KNOWLEDGE REGARDING CARE OF LOW BIRTH WEIGHT NEONATES AMONG NURSES OF MORANG, NEPAL

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ABSTRACT

INTRODUCTION

Babies born preterm or at low birth weight are at increased risk of immediate life-threatening health problems as well as long-term complications and developmental delays. The occurrence of this condition causes substantial morbidity and mortality in children. The nurses are the key persons to provide care for the low birth weight neonates. The role of nurses to assess the low birth weight babies and to protect them from various complications.

MATERIAL AND METHODS

A descriptive cross-sectional design was used to find out the level of knowledge regarding care of low birth weight neonates among 60 registered nurses of Nepal (staff nurses and bachelor nurses) by using enumerative technique in Koshi Hospital, Biratnagar, Nepal. Semi-structured, pre-tested interview schedule was used to collect data and analysed by using descriptive and inferential statistic with SPSS version 16.

RESULTS

The study findings revealed that 63.3% of the respondents had high level of knowledge regarding care of low birth weight neonates. There was no statistically significant association between respondents' professional qualification and respondents' level of knowledge regarding care of low birth weight neonates.

CONCLUSION

The study concluded that more than half of the respondents had high level of knowledge regarding care of low birth weight neonates. Nurse is an important primary care provider and therefore, her education and access to information on care of low birth weight new born will help her provide adequate care and prevent complications in low birth weight babies.

KEYWORDS

Knowledge, Low birth weight neonates, Nurses,

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INTRODUCTION

Low birth weight (LBW) is defined as a birth weight of a live born infant of 2,499 g or less, regardless of gestational age. Subcategories include very low birth weight (VLBW), which is less than 1500 g, and extremely low birth weight (ELBW), which is less than 1000 g.[1]

Globally, 2.5 million children died in the first month of life at an average rate of 18 deaths per 1,000 live births in 2017. There are approximately 7,000 new born deaths every day, accounting for about 47% of all child deaths. Globally, the number of neonatal deaths declined from 5 million in 1990 to 2.5 million in 2017.[2]

Low birth weight and preterm birth are the most important indirect cause of new born mortality. Globally, the prevalence rate of preterm babies is 15 million and low birth weight babies are approximately 20 million, among them 96.5% low birth weight occur in developing countries. Usually prematurity and low birth weight occur together, both carrying a high birth rate of morbidity and mortality unless optimal care is given to maintain life.[3]

The prevalence of LBW in Nepal was 12% which was calculated from the available birth weight of infants. There was no change in the percentage of babies with a low birth weight between 2011 and 2016 in the country.[4] Similarly, the prevalence of LBW was 15.4% in a data base survey in Nepal.[5] As per the study conducted in Nepal different hospitals, the prevalence of LBW in Dhulikhel Hospital the incidence of LBW was 11.07%,[6] 23.1% Koshi Zonal Hospital[7] and 11.99% in Patan respectively.[8]

Birth weight is an important indicator of a population's health. In 2010, a total of 10.9 million births were preterm and appropriate-for-gestational age, 29.7 million births were full term and small-for-gestational age (SGA), and 2.8 million births were preterm and SGA among the total 135 million births in developing countries. Seventy-two percent of LBW infants in developing countries are born in Asia. In Nepal, LBW neonates comprised of 21.81% in 2016.[8]

Due to lack of immunity and LBW new born are at high risk of having problem with increased chance to acquire infection which later on can lead to death due to lack of immunity. The LBW new born have face may problems like hypothermia, feeding difficulties and hypoglycaemia. Low birth weight babies are immature, and they need special nursing care.[9]

LBW/premature babies are at greater risk of illness and death is that they lack the ability to control their body temperature, i.e., they get cold or hypothermic very quickly. A cold new born stops feeding and is more susceptible to infection. Kangaroo Mother Care (KMC) is the early, prolonged, and continuous skin-to skin contact between the mother (or substitute) and her low birth weight infant, both in hospital and after early discharge, until at least the 40th week of postnatal gestation age, with ideally exclusive breastfeeding and proper follow-up. Kangaroo Mother Care (KMC) is a powerful and easy to use method to promote the health and well-being of low birth weight (LBW).[10]

Since the birth weight is the most important factor determining the survival chances of neonates, nurses must have up to date knowledge regarding the care of the low birth weight babies. With this background the study was undertaken with the objectives were to find out the knowledge regarding care of low birth weight neonates among nurses and to find out association between the level of knowledge regarding care of low birth weight neonates with a selected socio-demographic variable.

