

# The Determinants of Knowledge and Practices of Postnatal Mothers on Essential Newborn Care in a Selected Area of Bihar Region: A Community Based Study

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Conflict of interest: Nil

## Abstract

**Aim:** To assess determinants of the knowledge and practices of postnatal mothers on essential newborn care.

**Material & Methods:** A community based cross-sectional study was conducted among 200 postnatal mothers and neonates dyads in the one of the selected Primary Health Centers (PHC) of the Intensive Field Practice Area (IFPA) of the Comprehensive Rural Health Services Project (CRHSP). Birth register at every sub-center was referred for making a list of postnatal mothers delivered during the study period. Postnatal mothers were contacted by making home visits along with ASHA (Accredited Social Health Activists) workers and enrolled using convenience sampling techniques.

**Results:** The mean knowledge scores of postnatal mothers on ENBC was  $24.72 \pm 6.60$ . More than half of postnatal mothers (67%) had moderate knowledge. The mean practice scores of postnatal mothers on ENBC was  $23.71 \pm 3.52$ . More than two-thirds of postnatal mothers had adequate practices.

**Conclusion:** Some gaps were observed in the adopting safe practices in the domains of thermal control, breastfeeding, cord care and eye care among the postnatal mothers; necessitating need for education, reinforcement and dispelling the cultural beliefs.

**Keywords:** Essential newborn care, Knowledge, Postnatal mother, Practices.

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## Introduction

Essential newborn care is a set of comprehensive recommendations designed by the World Health Organization (WHO) to improve the newborn's health through intervention soon after birth and in the postnatal period. [1]

Newborn care includes thermal care (drying and wrapping the newborn immediately after delivery and delaying the newborn's first bath for at least 6 h or several days to reduce hypothermia risk), clean delivery, and cord care (cutting and

tying off the umbilical cord with a sterilized instrument and thread). Newborn care also includes breastfeeding initiation within the first hour of birth, immunization, eye care, recognition of danger signs, care of the preterm/low birth weight infant, and management of newborn illnesses. [2]

WHO mentioned several interventions which make newborns healthy? Crucial interventions mentioned for essential newborn care practices are clean cord care,

thermal protection, early and exclusive breastfeeding, delay bathing, care for the low birth weight newborn, and management of newborn. [3]

Cord care is among the essential newborn care performed early in less than 1 min after birth or late cord clamping (performed after 1 to 3 min after birth). Early cord clamping is not recommended unless the neonate is asphyxiated and must be moved immediately for resuscitation. Late cord clamping is recommended for all births while initiating simultaneous essential newborn care. Daily chlorhexidine (4%) application to the umbilical cord stump during the first week of life is recommended for newborns who are born at home in settings with high neonatal mortality (neonatal mortality rate >30 per 1000). Thermal protection, newborns without complications should be kept in skin-to-skin contact with their mothers during the first hour after birth to prevent hypothermia and promote breastfeeding as soon as possible after birth. Vitamin K is also another component of essential care need to provide for the newborn intramuscularly (IM) after birth. [4]

Therefore, the present study was conceptualized to find out the determinants of ENBC among the postnatal mothers.

### Material & Methods

A community based cross-sectional study was conducted among 200 postnatal mothers and neonates dyads in the one of the selected Primary Health Centers (PHC) of the Intensive Field Practice Area (IFPA) of the Comprehensive Rural Health Services Project (CRHSP). Birth register at every sub-center was referred for making a list of postnatal mothers delivered during the study period. Postnatal mothers were contacted by making home visits along with ASHA (Accredited Social Health Activists) workers and enrolled using convenience sampling techniques. Written informed

consent was taken after explaining the purpose of the study from the participants. Postnatal mothers having stable single/ twins/ term/ preterm/ post term/low birth weight newborns, residing in the villages of selected PHC, willing to participate in the study and able to understand Hindi or English were included. The postnatal mothers having critically ill newborns and hospitalized or not in a condition to provide information due to her own illness or hospitalization or mental illness were excluded. The study was conducted over a period of six months.

The study tool consisted of knowledge and practice questionnaires along with socio-demographic and clinical data sheets. The knowledge and practice questionnaires were a structured interview schedule, prepared after extensive review of literature. In socio-demographic and clinical profile information related to age, religion, type of family, educational status and occupation of postnatal mother and her husband, socio-economic status of family, place of delivery, mode of delivery, birth order, gestational age, sex of newborn, birth weight and age in days on the day of interview were included. Reliability of the tools was established by a test-retest method. The structured knowledge questionnaire had 38 multiple choice questions (MCQs) and True and False items covering various aspects of ENBC like thermal care, breastfeeding, cord care, eye care, hand washing and danger signs. The practice questionnaire had 28 items, used for assessing the practice of postnatal mothers related to ENBC. A score of '1' was given for correct response and '0' for incorrect response. The maximum possible knowledge and practice scores were 38 and 28 respectively. Knowledge and practice scores were categorized as adequate (>75%), moderate (51-75%) and inadequate ( $\leq$ 50%). The structured interview schedule was pre-tested and validated. Tools used for data collection included socio-demographic and clinical

data sheets, knowledge questionnaire ( $\alpha=0.79$ ) and practice questionnaire ( $\alpha=0.86$ ).

