother Care (KMC) provided, and the duration of hospitalization in LBW infants compared to standard care. Healthy LBW infants with birth weights ranging from 1500 to 2300 g, admitted to a KMC ward in a government hospital in New Delhi, India, were randomly assigned to either a Temp Watch group or a control group. The infants wore the Temp Watch device until discharge. Each group underwent standard temperature monitoring, with the control group using the hand-touch method. Both groups received temperature monitoring every six hours. Daily weight measurements, the frequency of hypothermia episodes per day, and KMC diaries completed by the mothers were recorded for each infant. The result was the Temp Watch group experienced statistically significant weight gain as compared to the control group (0.06 vs. 0.02 kg, $p = .024$). There were no statistically significant distinctions between the groups in terms of the quantity of KMC received and the number of detected hypothermia events. The study concluded that Temp Watch promotes statistically significant weight gain for LBW infants as compared to standard care. A comparative study was conducted on mothers of low-birth-weight (LBW) infants, carried out by Hong Juanbi and colleagues in the February 2018 issue of Zhongguo Dang Dai Er Ke Za Zhi. The study included a total of 150 hospitalized pre-term infants with very low-birth-weight, categorized into three feeding groups: mother's own milk feeding group, donor women milk feeding group, and pre-term formula feeding group, each consisting of 35 infants. The study compared the groups based on various parameters. The results indicated that, in comparison to the pre-term formula feeding group, both the donor women milk feeding group and mother's own milk feeding group exhibited significantly lower incidence rates of nosocomial infection and necrotizing enterocolitis, along with a shorter time to full internal feeding. However, no significant differences were observed in head circumference, body length, weight, or growth velocity among the three groups. The study concluded that donor human milk can be utilized in the absence of mother's own milk, potentially contributing to a reduction in nosocomial infections [13].

Literature Related to Prevention of LBW Babies

The review study investigated the impact of lifestyle on preventing LBW babies in the United States. Habits like smoking, pregnancy weight gain, and the use of other substances were recognized

as notable factors affecting fetal development. Cigarette smoking emerged as the most substantial known risk factor for low-birth-weight, with an estimated 20% reduction in low-birth-weight cases if pregnant women abstained from smoking. The study suggested that curtailing heavy alcohol and drug use during pregnancy could also contribute to a decline in the rate of low-birth-weight births. The conclusion emphasized that while detrimental lifestyles can be modified, achieving success would necessitate widespread societal changes. These changes should encompass initiatives focusing on preventive health, family-centered workplace policies, and shifts in social norms. The experimental review study concentrated on the contribution of fundamental scientific knowledge in averting low-birth-weight. It delved into the intricate mechanisms triggering the birth process, particularly the integral maturation of vital fetal organs like the lungs. In typical scenarios, the fetus should undergo adequate preparation for the demands of independent life post-birth. Preterm delivery, a potential cause of low-birth-weight, can arise from various pathological factors, including infection and different forms of stress. Effective strategies to prevent preterm delivery of low-birth-weight infants hinge on an enhanced ability to diagnose the premature activation of specific components within the normal birth process for each pregnant patient undergoing premature labor. The research utilized the medical records of 1,946 newborns delivered between 2016 and 2019 at the Department of Gynaecology and Obstetrics of Louis Pasteur University Hospital in Košice. Information about mothers and newborns was extracted from childbirth reports. The criteria for inclusion encompassed singleton births with a birth weight exceeding 500 g, while exclusion criteria involved twins or multiple births, congenital anomalies, stillbirths, birth weight surpassing 4,000 g or falling below 500 g, and the presence of Roma ethnicity. Roma infants exhibit a higher susceptibility to premature birth and low-birth-weight, attributed to the distinctive lifestyle of Roma mothers. The study included a sample of 1,946 newborns, with 271 (13.90%) experiencing low-birth-weight. The mean birth weight at delivery was 3,068.62 (SD 671.16) grams. Factors associated with LBW included primary maternal education (OR=2.98, 95% CI: 1.08–8.21, p = 0.034), single marital status (OR=2.88, 95% CI: 1.68–4.94, p < 0.001), fewer than 8 prenatal care visits (OR = 1.62, 95% CI: 1.01–2.61, p=0.047), and preterm birth (OR=74.94, 95% CI: 45.44–123.61, p < 0.001). The conclusion drawn was that addressing low-birth-weight (LBW) necessitates strategies focusing on improving maternal lifestyle, enhancing maternal care throughout the prenatal, perinatal, and postnatal periods, and reinforcing social support.

An experimental meta-analysis study was undertaken to assess the effectiveness of prenatal smoking cessation interventions on birth weight. The study, conducted in January 2019 by Yousefveisani et al., involved the analysis of 16 randomized controlled trials (RCTs) encompassing a total of 6,192 women. The results revealed that the relative risk of not smoking at the end of pregnancy in the intervention group was 2.47 (95% CI: 1.7–3.20). The odds ratio (OR) for the impact of smoking cessation on low-birth-weight (LBW) was 0.65 (95% CI: 0.42–0.88), with a significant increase in the standardized mean difference (SMD) in the intervention group at 0.28 (95% CI: 0.05–0.50). The study concluded that these findings align with previous RCTs, underscoring the practicality of smoking cessation during pregnancy as a measure for preventing LBW in infants. The comprehensive strategy involved reviewing cohort studies, randomized controlled trials, and literature reviews that investigated women with primary maternal mental illness (PMMI) and secondary maternal mental illness (SMMI) across periconceptional, obstetric, and foetal-neonatal outcomes. To conduct the search, PubMed, WoS, CINAHL, and Google Scholar were utilized, and cross-referencing in the bibliographies of selected papers was performed to ensure a more extensive study inclusion. The aim of this review is to present a synopsis of the latest evidence associating maternal mental disorders with adverse reproductive outcomes. The findings suggest that the evidence linking depressive disorders and infertility among PMMI is not robust. Consequently, women with pre-existing mental conditions may undergo additional distress when undergoing fertility treatments. Mental disorders originating prior to pregnancy could elevate the likelihood of miscarriage and additional pregnancy complications like gestational diabetes. Regarding secondary maternal mental illness (SMMI), more compelling evidence exists, establishing a correlation between common mental disorders during pregnancy and adverse outcomes such as preterm birth (PTB) and low-birth-weight

