DESCRIPTIVE CROSS-SECTIONAL STUDY ON MOTHER'S KNOWLEDGE REGARDING PREVENTION OF NEONATAL HYPOTHERMIA

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ABSTRACT

INTRODUCTION

In today's era, neonatal hypothermia is ranked as high risk factor for newborn survival. Practicing kangaroo mother, mummifying newborn, delaying first bath etc are useful practices for maintaining warm chain and thermo-protection of newborns.

MATERIAL AND METHODS

A cross-sectional descriptive study was used for the study. Setting of the study was postnatal ward of Gandaki Medical College Teaching Hospital and Research Center with total sample of 70. Probability convenient sampling technique was used for the study. Data analysis was done through descriptive and inferential statistics.

RESULTS

Among the respondents, 41.4% mothers were of age between 26-30 years, majority 75.7% were hindu, 42.9% had completed secondary level education, more than half (51.4%) were residing in nuclear family, 45.7% were housewife, more than half 52.9% had income/month as 15,001.00-20,000.00, more than half (61.4%) had normal delivery, and more than half (51.4%) had two children. Almost half of the mothers (45.7%) had inadequate level of knowledge, 32.9% had moderate knowledge and 21.4% had adequate knowledge, also there showed significant association between mothers level of knowledge on neonatal hypothermia with educational status, type of family and type of delivery at 5% level (ie., $p<0.05$).

CONCLUSION

Based on the findings, it is concluded that almost half of the mothers have inadequate knowledge regarding neonatal hypothermia. Mothers knowledge might be helpful to prevent newborn from neonatal hypothermia, so training should be provided to mothers and family members during their antenatal period regarding thermal protection of the newborn.

KEYWORDS

Body temperature, Neonatal hypothermia, Protection, Thermoregulation.

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INTRODUCTION

Hypothermia occurs when the newborns body temperature drops below 36.5°C (97.7°F) as a result of cold environment for the baby. The newborn body temperature of 36.0-36.4°C (96.8-97.5°F) is considered as cold stress or mild hypothermia. Body temperature of 32.0-35.4°C (89.6-96.6°F) falls under moderate hypothermia, while a temperature below 32°C (89.6°F) is considered as severe hypothermia.[1]

Mothers have pivotal role in prevention of neonatal hypothermia. The mortality and morbidity related to neonatal hypothermia can be prevented by providing appropriate knowledge and practice performed by mother which can prevent hypothermia among the neonates.[2] The newborn baby has to adapt to the external environment soon after birth where the chain of thermoregulation is interrupted. In order to maintain the normal body temperature, appropriate interventions and care are very important and it helps in preventing neonatal hypothermia particularly in the first 12 hours of life.[3]

Globally, the prevalence of neonatal hypothermia ranges from 8.5% to 52%.[4] A review report of prevalence of neonatal hypothermia among hospital deliveries in developing countries was 32% to 85%.[5] In south Asian countries, there is high prevalence of neonatal hypothermia as in Srilanka 63%,[6] Pakistan 49%,[7] India 43%[8] and Nepal 92.3%.[9]

Mothers play significant role in newborn's growth and development, their wellbeing, and contribute extremely for their survival. Mothers whose knowledge in terms of prevention of neonatal hypothermia may help the baby to survive from danger signs of newborn, especially hypothermia.[10]

A study conducted in Jaipur, Rajasthan on knowledge regarding prevention of hypothermia in newborns among postnatal mothers in selected hospitals revealed that 4% of the postnatal mothers had poor knowledge regarding prevention of hypothermia in newborn, 49% had average knowledge, 42% of the postnatal mothers had good knowledge and 4% had excellent knowledge regarding prevention of hypothermia in newborn.[11]

A study conducted to assess the knowledge and attitude of neonatal care practices among postnatal mothers in a tertiary care hospital in South India revealed that knowledge of mothers was inadequate in areas of umbilical cord care (35%), thermal care (76%) and vaccine preventable diseases.[12] Also, very few studies have been conducted among mothers in our country so the objective of this study was to find out the mother's knowledge regarding prevention of neonatal hypothermia and measure the association between mothers knowledge regarding prevention of neonatal hypothermia and selected demographic variables.

MATERIAL AND METHODS

A descriptive cross-sectional design was used to assess the level of knowledge of mothers regarding prevention of neonatal hypothermia. This study was conducted in postnatal ward of Gandaki Medical College Teaching Hospital and Research Center (GMCTHRC) Kaski which is situated at Prithvi chowk, Pokhara, Nepal. It is 550 bedded tertiary level hospital established in 2008 AD located in Kaski district province 4. There is total 110 beds in maternity services among them there is 66 beds in postnatal ward. Average postnatal mothers admitted in the ward per month was 86 at the time of data collection. Population of the study was mothers admitted in postnatal ward of GMCTHRC from 13 February 2020 to 13 March 2020. The total sample of the study was 70 which was calculated using estimated sample size calculation formula (Cochrane formula) with allowable error of 10% and p value 0.05.