The collected data were entered into the MS Excel 2013 spreadsheet, coded appropriately and analyzed using statistical package STATA 14.0. Appropriate descriptive statistics like frequency, percentage, mean, standard deviations and range were used to describe demographic variables of the study participants. Karl Pearson's coefficient of correlation for assessing correlation between knowledge and practices and logistic regression

analysis were used to assess the association between the study variables and the postnatal mother's knowledge and practices. The level of significance was considered as p value  $<0.05$ .

### Results

The mean age (SD) of the participants was  $25.71 \pm 4.03$  years. Majority of postnatal mothers (72.5%) belonged to Hindu religion, had joint families (55.5%) and were housewives (95.5%). Majority of mothers belonged to middle class (33%) or above as per the modified BG Prasad's scale-2019 [Table 1].

**Table 1: Socio-demographic characteristics of postnatal mothers, n=200.**

Variables	Frequency	%
Age (years)*	$25.71 \pm 4.03$	
Religion		
Hindu	145	72.5
Muslim	5	2.5
Type of family		
Nuclear	89	44.5
Joint	111	55.5
Educational status		
Illiterate	22	11
Upper primary	33	16.5
Secondary	35	17.5
Senior secondary	72	36
Graduation & above	38	19
Occupational status		
Housewife	191	95.5
Working	9	4.5
Socio-economic status**		
Upper class	37	18.5
Upper middle class	51	25.5
Middle class	66	33
Lower middle class	32	16
Lower class	14	7

Most of the newborns were of second birth order (44.5%) with the mean gestational age (weeks) of  $38.39 \pm 1.63$ . The study included female and male newborns in almost equal proportion. Most of the newborns 121 (60.5%) weighed between 2500-3499 g. The mean age of newborns on the day of postnatal mothers' interview was  $19.68 \pm 8.61$  days [Table 2].

**Table 2: Birth profile of new-borns (n=200).**

Variables	Frequency	%
<b>Place of birth</b>		
Institutional	192	96
Home	8	4
<b>Mode of delivery</b>		
Normal vaginal	178	89
Cesarean section/assisted	22	11
<b>Birth order</b>		
First	63	31.5
Second	89	44.5
Third	41	20.5
Fourth or more	7	3.5
Gestational age (week)*	38.39 ± 1.63	31.5
<b>Weight (in gm.)</b>		
<1999	4	2
2000-2499	33	16.5
2500-3499	121	60.5
>3500	42	21
<b>Age in days (on the day of interview)</b>		
	<b>19.68 ± 8.61</b>	
0-7	10	5
8-14	47	23.5
15-21	51	25.5
22-28	92	46

The mean knowledge scores of postnatal mothers on ENBC was  $24.72 \pm 6.60$ . More than half of postnatal mothers (67%) had moderate knowledge [Table 3].

**Table 3: Overall knowledge scores of postnatal mothers on ENBC, n=200.**

Knowledge	Mean knowledge scores	Frequency	%
Inadequate ( $\leq 50\%$ )	$24.72 \pm 6.60$	67	33.5
Moderate (51-75%)		134	67
Adequate ( $>75\%$ )		44	22

The mean practice scores of postnatal mothers on ENBC was  $23.71 \pm 3.52$ . More than two-thirds of postnatal mothers had adequate practices [Table 4].

**Table 4: Overall practice scores of postnatal mothers on ENBC, n=200.**

Practices	Mean practice scores	Frequency	%
Inadequate ( $\leq 50\%$ )	$23.71 \pm 3.52$	5	2.5
Moderate (51-75%)		40	20
Adequate ( $>75\%$ )		155	77.5

Variable considered for regression analysis were postnatal mothers age, religion, type of family, educational status, socioeconomic status, number of ANC visits and sex of newborn. The practice score was significantly high in postnatal mothers having adequate practice score

compared to inadequate and moderate practice score who belongs to joint family (adjusted odds ratio [AOR]: 5.45, 95% CI; (1.73-21.65) or education status graduation and above (AOR: 47.3, 95% CI; (2.9-763.0)) or belong to upper class (AOR: 16.7, 95% CI; (0.9-39.2)) [Table 5].