(LBW). The promotion of prenatal care is widely endorsed to identify mothers at risk of delivering preterm or growth-retarded infants. Various medical, nutritional, and educational interventions are recommended through prenatal care to mitigate the determinants and occurrences of low-birth-weight and other adverse pregnancy conditions. While the consensus supporting the value of prenatal care for both mother and child gained acceptance in recent times, the empirical evidence establishing the association between prenatal care and decreased rates of low-birth-weight has been gradual and inconclusive. The discussion about the efficacy of prenatal care in preventing low-birth-weight frequently stems from difficulties in defining the components of prenatal care and determining what qualifies as sufficient utilization of prenatal care. Recommendations for optimizing the impact of prenatal care on reducing low-birth-weight are suggested for the public and the biomedical, public health, and research communities. A pre-experimental research design was utilized to evaluate the impact of a structured teaching program on the knowledge of postnatal mothers regarding the care of LBW babies at Choithram Hospital & Research Centre and Mission Hospital in Indore. Thirty postnatal mothers were purposefully selected based on inclusion and exclusion criteria. The study involved a pre-test using a structured interview schedule to assess mothers' knowledge, followed by a structured teaching program delivered through pamphlets. A post-test was conducted after 7 days. The results indicated a significant increase in the mean post-test knowledge score (17.6) compared to the mean pretest knowledge score (10.8), with a standard deviation of 1.33. The t-test value was 67.6***, demonstrating statistical significance at the $p<0.001$ level. These findings suggest that the structured teaching program effectively enhances mothers' knowledge regarding the care of LBW babies [14].

METHODOLOGY

"No methodology can guarantee success but a good methodology can provide a feedback loop for continual improvement and learning."

—Ash Maurya

In a research investigation, the progression from initiating the study with a question to concluding it with an answer follows a logical sequence of predefined steps that remains consistent across various studies. This article deals with that flow, which is selected by the investigator in order to solve research problem. The research methodology structures all the elements of the study in a manner that is highly likely to generate valid solutions to the sub-problems that have been identified.

Research Approach

Quantitative Research Approach

As per Tree and Tree (1986), the research approach serves as the overarching framework that encompasses the fundamental steps in conducting research. The choice of the research approach is a fundamental step in carrying out a research study. Given the nature of the research problem and the objectives to be achieved, a non-experimental descriptive approach is deemed suitable for the current study.

Research Design

The concept of research design pertains to the blueprint of a scientific inquiry. It aids the researcher in choosing participants, identifying variables, managing and controlling them, determining the observations to be conducted, and specifying the types of statistical analyses for interpreting the data. The present study will employ a descriptive survey design (Figure 2).

Variables of the Study

A variable is a concept characterized by measurable and changing attributes. Variables represent the qualities, properties, or characteristics of mothers of neonates. This study identified two types of variables as follows:

Research variables: Knowledge and practice regarding the care of LBW babies.

Socio-demographic variables: In this study, socio-demographic clinical variables refer to selected

variables like age, education, religion, type of family, family income, number of living children, type of pregnancies, and source of information.

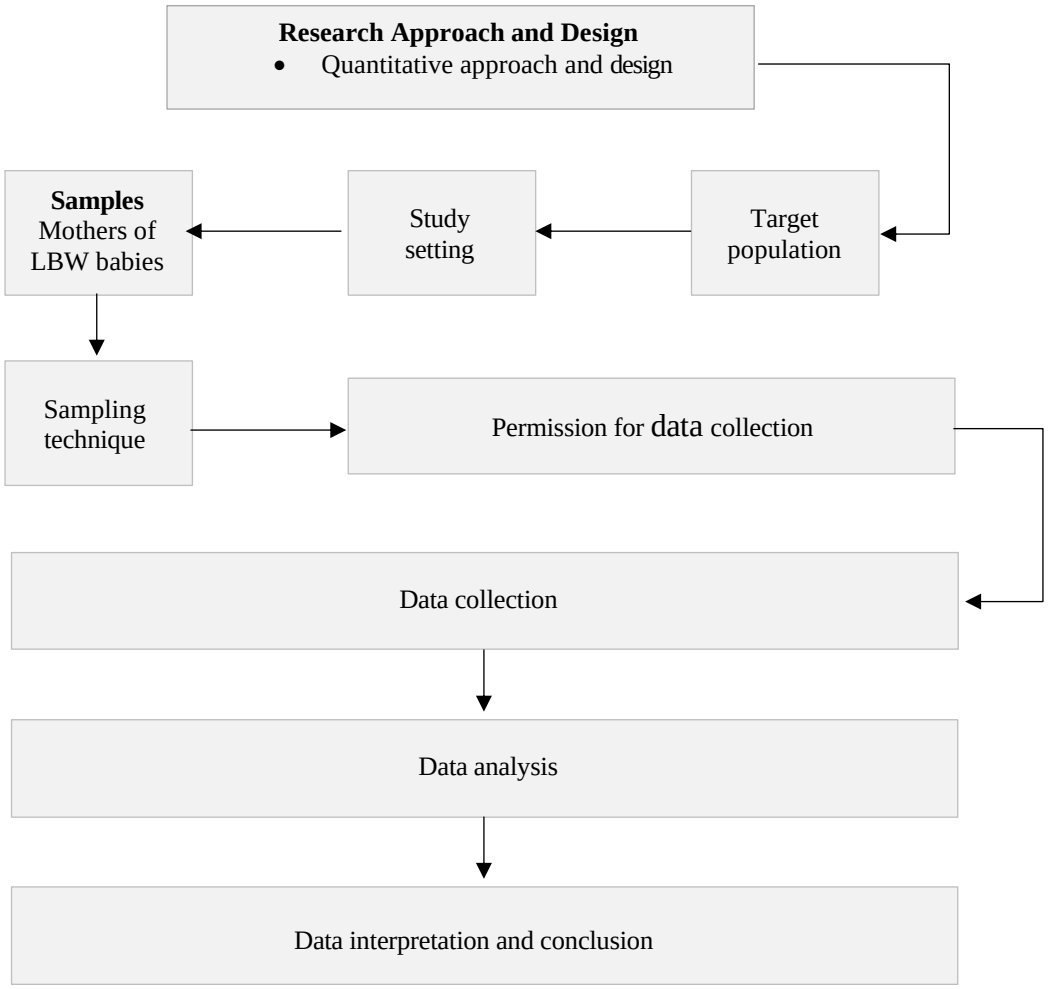

Figure 2. Series of events depicting research design.

Setting of the Study

The study will be conducted in GIMS Hospital in Gadag.

Delimitation

The study is delimited to mothers of neonate having birth weight between 1500–2500 gm admitted in GIMS Hospital in Gadag.

Population

The target population for present study is mothers of neonate available at the time of data collection in GIMS Hospital in Gadag.

