

Research Article

Evaluation of awareness of neonatal care practices among postnatal mothers in a tertiary care hospital

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Abstract

Objective: To assess the knowledge and practice of the puerperal mothers regarding new born care and to find out the association of their knowledge and practice with some socio demographic factors.

Research design: Observational, epidemiological and cross-sectional study.

Methods and procedures: Mothers were classified according to some socio demographic factors. Each mother was given a questionnaire comprising of 25 questions on knowledge and 13 questions on practice of newborn care. For each correct response 1 point and for each incorrect response 0 point was allotted. Finally the total score was computed. Knowledge was categorized as inadequate (score 0-7), satisfactory (score 8-16) or adequate (score 17-25). Practice was categorized as inadequate (score 0-4), satisfactory (5-9) or adequate (10-14). Chi-square test was applied to determine whether any statistical correlation existed between the socio-demographic profiles and knowledge and practices. A p value of <0.05 was considered to be significant.

Main outcomes and results: Answers of 189 mothers were analyzed. Most of them had satisfactory knowledge (91.5 %). Majority of them had adequate practice (54 %). Number of working mothers showing adequate knowledge was significantly greater than that of house wives (p= 0.009). Higher education level was found to be associated with more adequate knowledge (p= 0.046). Mothers getting knowledge from mass media showed significantly more adequate knowledge (p= 0.03) than those receiving knowledge from relatives, friends and health professionals. Mothers belonging to high socio economic status showed significantly more adequate knowledge (p= 0.0015).

Conclusions: Maternal knowledge and practice about new born care play vital roles in prevention of neonatal death. Some socio demographic factors may bear associations with the knowledge and practice of the mothers. Educating the mothers and also their family members plays a pivotal role. Health professionals should overcome the language and communication barrier.

Introduction

Under-five mortality is a major concern, especially in a developing country like India. In <5 years age group, most vulnerable population is the neonatal period (0-28 days of life), accounting for more than half of under-five child deaths [1]. Neonatal period has also an important bearing on long term growth and development of the baby [2]. That is why the care of the new born plays a vital role in determining child health and under-five mortality rate.

The present study was conducted in College of Medicine & Sagore Dutta Hospital, a Tertiary Care Hospital in the outskirts of Kolkata in West Bengal, India. This area is mainly inhabited by people of poor socioeconomic strata, with poor educational level [3].

The previously conducted studies have found different level of knowledge and practices of puerperal mothers about new-born care and varied association of different socio demographic factors with the knowledge and practices. The aim of the study was to assess the knowledge and practice of the puerperal mothers regarding new born care and to find out the association of their knowledge and practice with some socio demographic factors.

Materials and methods

This was an observational, epidemiological and cross-sectional

study conducted in the department of Gynecology & Obstetrics, College of Medicine & Sagore Dutta Hospital (COM & SDH), Kolkata from a period of August 2015 to October 2015.

The inclusion criteria were- Mothers who had given birth to live born baby in COM & SDH and was admitted in the postnatal ward for at least 24 hours after delivery, the mothers who were able to communicate in Hindi, Bengali or English. The mothers with sick babies were excluded from the study.

The mothers fulfilling the inclusion criteria were informed about the details of the study. Those who willingly gave their written consent for participation were included in the study. The study was approved by the Independent Ethics Committee of the Institution.

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Key words: knowledge of neonatal care, practice of neonatal care, puerperal mothers

Received: September 07, 2016; **Accepted:** September 26, 2016; **Published:** September 29, 2016

Detailed history was taken and the mothers were classified according to their age (<20 years, 20-27 years, 28-35 years, >35 years), religion (Hindu & Muslim), type of family (nuclear & joint), occupation (housewife & working), parity (primipara, multipara), education (illiterate, up to primary, up to secondary, up to graduate, higher education), source of information regarding newborn care (Relatives and friends, mass media eg., television, radio and newspapers, health professionals) and socio economic status ((low, when monthly income < INR 2000; middle, when monthly income is INR 2000- 5000; high, when monthly income > INR 5000).

Each mother was given a questionnaire comprising of 25 questions on knowledge and 13 questions on practice of newborn care and the responses were noted by the investigators. For each correct response 1 point and for each incorrect response 0 point was allotted.

Finally the total score of the mother regarding her knowledge and practice was computed and recorded.