MATERIAL AND METHODS

A descriptive cross-sectional research design was conducted to find out the level of knowledge regarding care of low birth weight neonates among 60 registered nurses of Nepal (staff nurse and bachelor nurse) by using enumerative sampling technique in Koshi Hospital of Biratnagar, Morang district, Nepal. Semi structured interview schedule was used for data collection within one-month period during the month of August, 2020. A descriptive statistics and inferential statistics (chi-square tests) were used to find out the association between level of awareness and their socio-demographic variables with SPSS version 16.

Ethical approval was obtained from the Institutional Review Committee (IRC) with the reference number UCMS/IRC /175 /19 of Universal College of Medical Sciences, Bhairahawa and administrative approval was obtained from the concerned authorities prior to data collection. Written informed consent was obtained from each respondent by clarifying the objective of the study.

RESULTS

More than half (56.7%) of respondents had completed Proficiency Certificate Level in Nursing and 43.3% had completed Bachelor in Nursing. Twenty percent of respondents were working in medical ward as well as in maternity ward and only 3.3% were working in orthopaedic ward. Nearly half of respondents (41.7%) had 5-10 years of working experience whilst 11.7% had more than 15 years of experience. Regarding training, 26.7% of respondents had received training on care of low birth weight neonates.

Regarding meaning of LBW, VLBW and ELBW neonates, 95%, 88.3% and 93.3% of respondents answered as neonates weighing less than 2500 grams, less than 1500 grams and less than 1000 grams respectively.

Table 1. Respondents' knowledge regarding risk factors and major aspects of care for LBW neonates (n=60)

Variables	Frequency	Percentage
Risk factors of LBW**		
Young maternal age*	51	85.0
Small maternal body structure*	19	31.7
Hyperemesis gravidarum*	22	36.7
Preterm labour*	54	90.0
Less intake of nutritious diet*	50	83.3
Inadequate antenatal visits*	22	36.7
Antepartum hemorrhage*	22	36.7
Previous home delivery	3	5.0
Mother's physical disability	17	28.3
History of maternal infections in previous pregnancy	2	3.3
Low socio-economic status*	42	70.0
Major aspects of care for LBW neonates**		
Maintenance of thermoregulation*	55	91.7
Promotion of sleep	15	25.0
Prevention of infection*	51	85.0
Maintenance of breathing*	33	55.0
Maintenance of nutrition and hydration*	53	88.3
Kissing the baby for gentle stimulation	5	8.3
Administration of BCG vaccine	12	20.0

**Multiple responses *Correct response
Mean percentage score of risk factors LBW:58.76
Mean percentage score of major aspects of care for LBW neonates:80

Most of the respondents (90%) knew preterm labour as risk factors of LWB and 91.7% answered maintenance of thermoregulation as major aspects of care for LBW neonates.

Table 2. Respondents' knowledge regarding hypothermia in LBW neonates (n=60)

Variables	Frequency	Percentage
Meaning of hypothermia		
Body temperature less than 35.5 ºC	18	30.0
Body temperature less than 36.5 ºC*	20	33.3
Body temperature less than 37.5 ºC	9	15.0
Body temperature less than 34.5 ºC	13	21.7
Methods of prevention of hypothermia in LBW neonates**		
Warm chain*	32	53.3
Warm compress	7	11.7
Kangaroo mother care*	57	95.0
Bathing with warm water immediately	1	1.7
Keeping neonate in pre-warmed radiant warmer and incubator*	49	81.7

*Correct response **Multiple responses
Mean percentage score of methods of prevention of hypothermia in LBW neonates:76.67

Less than half of respondents (33.3%) answered meaning of hypothermia as body temperature less than 36.5ºC. Majority of respondents (95%) answered kangaroo mother care as preventive method of hypothermia in LBW neonates.