Sample

A sample consists of subjects of units that comprise the mothers of neonate for the present study. In this study, the sample size is 163 mothers of neonate from selected at GIMS Hospital, Gadag.

Sampling Procedure/Technique

The study will utilize a non-probability convenient sampling technique to select GIMS hospital in Gadag.

Criteria for Sample Selection

The researcher established a sampling frame with the following criteria.

Inclusion Criteria for Sampling

The study includes mothers of neonate LBW babies who are:

- Weighing between 1500 to 2500 grams.
- Willing to take part in the study.
- Capable of understanding Kannada.

Exclusion Criteria

The study does not include mothers who:

- Are unwilling to participate in the study.
- Are deaf and mute.
- Have infants with a weight less than 1500 grams or more than 2500 grams.

Instruments Intended to be Used

- The investigator has planned to use a standard structured questionnaire for knowledge assessment and a checklist used to measure the practice of mothers of neonates.

Data Collection Method

- The researcher will seek approval from the relevant authority in advance.
- Assessment self-report method will be employed for data collection by using structured knowledge questionnaire.

Plan for Data Analysis

Descriptive statistics, including measures such as frequency distribution, percentage, mean, and standard deviation, will be employed.

Inferential statistics: The chi-square test will be employed to investigate the relationship between knowledge levels and specific socio-demographic variables.

Development of the Tool

Data collection tools are the means by which the researcher observes or measures the main variables in the research problem (Robert, 1989). The investigator created a structured questionnaire and checklist schedule, which was then translated into Kannada, to assess the knowledge and practices of mothers of neonates regarding the care of LBW babies. The development of the tool followed these steps, aligning with the study's objectives.

Preparation of Blueprint

A blueprint was created, illustrating the allocation of items based on the content areas: Knowledge and practice related to the care of LBW babies.

Description of the Final Tool

The final format of the questionnaire schedule was comprised of two parts.

Part-I

The socio-demographic profile consists of information about mothers of neonate: age, education, religion, type of family, family income, occupation status, number of living children, number of pregnancies, and source of information.

Part-II

It includes 20 items designed to evaluate the knowledge and practices of mothers of neonates

concerning the care of LBW babies.

It has two sections as mentioned.
Section-A: It consist of 20 items on knowledge related questionnaire.

Section-B: It consist of 20 items on practice-related questionnaire.

Scoring of the Items in Knowledge Questionnaire

There was a total of 20 items, each offering four options, and only one of them was correct. A correct answer to each item is assigned a score of "one," while an incorrect response receives a score of "zero". As a result, the highest attainable score for the 20 items is 20, and the lowest is zero. To investigate the relationship between the selected socio-demographic variables and knowledge scores, participants are divided into three groups.

The categorization of PUC students based on their level of knowledge was as follows: a score of 14–20 indicated a good knowledge level, a score of 7–13 indicated an average knowledge level, and a score of 0–6 indicated a poor knowledge level (Table 1).

Table 1. Levels of knowledge regarding care of LBW babies (N = 163).

Level of knowledge	Score (F)	Percentage (%)
Poor (0–6)	21	12.88%
Average (7–13)	135	82.82%
Good (14–20)	7	4.29

Scoring of the Items in Practice Questionnaire

There were 20 items. Each question provides four choices, with one correct answer. A right answer to each question is assigned a score of "one," and an incorrect response is given a score of "zero." Thus, for the 20 items, the maximum attainable score ranges from 20 to a minimum of zero.

To explore the connection between the chosen socio-demographic variables and checklist scores, participants are classified into three groups.

Mothers of neonates are categorized based on the level of practice as follows: a score of 14–20 represents a good practice level, a score of 7–13 signifies an average practice level, and a score of 0–6 indicates a poor practice level (Table 2).

Table 2. Levels of practice regarding care of LBW babies.

Level of practice	Score (F)	Percentage
Poor practice (0–6)	0	0%
Average practice (7–13)	77	47.23%
Good practice (14–20)	86	52.76%

Testing of the Tool Content Validity

The content validity of the tool was ensured through feedback from experts. Six experts, including a consulting medicine doctor and five faculty members specializing in various nursing fields, participated in the validation process. Minor adjustments were incorporated based on the recommendations and suggestions provided by the experts and the findings from the pilot study. Following consultation with the guide, the final version of the tool was confirmed as valid and appropriate for use with mothers of neonates.

Reliability of the Tool

The internal reliability of the structured knowledge questionnaire was evaluated employing the split-half method. The reliability of the test was determined through calculations using both Karl

Pearson's coefficient of correlation formula and Spearman's Brown prophecy formula. The obtained reliability coefficient for the knowledge questionnaire and practice checklist was 1.000000023, indicating high reliability of the tool.

Data Collection Procedure

Gathering data entails obtaining the required information to tackle the research problem. Before commencing actual data collection, the researcher obtained approval from GIMS Hospital in Gadag. Data was collected through a questionnaire and checklist with the help of a structured questionnaire schedule for six months.

Information was gathered from mothers of neonates based on their accessibility and convenience. During the six-month period, 163 mothers of neonates were surveyed using a questionnaire. By providing clear explanations in simple terms, the necessary questions were addressed, and cooperation was obtained from the subjects, facilitating the investigator in gathering the required information.

Plan of Data Analysis

The collected data was analyzed to fulfill the study objectives, employing both descriptive and inferential statistical methods.

1. Data was organized in a master sheet.
2. Socio-demographic characteristics were analyzed using frequency and percentage distribution.
3. Mean values were calculated for both knowledge and practice.
4. Chi-square test was utilized to identify associations between knowledge and practice scores.
5. Karl Pearson's formula was applied to determine the correlation coefficient between knowledge and practice.

Summary: This article encompasses the elucidation of the research approach, variables, samples, inclusion and exclusion criteria, as well as the development of the research tool. Additionally, the article outlines the procedures for data collection and the strategy for data analysis.

RESULTS

"A statistical analysis, properly conducted is a delicate dissection of uncertainties a surgery of supposition."

—M J Moroney

This article focuses on the systematic, objective, and quantitative examination of the research content obtained through diverse research investigation methods. It involves the analysis and interpretation of data derived from the sample, comprising 163 mothers of neonates admitted to GIMS hospital in Gadag. Data were gathered using a standardized structured questionnaire and checklist, and both descriptive and inferential statistical methods were employed for analysis.