The questionnaire was as follows-

Assessment of maternal knowledge about neonatal care:

I. General information on the new born.

1. What is the weight below which a baby is said to be of low birth weight (LBW)?

- a. <2.5 kg.
- b. 2.5 kg.
- c. >2.5 kg.
- d. Do not know

2. How many hours do a new born should sleep in a day?

- a. 8 – 12 hours
- b. 12 – 16 hours
- c. 16 – 20 hours
- d. Above 20 hours

II. Physiological functions of a new born.

3. New born should pass the urine within:

- a. 2 days
- b. <2 days
- c. >2 days
- d. Do not know

4. The stools of the breast-fed new-borns will be:

- a. Hard
- b. Loose and golden yellow.
- c. Black
- d. Watery

5. New born should pass meconium with in

- a. 1 day
- b. <1 day
- c. >1 day
- d. Do not know

6. The physiological jaundice persists:

- a. For approximately 1 week (6-8 days)
- b. Less than a week
- c. More than a week
- d. Do not know

III. Breast Feeding

7. Do you know the appropriate time for initiation of breast feeding after birth?

8. New born has to be fed first with

- a. Breast milk / colostrum
- b. Ghee (butter)

- c. Honey
- d. Others (specify.....)

If the answer to the above question is anything other than 'a', then specify the reason for not accepting colostrum

9. You have to feed the new born.

- a. <8 times/ day
- b. ≥8 times / day
- c. Whenever it needs.
- d. Do not know

10. Do you know the appropriate duration of exclusive breast feeding?

- <6 months
- b. 6 months
- c. >6 months
- d. Do not know

11. The new born should be burped after breast feeding.

- a. To prevent vomiting.
- b. Do not know
- c. Other responses (specify

12. Do you think breast-feeding should be allowed during serious illness?

- a. Yes
- b. No
- c. Do not know

IV. Cord care

13. Commonly umbilical cord will fall within:

14. The cord should be kept clean:

- a. To prevent infection
- b. Not necessary.
- c. Do not know
- d. Other responses (specify.....)

15. You will keep the umbilical cord clean by:

- a. Cleaning with warm water and cotton
- b. Applying turmeric powder.
- c. Applying cow dung.
- d. Do not know
- e. Others (specify.....)

V. Personal hygiene

16. The eyes of a new born can be kept clean by:

- a. Cleaning the eyes separately with sterile swab
- b. Applying kajal (eye liner).
- c. Cleaning with fingers.
- d. Applying oil
- e. Other responses (specify.....)

17. The new born is to be cleaned during the first few days with

- a. Water
- b. Soap and water.
- c. Sterile cotton
- d. Others (specify

18. After a week from birth the new born should be bathed

- a. Daily.
- b. Do not know
- c. Other responses (specify

19. Temperature of water for new born bath should be:

- a. Hot
- b. Cold
- c. Luke-warm
- d. No specification

20. While bathing the new born prevent entering of water into:

21. Before bathing, massaging with oil to the new born helps in:
- Good blood circulation & keeps the skin healthy.
 - Do not know.
 - Other responses (specify)

VI. Maintenance of body temperature.

22. The new born should be kept warm by
- Covering the newborn with cotton clothes
 - Keeping in contact with the mother
 - both a and b
 - Keeping the room warm
 - Delaying bath
 - Other responses (specify)
23. You will assess the body temperature of the new born by:
- Touching the forehead.
 - Do not know
 - Other responses (specify)

VII. IMMUNIZATION.

24. Why do you think immunization is necessary?
- To protect the child from some diseases
 - Do not know
 - Others (specify the reason)
25. Are you aware of the national immunization schedule?
- Yes, I am aware
 - Have heard of it, but have no clear idea
 - Have no idea at all

Assessment of neonatal care practices among the mothers:

I. General hygiene:

- Do you wash your hands before handling the new born?
- Do you keep the umbilical cord always clean?
- Do you wash and clean napkins after each motion?
- Do you dry the napkins under sunlight?
- Do you clean the genital area after each defecation with water on wet cloth?
- Do you always keep new-born's cradle clean?

II. Bathing practices:

- Are you massaging new born with oil before giving bath?
 - Do you close the new-born's ears while giving bath?
 - Do you wrap the new born after bath?
- III. Breast feeding:
- Do you clean the breast with wet cloth before feeding?
 - While feeding the new born do you support the breast with your fingers below and the thumb above?
 - During breast feeding do you support the head of the new born?
 - Do you burp the new born after each feed?