All of the respondents answered KMC as a method of keeping the baby warm through continuous skin to skin contact with the mother. More than half of respondents (63.3%) answered skin to skin contact, breastfeeding and support for mother and baby as components of KMC whereas 71.7% of respondents answered KMC should be continue until the baby gain weight of 2.5 kg. Majority of respondents (85%) answered that family members can be involved in KMC.

Table 3. Respondents' knowledge regarding feeding for LBW neonates (n=60)

Variables	Frequency	Percentage
Best choice of nutrition		
Exclusive breastfeeding*	54	90
Methods of maintaining nutrition and hydration if not able to be breastfed**		
Cup and spoon feeding*	45	75.0
Orogastric feeding*	24	40.0
Calorie requirement during 1st week of life		
60 kcal/kg/day*	31	51.7
Fluid requirement		
50-100 ml/kg/day	23	38.3
60-100 ml/kg/day*	19	31.7
70-100 ml/kg/day	10	16.7
60-120 ml/kg/day	8	13.3
Time of feeding		
2-3 hourly*	38	63.3
Position after feeding		
Supine	6	10.0
Left side	35	58.3
Right side*	14	23.4
Prone position	5	8.3
NICU Environment (n=54)		
Professional and public/visitor traffic should be same	6	11.1
Warm*	52	96.3
Proper light*	44	81.5
Provided with 2 visitors of each baby	2	3.7
Free from excessive sound*	37	68.5

**Multiple responses *Correct response
Mean percentage score of NICU environment to be maintained:80.57

Majority of respondents (90%) answered exclusive breastfeeding as best nutrition for LBW neonates. More than half of respondents (75%) knew that cup and spoon feeding should be done if LBW neonates are not able to breastfed. Likewise, regarding calorie requirement during first week of life, 51.7% answered 60 kcal/kg/day. Regarding fluid requirement, 38.3% answered 50-100 ml/kg/day whereas only 13.3% answered 60-120 ml/kg/day. More than half of respondents (63.3%) answered time of feeding as 2-3 hourly and 58.3% knew LBW neonates should be place in right side after feeding.

More than half of the respondents (65%) knew that multi-nutrients supplementation should be given for LBW neonates as they have inadequate stores of the most nutrients.

Majority of respondents (90%) knew special care for LBW neonates should be provided in NICU.

Regarding environment in NICU for LBW neonates, 96.3% of

respondents answered warm, 81.5% as proper light and 68.5% free from excessive sound.

Table 4. Overall respondents' knowledge regarding care of low birth weight neonates (n=60)

Level of knowledge	Frequency	Percentage
High	38	63.3
Low	22	36.7
Total	60	100

Mean score-23.6 out of 32

Majority 63.3% of respondents had high knowledge and 36.7% had low knowledge regarding care of low birth weight neonates

Table 5. Association between respondents' professional qualification and respondents' level of knowledge regarding care of LBW neonates

Professional qualification	Level of knowledge		χ^2	*p-value*
	High	Low		
PCL	23 (22.2)	13 (13.8)	0.188	0.665
B.N.	14 (14.8)	10 (9.2)		

Significance level at 0.05

There is no statistically significant association between respondents' professional qualification and respondents' level of knowledge regarding care of LBW neonates (p=0.665).

DISCUSSION

The study findings showed 70% of the respondents had knowledge that low socio-economic status is a risk factor of LBW which is not consistent with the study of Amoula et al (2016) conducted in NICU at Soba University Hospital, Sudan which shows 62% had knowledge that low socio-economic status is a risk factor of LBW.[11]

Similarly, the findings showed 85% of the respondents had knowledge that young maternal age is a risk factor of LBW which is not consistent with the study of Levision et al (2014)[12] conducted in Malawi shows 64.3% had knowledge that young pregnancy is a risk factor of LBW. This variation might be due to sample size.