OBJECTIVES OF THE STUDY

1. Evaluate mothers' understanding of caring for LBW infants.
2. Evaluate mothers' practical approach to caring for LBW infants.
3. Explore the connection between demographic variables and the scores of knowledges and practice.
4. Examine the correlation between the knowledge and practice concerning the care of LBW infants among neonate mothers.

Presentation of Data

To begin with data was entered in a master sheet for tabulation and statistical processing. The findings were presented under the following heading:

1. Presentation of sample characteristics including socio-demographic variables.
2. Evaluation of knowledge concerning the care of LBW infants.
3. Evaluation of practical application in the care of LBW infants.
4. Examination of the correlation between knowledge and practice in caring for LBW infants among neonate mothers.
5. Investigation of the association between knowledge and practice in caring for LBW infants among neonate mothers.

Part 1. Description of Samples with their Socio-demographic Variables

The breakdown of the sample based on age percentage reveals that a significant portion of neonate mothers (69.32%) fell within the 18–25 age bracket, 30.07% were in the 26–33 age range, and a small percentage (0.61%) were in the 34–41 age group (Figure 3 and Table 3).

Table 3. Percentage distribution of knowledge of mothers of neonates according to their ages.

S.N.	Age group	Frequency	percentage
1.	18–25	113	69.32
2.	26–33	49	30.07
3.	34–41	1	0.61
	Total	*163*	*100*

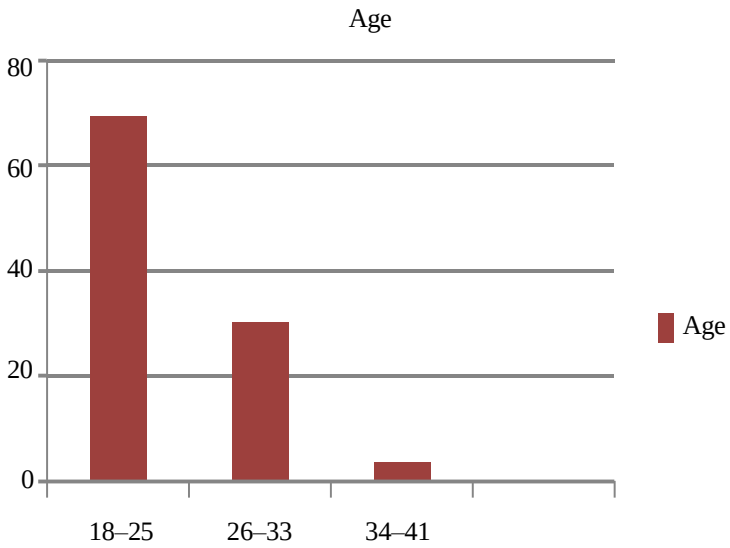

Figure 3. Percentage distribution knowledge of mothers of neonates according to their age.

The percentage-wise distribution of sample according to their religion depicts that, majority of mothers of neonate (83.44%) were belonging to Hindu, 14.73% of them were Muslims, 1.22% of them were Christians, 0.61% of them belonged to others religions (Figure 4 and Table 4).

Table 4. Percentage distribution of knowledge of mothers of neonates according to their religions.

S.N.	Religion group	Frequency	Percentage
1.	Hindu	136	83.44
2.	Muslim	24	14.73
3.	Christian	02	1.22
4.	Others	01	0.61
	Total	*163*	*100*

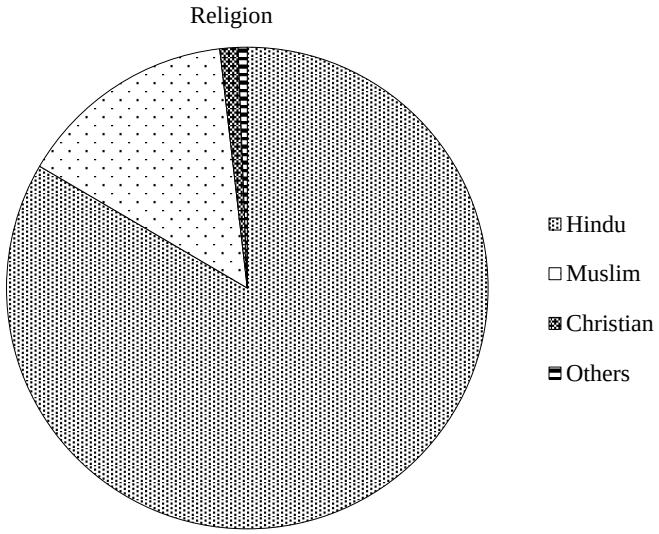

Figure 4. Percentage distribution of knowledge of mothers of neonates according to their religions.

Table 5. Percentage distribution of knowledge of mothers of neonates according to their type of family.

S.N.	Type of family	Frequency	Percentage
1.	Nuclear	136	83.44
2.	Joint	27	16.56
	Total	*163*	*100*

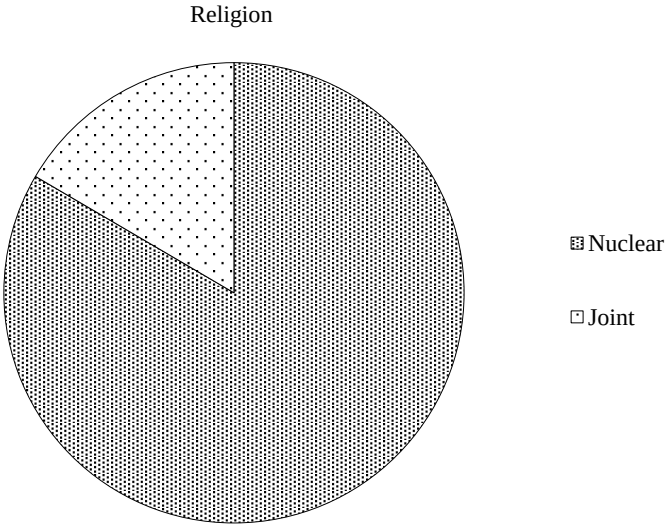

Figure 5. Percentage distribution of knowledge of mothers of neonates according to their types of families.

The distribution of the sample based on family type percentage indicates that most neonate mothers (83.44%) were part of nuclear families, while a smaller proportion (16.56%) belonged to joint families **(**Figure 5 and Table 5).

The distribution of the sample based on education status percentage indicates that most neonate mothers (8.58%) were illiterate, 34.96% had completed primary education, 30.68% had completed high school, 21.48% had completed PUC, and 4.30% had completed diploma education (Figure 6 and Table 6).

Table 6. Percentage distribution of knowledge of mothers of neonate according to their educational status.