Knowledge of the mothers was categorized as inadequate (score 0-7), satisfactory (score 8-16) or adequate (score 17-25). Similarly,

practice of neonatal care was categorized as inadequate (score 0-4), satisfactory (5-9) or adequate (10-14). The number of the mothers with different scores were tabulated. Chi-square test was applied to determine whether any statistical correlation existed between the socio-demographic profiles and knowledge and practices of the mothers regarding neonatal care. A p value of <0.05 was considered to be significant.

Sample size was calculated using the standard formula used in any descriptive, cross-sectional study:

$$\text{Sample size} = (Z_{\alpha/2} * p * (1 - p)) / d^2,$$

Where,

$Z_{\alpha/2}$ = 3.84, a constant,

p = the lowest prevalence rate for any variable considered in our study, as observed in a previous study with similar objectives and in similar settings, expressed in decimals,

d = the allowable error, here taken as 20 % of p.

Finally, the sample size was calculated to be 171. As some of the answers may be cancelled due to incomplete responses we took 200 as our sample size.

Results

Initially 200 mothers were installed for the study. The response of 11 mothers were incomplete. Thus, answers of 189 mothers were tabulated and analyzed. The mothers were classified according to different socio-demographic factors (Table 1). Most of the mothers

Table 1. Distribution of mothers according to socio demographic factors (n=189).

Parameters	Number	%
Age		
< 20	19	10
20- 27	136	72
28- 35	33	17.5
>35	1	0.5
Parity		
Primipara	101	53.5
Multipara	88	46.5
Religion		
Hindu	111	58.5
Muslim	78	41.5
Education		
Illiterate	24	13
Up to primary	23	12
Up to secondary	126	66.5
Up to graduation	14	7.5
Higher education	2	1
Type of family		
Joint	132	70
Nuclear	57	30
Occupation		
House wife	180	95
Working	9	5
Socio economic status		
Low	139	
Middle	38	
High	12	
Source of information		
Relatives and friends	165	87.5
Mass media	4	2
Health professionals	20	10.5

had satisfactory knowledge (91.5 %) about new born care. Majority of them had adequate practice (54 %) (Table 2). We have found no significant association of age, type of family and parity of the mothers with their knowledge and practice of new born care (Table 3).

No significant association was found between religion of the mothers and their knowledge about neonatal care. However, Hindu mothers were found to show better practices of neonatal care (p= 0.03) (Table 3).

Number of working mothers showing adequate knowledge was significantly greater than that of house wives (p= 0.009), but, regarding

practice there was no significant difference between working mothers and housewives (Table 3). Higher education level was found to be associated with more adequate knowledge of the mothers regarding new born care (p= 0.046), but neonatal care practices did not differ significantly between different education levels (Table 3).

Mothers getting knowledge from mass media showed significantly more adequate knowledge (p= 0.03) than those receiving knowledge from relatives, friends and health professionals. But, regarding neonatal care practices they do not show any significant difference (Table 3). Mothers belonging to high socio economic status showed

Table 3. Association between level of knowledge and practice and sociodemographic factors of the mothers (n=189) (DF- degrees of freedom).

Knowledge (score)	Number		Percentage	
	Inadequate (0- 7)	9		4.8
Satisfactory (8- 16)	173		91.5	
Adequate (17- 25)	7		3.7	
Practice (score)	Number		Percentage	
	Inadequate (0- 4)	1		0.5
Satisfactory (5- 9)	86		45.5	
Adequate (10- 14)	102		54	

Table 3. Association between level of knowledge and practice and sociodemographic factors of the mothers (n=189) (DF- degrees of freedom).