The results revealed 91.7% and 85% of the respondents had knowledge that maintenance of thermoregulation and prevention of infection are the major aspects of care for LBW neonates respectively which are not consistent with the study of Ayiasi et al (2014)[13] conducted in Masindi, Uganda which shows 79.2% and 72.1% had knowledge about maintenance of thermoregulation and infection prevention as the major aspects of care for LBW neonates. This variation might be due to sample size.

The results showed 55% of the respondents had knowledge that maintenance of breathing is a major aspect of care for LBW neonates which is inconsistent with the study of Amoula et al (2016)[11] conducted in NICU at Soba University Hospital, Sudan which shows that 90% of the respondents had knowledge that maintenance of breathing is a major aspect of care for LBW neonates.

The results showed 33.3% of the respondents had knowledge regarding meaning of hypothermia. The study findings showed 53.3% of the respondents had knowledge that warm chain is a method of prevention of hypothermia which is consistent with the study of Ayiasi et al (2014) which shows 54% of the respondents had knowledge that warm chain is a method of stabilizing the temperature of LBW neonates.[13]

The study findings showed 81.7% of the respondents had knowledge that keeping neonates in pre-warmed radiant warmer and incubator is a method of prevention of hypothermia which is contradicted with the study of Phanase (2016) conducted at Hospital of Vidarbha which shows that 42.2% had knowledge that keeping neonates in pre-warmed radiant warmer and incubator is a method of prevention of hypothermia.[14]

The study findings showed 95% of the respondents had knowledge that KMC is a method of prevention of hypothermia which is inconsistent with the study of Ayiasi et al (2014) conducted in Masindi, Uganda which shows that 72.1% of the respondents had knowledge that KMC is a method of prevention of hypothermia in LBW neonates.[13]

The findings showed that 85% of the respondents had knowledge that family members can be involved in KMC which is inconsistent with the study of Dalal et al (2013) conducted in Ahmedabad district which shows that 31.7% had knowledge that KMC can be given at home.[10]

The study findings showed all of the respondents had knowledge that it is necessary to wash hands before and after touching each baby. A comparative study was conducted by Capretti MG, Sandri F (2008)[15] in Italy to assess the impact of a standardized hand hygiene program on the incidence of nosocomial infection in very low birth weight infants among staff nurses working in neonatal intensive care unit and the findings showed that the incidence of nosocomial infection was significantly reduced after the introduction of a standardized hand washing protocol among in very low birth weight infants.

There was no statistically significant association between respondents' socio demographic data and level of knowledge regarding care of LBW neonates (p=0.665). It is supported by study conducted in Vidarbha region, Maharashtra which reveals there is no significant association found between

knowledge and the demographic variables of the participants.[15]

CONCLUSION

Based on the study findings, it is concluded that more than half of the respondents have high level of knowledge regarding care of low birth weight neonates. They have high knowledge regarding meaning of LBW, VLBW and ELBW neonates, risk factors and major aspects of care for LBW neonates, methods of prevention of hypothermia in LBW neonates, KMC (meaning, components, continuation, advantages and methods, involvement of family members in KMC), maintenance of nutrition and hydration (best choice of nutrition, methods, reasons for multinutrient supplementation, time of feeding), ward for special care and infection prevention of LBW neonates. Still they have low knowledge regarding meaning of hypothermia, duration of KMC, fluid requirement, duration of multi-nutrients supplementation and positioning after feeding of LBW neonates. There is no statistically significant association between respondents' professional qualification and respondents' level of knowledge regarding care of LBW neonates.

LIMITATION OF THE STUDY

The study was conducted among sixty nurses in a hospital of Morang district. So, findings of the study cannot be generalized in other setting.

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