S.N.	Educational status		Frequency	Percentage
1.	Illiterate		14	8.58
2.	Primary education		57	34.96
3.	High school		50	30.68
4.	PUC		35	21.48
5.	Diploma		07	4.30
	Total		*163*	*100*

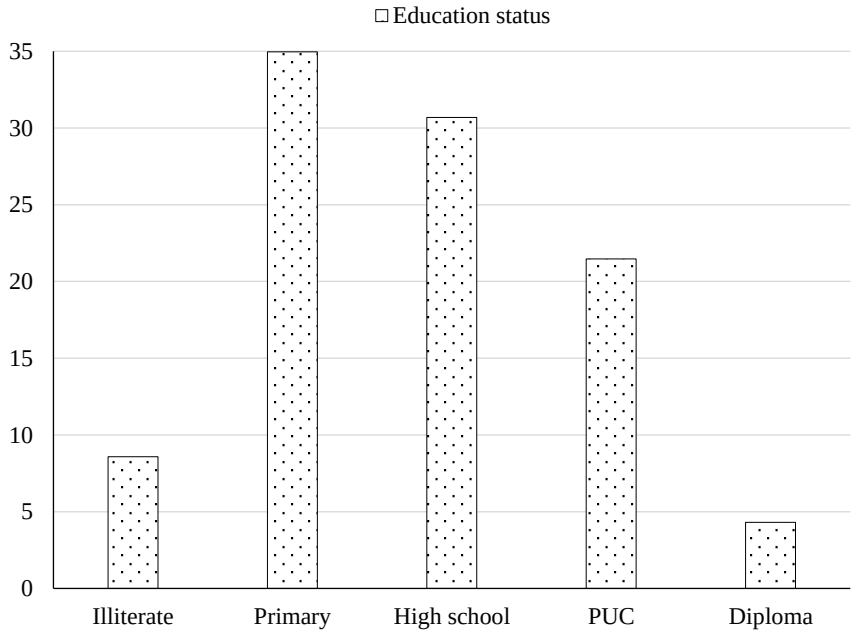

Figure 6. Percentage distribution of knowledge of mothers of neonates according to their educational status.

The distribution of the sample based on family income percentage indicates that the majority of neonate mothers (4.90%) had a family income of less than 10000, (76.68%) had an income between 10001–20000, (14.72%) had an income between 20001–30000, (3.07%) had an income between 30001–40000, and (0%) had an income of 40001 (Figure 7 and Table 7).

The distribution of the sample based on occupation percentage indicates that most neonate mothers (76.68%) were housewives, 3.68% were in government jobs, 4.3% were in private jobs, 5.52% were engaged in agriculture, and 9.82% were involved in manual labor (Figure 8 and Table 8).

Table 7. Percentage distribution of knowledge of mothers of neonates according to their family income.

S.N.	Family income (in ₹)	Frequency	Percentage
1.	Less than 10,000	08	4.90
2.	10,001–20,000	125	76.68
3.	20,001–30,000	24	14.72
4.	30,001–40,000	06	03.7
5.	40,001 and above	00	00
	Total	*163*	*100*

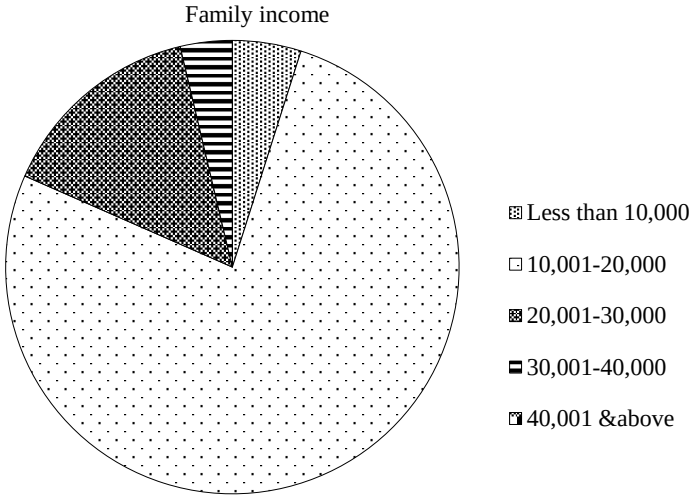

Figure 7. Percentage distribution of knowledge of mothers of neonates according to their family income.

Table 8. Percentage distribution of knowledge of mothers of neonates according to their occupational status.

S.N.	Occupational status	Frequency	Percentage
1.	Housewife	125	76.68
2.	Govt. job	06	3.68
3.	Private job	07	4.3
4.	Agriculture	09	5.52
5.	Coolie	16	9.82
	Total	*163*	*100*

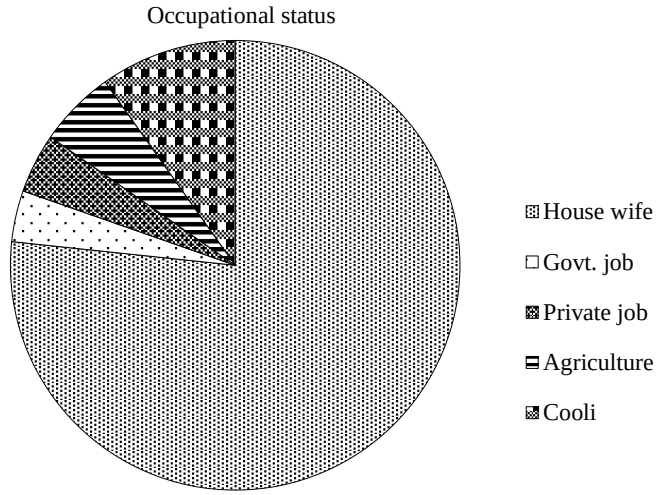

Figure 8. Percentage distribution of knowledge of mothers of neonates according to their occupational status.

The distribution of the sample based on the number of living children indicates that most neonates' mothers (25.15%) had no living children, 46.01% had one child, 28.84% had two children, and none had three or four children (Figure 9 and Table 9).

The distribution of the sample based on the number of pregnancies indicates that the majority of

neonate mothers (61.96%) were primigravida, while 38.04% were multigravida (Figure 10 and Table 10).

Table 9. Percentage distribution of knowledge of mothers of neonates according to their number of living children.