Data collection period was of one month from13 February 2020 to 13 March 2020. Non-probability convenient sampling technique was used to collect the samples for the study.

Criteria for sample selection included mothers admitted in the post natal ward of GMCTHRC who were willing to participate in the study. The study excluded the mothers who were not available at the time of data collection. Data collection was done through interview technique using interview schedule. Semi structured interview questionnaire was used to assess the level of knowledge of mothers regarding prevention of neonatal hypothermia.

Ethical consideration

Ethical approval was obtained from Gandaki Medical College Teaching Hospital and Research Center Institutional Ethical Committee with the Ref no: 15-10-2076.

Data analysis procedure

Collected data were analyzed using descriptive and inferential statistics on SPSS 20.0 version. Descriptive statistics such as frequency, percentage distribution and range was used and inferential statistics such as Chi square test was used to find out the association between the mother's level of knowledge and selected demographic variables at $p<0.05$ level of significance.

Each item had a score one for the correct answer and score zero for the wrong answer. Thus altogether there were 24 items with a maximum total score of 24.

Development criteria for knowledge score

In order to achieve the objectives of the study, level of knowledge is categorized as

Interpretation of knowledge score (Mageshwari K, et al.)[13]

S.N	Score(%)	Level of knowledge
1	0-12 (below 50%)	Inadequate knowledge
2	13-17 (50-75%)	Moderate knowledge
3	18-24 (above 75%)	Adequate knowledge

RESULTS

Table 1. Socio demographic characteristics and obstetric related variables of respondents (n=70)

Variables	Frequency	Percentages %
Age group (in years)		
Below 20	10	14.3
20-25	27	38.6
26-30	29	**41.4**
31-35	4	5.7
36 and above	0	0.0
Religion		
Hindu	53	**75.7**
Muslim	9	12.9
Christian	7	10.0
Other	1	1.4
Education status		
No formal education	4	5.7
Primary level	25	35.7
Secondary level	30	**42.9**
Intermediate and above	11	15.7
Occupation status		
Home maker	32	**45.7**
Daily wages	6	8.6
Own business	29	41.4
Private employee	3	4.3
Income per months		
Below 5 thousands	5	7.1
5001-10000	6	8.6
10001-15000	22	31.4
15001- 20000	37	**52.9**
Type of family		
Nuclear	36	**51.4**
Joint	27	38.6
Extended	7	10.0
Type of delivery		
Normal	43	**61.4**
Instrumental	6	8.6
Caesarean	21	30.0
Number of parity		
One	25	35.7
Two	36	**51.4**
Three	6	8.6
Four and more	3	4.3

The above Table reveals that regarding age 41.4% of mothers were of age 26-30 years, regarding religion majority 75.7% were hindu, regarding education 42.9% had completed secondary level education, regarding type of family more than half 51.4% were residing in nuclear family, regarding occupation 45.7% were housewife, regarding monthly income more than half 52.9% had income/month as 15,001.00-20,000.00, regarding mode of delivery more than half 61.4% had normal delivery, and regarding parity of children more than half 51.4% had two children.

Table 2. Level of knowledge of mothers regarding prevention of neonatal hypothermia (n=70)

Range of score	Level of knowledge	No of respondents	Percentage %
0-12	Inadequate knowledge	32	**45.7 %**
13-17	Moderate knowledge	23	32.9 %
18-24	Adequate knowledge	15	21.4 %
	Total	**70**	**100 %**

The above table reveals 45.7% of mothers have inadequate knowledge, 32.9% has moderate knowledge and 21.4% of mothers have adequate knowledge regarding prevention of neonatal hypothermia.

Table 3. Association between level of knowledge and age, religion, income, occupation, education level of mothers, type of family, type of delivery and parity of mothers (n=70)

Variables	Level of knowledge			χ2	p-value
	Inadequate knowledge	Moderately adequate knowledge	Adequate knowledge		
Age in years					
< 25	18	8	11	5.687 [a]	0.058
	14	15	4		
Religion					
Hindu	22	17	14	3.417[a]	0.181
Other	10	6	1		
Education status					
Basic education	16	11	2	6.236[a]	**0.044**
Secondary and above	16	12	13		
Occupation status					
Home maker	13	12	7	0.726[a]	0.696
Daily wages	19	11	8		
Income per months					
< 10,000	7	4	0	3.762 [a]	0.152
≥ 10,000	25	19	15		
Type of family					
Nuclear	12	12	12	8.561[a]	**0.014**
Joint	19	11	2		
Type of delivery					
Normal	17	13	13	6.433 [a]	**0.040**
Instrumental &Caesarean	14	9	1		
Number of parity					
Upto Two	27	19	15	2.854 [a]	0.240
Three and above	5	4	0		

Note: S-Significant at 5% level (i.e. $p<0.05$), NS-Not significant at 5% level (i.e. $p>0.05$).