Factors	Knowledge Inadequate (n=9)		Satisfactory (n=173)		Adequate (n=7)		P value (DF 6)	Practice Inadequate (n=1)		Satisfactory (n=86)		Adequate (n=102)		P value (DF 6)
	n	%	n	%	n	%		n	%	n	%	N	%	
Age (Years)														
<20(n=19)	1	5	18	95	0	0		0	0	10	52.6	9	47.4	
20-27 (n=136)	7	5.15	125	91.9	4	2.8		0	0	66	48.6	70	51.4	
28-35 (n=33)	1	2.9	29	87.9	3	9.1		1	2.8	9	27.3	23	68.6(69.7)	
>35(n=1)	0	0	1	100	0	0		0	0	1	100	0	0	
Religion														
Hindu (n=111)	4	3.6	102	91.9	5	4.3 (4.5)	0.54 (DF 2)	1	0.9	42	37.6 (37.8)	68	61.5 (61.3)	0.03 (DF 2)
Muslim (n=78)	5	6.0 (6.4)	71	91.6 (91)	2	2.4 (2.6)		0	0	44	56.6 (56.4)	34	43.4 (43.6)	
Type of Family														
Joint (n=132)	6	5 (4.5)	120	90.7 (90.9)	6	4.3 (4.5)	0.64 (DF 2)	1	0.8	62	47.1 (47)	69	52.1 (52.3)	0.65 (DF 2)
Nuclear (n=57)	3	5 (5.3)	53	93.3 (93)	1	1.7		0	0	24	41.7 (42.1)	33	58.3 (58)	
Occupation														
Housewife(n=180)	9	5.3	166	92.1	5	2.6	0.009 (DF 2)	1	0.5	83	46.3	96	53.2	0.73 (DF 2)
Working (n=9)										3	30(33.3)	6	70 (66.7)	
Parity														
Primi (n=101)	8	8.4 (7.9)	88	86.9 (87.1)	5	4.7 (4.9)	0.051 (DF 2)	0	0	52	51.4	49	48.6	0.13 (DF 2)
Multi(n=88)	1	1.1	85	96.8	2	2.1		1	1.1	34	38.7	53	60.2	
Education														
Illiterate (n=24)	2	7.7 (8.3)	21	88.5 (87.5)	1	3.8 (4.2)	0.046 (DF 8)	1	3.9	10	42.3	13	53.8	0.202 (DF 8)
Up to primary (n=23)	2	8.3	21	91.7	0	0		0	0	10	41.7 (43.5)	13	58.3 (56.5)	
Up to secondary (n=126)	5	3.97	117	92.5 (92.9)	4	3.17		0	0	62	49.6 (49.2)	64	50.4 (50.8)	
Up to graduation(n=14)	0	0	13	93.3	1	6.7		0	0	3	20 (21.4)	11	80 (78.6)	
Higher education (n=2)	0	0	1	50	1	50		0	0	1	50	1	50	
Source of Information														
Relatives and friends (n=165)	6	3.6	154	93.1 (93.3)	5	3	0.03 (DF 4)	1	0.6	77	46.9	87	52.5	0.46 (DF 4)
Mass media, television, radio, newspaper(n=4)	0	0	3	75	1	25		0	0	0	0	4	100	
Health professional(n=20)	3	14.3 (15)	16	80.9 (80)	1	4.8 (5)		0	0	9	42.9 (45)	11	57.1 (55)	
Socio Economic Condition														
Low (n= 139)	6	4.3	130	93.5	3	2.1	0.0015	1	0.7	71	51.1	67	48.2	0.09

significantly more adequate knowledge ($p=0.0015$) than those of low and middle socio economic status. However, their practice did not differ significantly (Table 3).

Discussion

About 4 million neonates die throughout the world every year [4]. Among this 1.2 million deaths take place in India. In 2010, the neonatal mortality rate in West Bengal was 15/1000 live births [5]. We have conducted the present study in a teaching hospital situated in the outskirts of Kolkata, West Bengal with an aim to find out the level of knowledge and practice of neonatal care among puerperal mothers and to assess their association with some socio demographic variables.

Most of the mothers had satisfactory knowledge (91.5 %) about new born care. Majority of them had adequate practice (54 %). Studies have been conducted to find out the knowledge and practices of neonatal care among puerperal mothers [6-9]. In a study conducted in Iran, 78% of the mothers were found to have moderate knowledge and 13 % of the mothers had good knowledge [6]. However, a study conducted in rural Guinea Bissau in West Africa has found poor knowledge and practice [7].

We have found no association between age of the mothers and knowledge and practice regarding new born care. A study conducted in Iran too has not found any association [6]. However, Sharafi [10] has found less age to be associated with higher knowledge and Asifpadiyath, VishnuBhat and Ekambaram [11] have found more age to be associated with better knowledge, attitude and practice of neonatal care among postnatal mothers. Hindu mothers were found to follow better neonatal care practices than Muslim mothers in the present study. Probably, this is attributable to some practices specific to some religions.