S.N.	Number of living children	Frequency	Percentage
1.	0	41	25.15
2.	1	75	46.01
3.	2	47	28.84
4.	3	00	
5.	4	00	
	Total	*163*	*100*

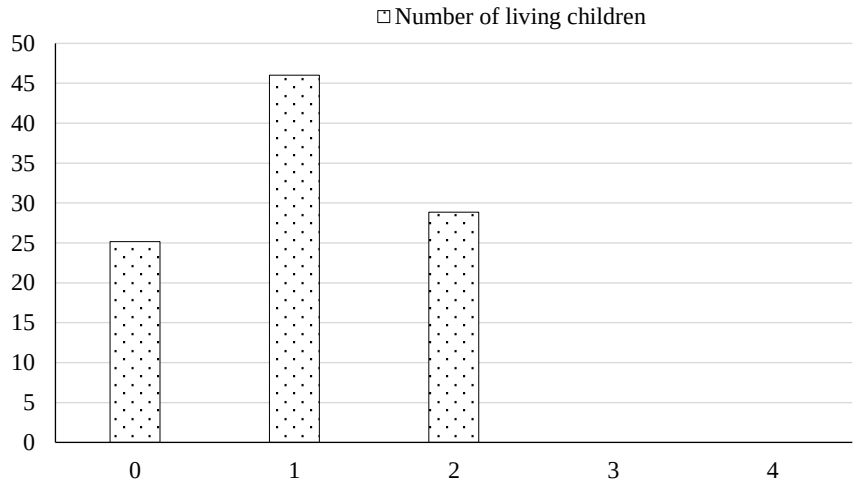

Figure 9. Percentage distribution of knowledge of mothers of neonates according to their number of living children.

Table 10. Percentage distribution of knowledge of mothers of neonates according to their number of pregnancies.

S.N.	No. of pregnancies	Frequency	Percentage
1.	Primigravida	101	61.96
2.	Multigravida	62	38.04
	Total	163	100

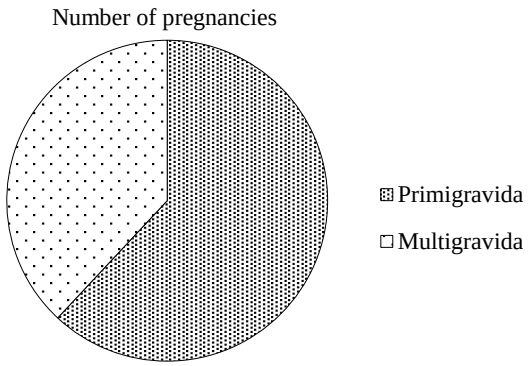

Figure 10. Percentage distribution of knowledge of mothers of neonates according to their number of pregnancies.

Table 11. Percentage distribution of knowledge of mothers of neonates according to their source of information.

S.N.	Source of information	Frequency	Percentage
1.	Newspaper	06	3.68
2.	Television	15	9.20
3.	Family member	97	59.50
4.	Healthcare worker	32	19.64
5.	Neighbors	13	7.98
	Total	163	100

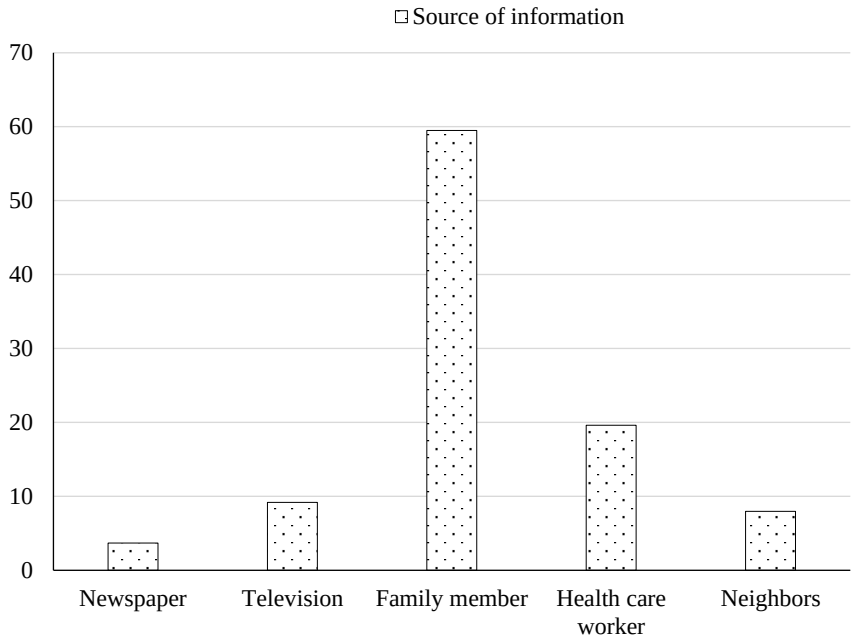

Figure 11. Percentage distribution of knowledge of mothers of neonates according to their source of information.

The percentage-wise distribution of sample according to their source of information depicts that majority of mothers of neonates (3.68%) were belonging to Newspaper, 9.20% of them were belonging to television, 59.50% were belonging to family member, 19.64% of them belong to healthcare worker, 7.98% them belong to neighbors (Figure 11 and Table 11).

The level of knowledge regarding care of LBW babies among mothers of neonate reveals that most of the mothers of neonates (82.82%) had average knowledge, 12.88% of them had poor knowledge, 4.29% of them had good knowledge (Figure 12 and Table 12).

The assessment of mothers' knowledge regarding the care of LBW babies indicates that the majority of neonate mothers (52.76%) exhibited good practices, while 47.23% demonstrated average practices (Table 13 and Figure 13).

Table 12. Percentage distribution according to level of knowledge.

Level of knowledge	Score (F)	Percentage (%)
Poor	21	12.88%
Average	135	82.82%
Good	7	4.29

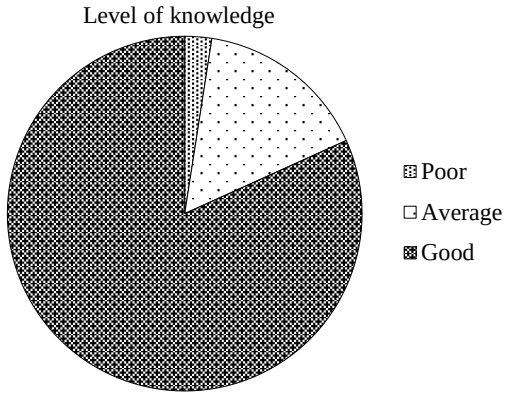

Figure 12. Percentage distribution according to the level of knowledge.

Table 13. Percentage distribution according to level of practice.