Above table showed a significant association between mothers knowledge regarding prevention of neonatal hypothermia and education status ($\chi^2= 6.23$, df=2), type of family ($\chi^2= 8.56$, df=2) and type of delivery ($\chi^2= 6.43$, df=2) at 5% level (i.e. $p<0.05$).

DISCUSSION

The demographic characteristics of the respondents revealed that regarding age 41.4% of mothers were of age 26-30 years, regarding religion majority 75.7% were Hindu, regarding education 42.9% had completed secondary level education, regarding type of family more than half 51.4% were residing in nuclear family, regarding occupation 45.7% were

housewife, regarding monthly income more than half 52.9% had income/month as 15,001.00-20,000.00, regarding mode of delivery more than half 61.4% had normal delivery, and regarding parity of children more than half 51.4% had two children.

The present study is supported by the findings of study done in Government Medical College, Jammu and Kashmir, India on knowledge regarding prevention of hypothermia in newborns among mothers using systematic sampling technique with the sample size of 108 mothers in postnatal ward. Pre-structured questionnaire regarding prevention of hypothermia was used for data collection. Results of the study reveals that maximum mothers 51% were of age less than 25 years, majority 60% mothers were residing in rural area, Literacy status of mothers as evidenced was 33% illiterates, majority 66% of mothers were house wives, majority 95% babies were delivered at hospital, majority 62% mothers belong to nuclear family and majority 85% mothers started breast feeding their babies.[14]

The study is also supported by the findings of the study done in M.K.C.G. Medical College Hospital, India on knowledge regarding prevention of hypothermia among mothers of LBW neonates in SNCU using systematic sampling technique with the sample size of 54 mothers. Pre-structured questionnaire regarding prevention of hypothermia was used for data collection. Results of the study revealed that maximum mothers were of age less than 25 years 52%, 44% were aged 25-30, maximum 57% mothers were residing in rural area and 39% in urban area. Regarding Literacy status of mothers 35% was illiterate, 31% studied up to primary, 24% were 10th pass. Most of mothers 59% belong to nuclear family, and rest 41% had joint family. Maximum mothers (69%) were house wives, 22% labour class and 9% were professionals. It was seen that 95% babies delivered at hospital and only 5% home delivered.[15]

The similar study was done in Sindh Pakistan on Knowledge attitude and practice among mothers about newborn care. The total sample consisted of 528 participants and overall response rate was 98.1%. Majority 55.5% of the participants belonged to the age group of 20-29 years. Majority 66% of the participants were residing in rural areas and 53% of respondents were living in joint families. Majority 64.9% had no education at all, whereas only 14.1% studied up to secondary level. Majority 66% of respondents were housewives while 34% had outdoor occupations among them 20% of the working mothers were farmers.[16]

The analysis of level of knowledge of mothers on prevention of neonatal hypothermia reports that 45.7% of mothers have inadequate knowledge, 32.9% of mothers have moderate knowledge and 21.4% mothers have adequate knowledge. This indicated that almost half of mothers had inadequate knowledge on preventing the newborn child from hypothermia which calls the demand for providing appropriate knowledge on prevention of hypothermia in newborns.

The study is supported by the study done in Rwanda on mother's knowledge and practice regarding neonatal hypothermia at a selected provincial hospital with the sample of 161 mothers using convenience sampling technique. Modified closed ended questionnaire was used for data collection. Results of the study revealed that among 161 mothers 97 of them (60.2%) had inadequate knowledge about neonatal hypothermia, whereas the remaining (39.8%) have an adequate knowledge. which shows that there is a need to assess promptly the knowledge among mothers in terms of hypothermia to decrease subsequent death related to neonatal hypothermia.[17]

The present study reveals that there is significant association between the levels of knowledge regarding prevention of neonatal hypothermia and selected demographic variables. According to the results shown by Table 3, it was found significant for education status (χ^2= 6.23, df=2), type of family (χ^2= 8.56, df=2) and type of delivery (χ^2= 6.43, df=2) at 5% level (i.e. p<0.05).

The result of the present study is supported by the study conducted in Jaipur, Rajasthan on knowledge regarding prevention of hypothermia in newborns among postnatal mothers in selected hospital which reveals that there is a significant association between the knowledge score of postnatal mothers and selected demographic variables like age of the participants χ^2= 16.92 (p<0.05), educational status χ^2 = 18.12 (P<0.05), type of family χ^2= 9.08 (P<0.05), number of children χ^2 = 17.92 (p<0.05) and previous knowledge regarding prevention of hypothermia χ^2 = 9.29 (P<0.05).[11]

CONCLUSION

Based on the findings it is concluded that almost half of the mothers have inadequate level of knowledge regarding neonatal hypothermia. Since hypothermia is among the major cause of morbidity and mortality among neonates, it is easily preventable and manageable too. For effective care of newborn, the mother being primary caregiver should have adequate knowledge to prevent neonates from hypothermia. Mothers should be provided knowledge regarding prevention of hypothermia during their antenatal visit and also through various awareness programe which can be easily initiated at community level.

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