We have found no association between the parity of the mothers and their knowledge and practice of neonatal care. There are studies which have failed to show any association of parity with new born care, however, one study found multiparity to be associated with better knowledge and another study has found primiparous mothers to have more knowledge [6,11,12].

Mothers having higher educational status was found to have more adequate knowledge of neonatal care in our study. Such association was also seen in other study [6,13,14]. Exposure to different sources of information played the major role behind this association. In a study it has been found that higher knowledge improves the new born care practices but it is not dependent on the education of the mothers [8].

In our study the mothers belonging to higher socioeconomic status were found to have more adequate knowledge regarding neonatal care. The study conducted in Puducherry also found similar association [11]. The mothers getting knowledge from mass media were found to have significantly more adequate knowledge in our study. Interestingly, only 5% of the mothers getting knowledge from health professionals had adequate knowledge. This may be attributed to some communication gap between the health professionals and the mothers due to language problem and due to failure of them to explain the mothers in a simpler way.

Working mothers were found to have more adequate knowledge in the present study. This is probably due to exposure to greater source of information. Although in our study, the working mothers, mothers having higher education status, those getting knowledge from mass media and those belonging to higher socioeconomic

status had significantly more adequate knowledge regarding neonatal care practices, their practice did not differ significantly from those belonging to other groups. Probably, different religious customs and beliefs and also influence of other family members were some of the major contributing factors. The limitation of our study was that we have included the mothers delivered in a government medical college which may not be representative of the whole population in the locality.

Conclusion

Maternal knowledge and practice about new born care play vital roles in prevention of neonatal death. Some socio demographic factors may bear associations with the knowledge and practice of the mothers. Educating the mothers and also their family members plays a pivotal role. Health professionals should overcome the language and communication barrier.

References

- Francisca M, Mireille EM, David C, Pascal F, Charles K, et al. (2013) Mothers' Knowledge and Practice on Essential Newborn Care at Health Facilities in Garoua City, Cameroon. *Health Sci Dis* 14: 1-6.
- Gilani I, Kayani ZA (2014) The International Electronic Journal of Rural and Remote Health Research, Education, Practice and Policy 2503: 1-11.
- Rahman M, Gupta S, Kar K (2012) Anemia during pregnancy and gestational diabetes mellitus: A hospital based study. *Indian Medical Journal* 106: 118(A)-9(A).
- Black RE, Morris SS, Bryce J (2003) Where and why are 10 million children dying every year? *Lancet* 361: 2226-2236. [[Crossref](#)]
- Department of Health and Family Welfare, Government of West Bengal Document 1: The Health Sector Strategy.
- Sharafi R, Esmaeeli H (2013) Knowledge assessment of neonatal care among postnatal mothers. *Ir J Neonatol* 4:28-31.
- King R, Mann V, Boone PD (2010) Knowledge and reported practices of men and women on maternal and child health in rural Guinea Bissau: a cross sectional survey. *BMC Public Health* 1471: 10-25. [[Crossref](#)]
- Castalino F, Nayak BS, D'Souza A (2014) Knowledge and practices of postnatal mothers on newborn care in tertiary care hospital of Udupi district. *Nitte Uni J Health Sci* 4: 98-101.
- Ghaffari V, VahidShahi K, Taleshi B (2005) Knowledge and attitude assessment of neonatal Icter among postnatal mothers in sari. *Journal of Mazandaran University of Medical Sciences*: 92-97.
- Sharafi R (2010) Knowledge assessment of hospitalized neonatal care among postnatal mothers in Rasht. *Urumieh Medical Journal* 20: 21-25.
- Asifpadiyath M, vishnuBhat B, Ekambaram H (2010) Knowledge attitude and practice of neonatal care among postnatal mothers. *JIPMER, Puducherry, India* 14: 7-12.
- Sharifi F (2002) Determine amount of knowledge of the villagers with regard to complementary feeding of the infants in Babol. *Iran J pediatr* 12: 35- 38.
- Waiswa P, Peterson S, Tomson G, Pariyo GW (2010) Poor newborn care practices - a population based survey in eastern Uganda. *BMC Pregnancy and Childbirth* 1471: 9-16. [[Crossref](#)]
- Obimbo E, Musoke RN, Were F (1999) Knowledge attitude and practices of mothers and knowledge of health workers regarding care of newborn umbilical cord. *East Afr Med J* 76: 425-29. [[Crossref](#)]

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