Level of practice	Score (F)	Percentage
Poor practice (0–6)	0	0%
Average practice (7–13)	77	47.23%
Good practice (14–20)	86	52.76%

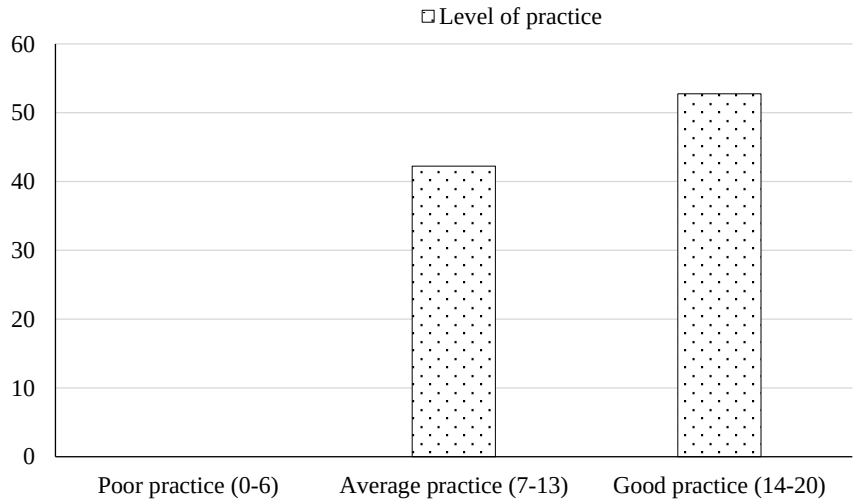

Figure 13. Percentage distribution according to level of practice.

To determine the correlation between knowledge and practice regarding the care of LBW (low birth weight) babies among mothers of neonates at GIMS Hospital Gadag, Karl Pearson's correlation coefficient will be used.

H1: There will be a significant correlation between the knowledge and practice of caring for LBW babies among neonatal mothers.

The correlation between the knowledge and practice scores of neonate mothers with their means of X=1575 and Y=2232, is (r= 1.000000023; P<0.05). A significant correlation exists between the knowledge and practice of neonate mothers (Table 14).

Part 5: Association Between Knowledge and Practice Regarding Care of LBW Babies among Mothers of Neonates

To determine the association between knowledge and practice concerning the care of LBW babies among neonate mothers at GIMS Hospital Gadag, the Chi Square Test will be employed.

Table 14. Co-relation between knowledge and practice regarding care of LBW babies.

Knowledge	Practice	Co-relation coefficient (r)	Remark
X =1575	Y=2232	1.000000023	Perfectly co-related between knowledge and practice

* Significant (P<0.05)

H_2: There will be a significant correlation between the knowledge and practice related to the care of LBW babies among mothers of neonates admitted based on selected socio-demographic variables.

The relationship between the knowledge scores and socio-demographic variables reveals a significant association between the knowledge of mothers of neonates and demographic variables such as occupation status ($\chi 2$= 88.01; P<0.05) and number of pregnancies ($\chi 2$= 34.68; P<0.05). However, there is no significant association observed between the knowledge of mothers of neonates and other demographic variables, including age, education, religion, type of family, family income, number of living children, and source of information (Table 15).

The relationship between the practice scores and socio-demographic variables among mothers of neonates indicates a significant association with demographic variables such as age (χ^2 = 80.6; P<0.05) and family income (χ^2 = 20.6; P<0.05). However, there is no significant association observed between the practice of mothers of neonates and other demographic variables, including education, religion, type of family, occupational status, number of living children, number of pregnancies, and source of information (Table 16).

Table 15. Association between knowledge and practice concerning the care of LBW babies.

S.N.	Socio-demographic variables	Knowledge	
		X²	***DF***
1.	Age	7.901^{NS}	4
2.	Education	13.345^{NS}	8
3.	Religion	11.45^{NS}	6
4.	Type of family	3.32^{NS}	2
5.	Family income	1.51^{NS}	8
6.	Occupational status	88.01^{*}	8
7.	Number of living children	6.81^{NS}	12
8.	Number of pregnancies	34.68^{*}	2
9	Source of information	2.22^{NS}	8

DF = Degree of freedom, NS= Not significant, * Significant

Table 16. Relationship between the practice scores and socio-demographic variables among mothers of neonates.

S.N.	Socio demographic variables	Practice	
		Value of chi-square	***DF***
1.	Age	80.15*	4
2.	Education	10.7^{NS}	8
3.	Religion	4.38^{NS}	6
4.	Type of family	0.085^{NS}	2
5.	Family income	20.06^{*}	8
6.	Occupational status	7.45^{NS}	8
7.	Number of living children	1.33^{NS}	12
8.	Number of pregnancies	1.608^{NS}	2
9.	Source of information	2.398^{NS}	8

DF = Degree of freedom, NS = Not Significant, * Significant

DISCUSSION

"A life without cause is a life without effect."

—Barbarella

This article presents an overview of the study's key discoveries and compares them with findings from other research outcomes. The primary objective of the study was to evaluate the knowledge and practice related to the care of LBW babies among mothers of neonates admitted to GIMS Hospital in Gadag. To fulfill the study's objectives, a descriptive comparative survey design was employed. In this study, a sample size of 163 mothers of neonates was selected using a convenient sampling technique [15–19].

The findings are discussed here in five steps.

Part 1: Description of socio-demographic variables.

Part 2: Assess the knowledge of mothers regarding care of LBW babies.

Part 3: Assess the practice of mothers regarding care of LBW babies.

Part 4: To find association between knowledge and practice scores with selected demographic variable.

Part 5: To find out the co-relation between knowledge and practice regarding care of LBW babies among mothers of neonate.

Part 1: Description of Socio-demographic Variables

The proportionate breakdown of the sample based on age indicates that the majority of PUC students (95%) fell within the 16–18 years age group, while a small percentage (5%) belonged to the 13–15 years age range. Regarding religious affiliation, a significant portion of the mothers of neonates (83.44%) were identified as Hindu, with 14.73% being Muslim, 1.22% Christian, and 0.61% adhering to other religions. In terms of family structure, most mothers of neonates (83.44%) were part of nuclear families, while 16.56% belonged to joint families.

The percentage-wise distribution of sample according to their education status depicts that majority of mothers of neonates (8.58%) were belonging to illiterate, 34.96% of them belongings to primary education, 30.68% of them were belonging to high school, 21.48% of them were belonging to PUC, 4.30% of them belonging to diploma education.

The percentage-wise distribution of sample according to their family income depicts that majority of mothers of neonates (4.90%) were belonging to less than 10000 income, 76.68% of them were belonging to 10001–20000 income, 14.72% were belongings to 20001–30000, 3.07% of them belonging to 30001–40000, 0% of them belonging to 40001 and above.