**Table 5: Association between practices on ENBC and important determinant of postnatal mothers and newborns (n=200).**

Variables	Unadjusted OR (95% CI)^	P value	Adjusted OR (95% CI)+	P value
<b>Age (years)</b>				
<20	Ref.	0.37	Ref.	0.32
20-24	2.0 (0.29-11.3)	0.58	2.4 (0.83-11.6)	0.63
25-29	1.3 (0.21-11.8)	1.0	1.7 (0.53-10.7)	0.52
30-34	0.9 (0.66-9.7)	0.26	1.3 (0.23-9.6)	0.11
≥35	0.5 (0.21-7.8)	0.44	28.9 (0.32-2816.8)	0.31
<b>Religion</b>				
Hindu	Ref.		Ref.	
Muslim	0.07 (0.01-0.7)	0.01	0.89 (0.01-3.4)	0.20
<b>Type of family</b>				
Nuclear	Ref.		Ref.	
Joint	5.7 (3.72-17.81)	<0.001	5.45 (1.73-21.65)	0.01
<b>Educational status</b>				
Illiterate	Ref.		Ref.	
Upper primary	12.5 (2.3-51.3)	0.001	33.3 (3.3-308.2)	0.001
Secondary	12.6 (3.3-62.3)	0.001	11.4 (1.6-112.3)	0.037
Senior secondary	48.2 (8.6-287.9)	<0.001	33.1 (2.4-572.1)	0.007
Graduation & above	65.3 (9.4-479.0)	<0.001	47.3 (2.9-763.0)	0.006
<b>Socio-economic status</b>				
Lower class	Ref.		Ref.	
Lower middle class	1.3 (0.5-6.5)	0.726	3.3 (0.3-25.8)	0.31
Middle class	7.5 (1.7-33.7)	0.006	9.5 (1.3-87.4)	0.04
Upper middle class	9.1 (1.7-40.1)	0.006	8.5 (0.9-87.2)	0.07
Upper class	20.3 (3.0-133.8)	0.001	16.7 (0.9-39.2)	0.05
<b>ANC visits</b>				
<4	Ref.		Ref.	
≤4	2.6 (0.27-3.21)	0.25	0.2 (0.5-2.3)	0.62
<b>Sex of newborn</b>				
Male	Ref.		Ref.	
Female	1.7 (0.3-3.7)	0.42	2.3 (0.5-7.3)	0.28

## Discussion

The overall knowledge (80.4 %) and practice (92.9 %) of mothers on essential newborn care is good which is higher than an Indian study in which only 76.7 % good knowledge and 66.7 % good practice. Reasons for these differences may range from the cultural background of the mothers to access to health facility and health professionals [5].

Marital status and educational status of mothers had significantly associated with mothers' knowledge of essential newborn

care. The odds of knowing about essential newborn care among married women are 3.0 and the odds of knowing about ENBC among those who are able to read and write is 0.34. But there is no association with marital status in a similar study conducted in Sri Lanka which shows strong association with employment and ANC follow up. This difference might be due to married women got an advising support from their husbands [6].

With respect to thermal protection, WHO has recommended preventive measures

such as skin to skin contact, immediate placement of baby on mothers chest and delayed bathing with the gap of minimum six hours after birth are very important for a newborn as these can prevent the neonatal complication of hypothermia. The early bathing is known to be a leading risk factor for neonatal morbidity such as hypothermia and mortality [7-8].

A study in which findings are considered low when compared with a study conducted in North Ethiopia, where 99.3% of the participants had the knowledge and 72.1% practiced skin to skin contact with their babies [9]. This difference could be related to the difference in study participants. As in above-mentioned study participants were midwives because of their qualification and positions they may have a better understanding about the importance of skin to skin contact.

One essential newborn care component was the early initiation of breastfeeding; in this study, majority of mothers reported that they start breastfeeding within the first hour after delivery which was slightly higher than a study conducted in Pakistan [10] study, which reported 66.2% early initiation of breastfeeding. This difference might be due to variation in sociodemographic factors.

Breastfeeding is a basic human activity, vital to infant's health. The WHO recommends that neonates should have early initiation of breastfeeding within half an hour of birth followed by exclusively breastfeeding for the first six months. In India, breastfeeding appears to be influenced by socio-economic status, cultural, traditional and educational background of the mothers. In the present study the knowledge of postnatal mothers on breastfeeding was adequate. These finding is in line with previous study findings by Mohini et al, Vijayalakshmi et al, Prolactal feeding, despite being discouraged by health care providers, is still very prevalent, and the most common reason for delay in breastfeeding. [11-12]

Nearly 41 (27.3%) postnatal mothers reported a newborn illness during the neonatal period, similar to that documented by Sharma et al. [13] Majority of caregiver's resorted to seeking help from health facilities in hot to touch/cold, decreased breastfeeding, difficulty/fast breathing, and discharge from cord/eyes and diarrhoea/vomiting. Around 24 (16%) sought the services from traditional healer and a few of them followed home remedies in neonatal jaundice. In the present study religion and educational status of postnatal mothers significantly influenced the practices of the postnatal mothers related to ENBC. Therefore, there is a need to dispel the hard core cultural beliefs of the postnatal mothers by education and reinforcement.

### Conclusion

Some gaps were observed in the adopting safe practices in the domains of thermal control, breastfeeding, cord care and eye care among the postnatal mothers; necessitating need for education, reinforcement and dispelling the cultural beliefs.

In general, this study tried to identify the factors associated with knowledge and practice of essential newborn care at home level and only marital status and educational status are significantly associated with mothers' knowledge of essential newborn care. Similarly, Knowledge of essential newborn care, place of residence and occupation are significantly associated with mothers' practices of essential newborn care.

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