The percentage-wise distribution of sample according to their occupation status depicts that majority of mothers of neonates (76.68%) were belonging to housewife, 3.68% of them were belonging to Govt job, 4.3% were belongings to private job, 5.52% of them belongings to agriculture, 9.82% them belonging to Coolie category.

The percentage-wise distribution of sample according to their number of living children depicts that majority of mothers of neonates (25.15%) were having 0 children, 46.01% of them were having 1 child, 28.84% were having 2 children, 0% of them were having 3 children, 0% of them were having 4 children.

The percentage-wise distribution of sample according to their number of pregnancies depicts that majority of mothers of neonates (61.96%) were belonging to primigravida, 38.04% of them were belonging to multigravida [20–25].

The percentage distribution of the sample based on the source of information reveals that the majority of mothers of neonates (3.68%) obtained information from newspapers, while 9.20% relied on television. A significant proportion (59.50%) received information from family members, and 19.64% sought information from healthcare workers, with 7.98% obtaining information from neighbors.

Part 2: Assess the Knowledge of Mothers Regarding Care of LBW Babies

The level of knowledge regarding care of LBW babies among mothers of neonates reveals that, most of the mothers of neonates (82.82%) had average knowledge, 12.88% of them had poor knowledge, 4.29% of them had good knowledge.

Part 3: Assess the Practice of Mothers Regarding Care of LBW Babies

The analysis of mothers' knowledge about caring for LBW babies among neonatal mothers indicates that the majority (52.76%) exhibited good practices, while 47.23% demonstrated average practices.

Part 4: Co-relation Between Knowledge and Practice Regarding Care of LBW Babies among Mothers of Neonates

The co-relation of the knowledge and practice scores of mothers of neonates with their mean of X=1575 and Y=2232, then *($r= 1.000000023; P<0.05$).* There is significant co-relation found between knowledge and practice of mothers of neonates.

Part 5: Association Between Knowledge and Practice Regarding Care of LBW Babies among Mothers of Neonates

The association of the knowledge scores with their socio-demographic variables shows that there is a significant association between knowledge of mothers of neonates and demographic variables like occupation status *($\chi^2= 88.01; P<0.05$)* and number of pregnancies *($\chi^2= 34.68; P<0.05$).*

The association of the practice scores of mothers of neonates with their socio-demographic variables shows that there is a significant association between knowledge of mothers of neonates and demographic variables like age *($\chi^2= 80.6; P<0.05$).* and family income *($\chi^2= 20.6; P<0.05$).*

IMPLICATIONS OF THE STUDY

The study's results hold significance for nursing practice, nursing education, nursing administration, and nursing research.

Nursing Practice

- Helps nurses to determine effective and best practice of mothers in providing care to the low-birth babies.
- To create new knowledge and discover the best practices in LBW care, nurse research lead, and multidisciplinary teams to develop innovative ideas.
- It is essential to establish a program for training or mentoring nurse researcher dedicated to caring for LBW babies, advocating and disseminating innovative care to maximize the surviving of LBW babies.
- Encourage the mothers of neonates to do as much as possible for best practices towards care of LBW babies.
- To provide specialized care to the LBW babies.
- Early identification and provide treatment as much as possible.

Nursing Education

The diploma and B.Sc. nursing curriculum should consist of vast knowledge related to LBW babies and their care. Information using different methods of conducting health education, OPD, and group discussion. While training the nursing personnel, the emphasis should be on the management of LBWs.

Nursing Administration

The nurse administered should take interest in providing information on care of LBW babies. The nurse should plan and organize awareness programs caring of LBW babies and workshops for mothers and family members. She should organize to see that sufficient manpower, money, and material for dissemination of information about care of LBW babies. The nurse administrator has a vital role in supervising and motivating the nursing staff in conducting periodical health education program regarding care of LBW babies.

Nursing Research

- There is a need for extensive research on the care of LBW babies. Research should concentrate on modifying knowledge and practices regarding the care of LBW babies among mothers of neonates.
- Research efforts should be directed toward implementing new methods to enhance knowledge and practices among mothers of neonates concerning the care of LBW babies.
- Research initiatives should also emphasize the care of LBW babies to help mothers undergo treatment with minimal discomfort and improve their quality of life in the hospital.
- Thus, the subject of the present investigation presents vast opportunities and potential implications for nursing practice, training, and research in the areas of knowledge and practices related to the care of LBW babies among mothers of neonates.

Limitations

The current investigation serves as an initial exploration to evaluate the knowledge and practices related to the care of LBW babies among mothers of neonates at GIMS Hospital in Gadag.

1. The study's reliance on many subjects and convenient sampling pose limitations on the generalizability of its findings.
2. Due to time constraints, a long-term follow-up of subjects could not be conducted.
3. The study was confined to only 163 mothers of neonates from the GIMS Hospital in Gadag.
4. The tool used for data collection was developed by a researcher. Standardization and reliability testing should be conducted using a larger sample of mothers of neonates.

Recommendations

Based on the findings of the study, the following recommendations are made:

1. A similar study can be conducted among mothers of neonates.
2. Awareness program can be arranged for mothers of neonates and family for understanding the basic knowledge and practice regarding care of LBW babies.

CONCLUSION

"Most people are other people their thoughts are someone else's opinions, their Lives passion a quotation."

—Oscar Wilde

This article encompasses the study's conclusions based on the findings, implications, limitations, and offers suggestions and recommendations. Drawing conclusions from the study's findings, it was observed that a significant majority (82.82%) of mothers of neonates had average knowledge regarding the care of LBW babies, with 12.88% having poor knowledge, and 4.2% possessing good

knowledge. Regarding the level of practice among mothers of neonates in the care of LBW babies, the majority (52.76%) demonstrated good practice, while 47.23% exhibited average practice. The correlation analysis of the knowledge and practice scores of mothers of neonates, with a mean of X=1575 and Y=2232 revealed a significant correlation (r=1.000000023; P<0.05), indicating a noteworthy connection between knowledge and practice among mothers of neonates. Furthermore, the association analysis demonstrated a significant connection between knowledge and practice among mothers of neonates and demographic variables such as occupation status (χ^2=88.01; P<0.05) and the number of pregnancies (χ^2=34.68; P<0.05). The association of the practice scores of mothers of neonates with their socio-demographic variables revealed a notable association between knowledge and practice among mothers of neonates and demographic variables like age (χ^2=80.6; P<0.05) and family income (χ^2=20.6; P<0.05).

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