

Original Research Article

Impact of postnatal counseling on care of newborn

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Received: 10 July 2021

Accepted: 01 November 2021

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ABSTRACT

Background: Newborn care is an integral aspect of child health care practices. Globally 2.4 million children died in the neonatal period in 2019. Currently in India around 7.47 lakh neonates die annually. Advocating and adopting proper postnatal care of newborn in aspects of breastfeeding, immunization, warmth care, cord care, eye care etc will help in reducing neonatal morbidity and mortality.

Methods: This was an hospital based cross sectional study of 100 postnatal mothers of babies admitted in NICU, in a tertiary care hospital. The knowledge of the mothers on various aspects of postnatal care was assessed by a pretest, followed by counseling and reassessment with a post test.

Results: The study found that postnatal mothers had better awareness regarding breastfeeding, warmth care, cord care and oil massage. Poor knowledge was seen regarding eye care, immunization, recognition of danger signs and maternal nutrition and supplementation. Health care workers focused more on breastfeeding and warmth care practices than other aspects of postnatal care during antenatal counseling which could be a reason for this. A wide gap exists between contact with health workers and antenatal counseling. Knowledge gaps of the mothers improved significantly after counseling irrespective of their parity, education and location as seen by the increase in mean scores.

Conclusions: Neonatal morbidity and mortality due to avoidable causes like hypoglycemia, hypothermia, sepsis can be achieved by practicing appropriate post-natal care practices. WHO recommendations on these practices should be widely propagated through frequent antenatal and post-natal counseling by health care workers.

Keywords: Neonatal mortality, Antenatal, Postnatal, Counseling, Newborn care practices

INTRODUCTION

Postnatal period is a crucial time to both mother and baby that requires proper care for their wellbeing. Most of the times the mothers are in a dilemma regarding various aspects of newborn care. They themselves are in pain and vulnerable and have to depend on other members to take care of themselves and the newborn baby. Lack of proper knowledge regarding postnatal care of the newborn can cause neonatal morbidity and mortality especially due to avoidable causes like hypothermia, sepsis, hypoglycemia etc. Around 40% of neonatal deaths occur in the first 24

hours after birth as per World Health Organization (WHO). The average global neonatal mortality rate is 17 per 1000 live births in 2019 which is significantly lower compared to 37 deaths per 1000 live births in 1990 and 23 in 2010.¹ This is still higher than the target of sustainable development goals 3 (SDG 3) of reducing NMR to 12 per 1000 live births. India has achieved considerable improvements in child health and survival through its various national programmes like Janani Sishu Suraksha Karyakram (2011), Navjat Sishu Suraksha Karyakram (2009), Rashtriya Bal Swasthya Karyakram (2013), Facility based newborn care (2011),

Home based newborn care (2011), Ayushman Bharat Pradhan Mantri Jan Arogya Yojana and Pradhan Mantri Surakshit Matriva Abhiyan. India has succeeded in reducing the neonatal mortality rate from 38 deaths per 1000 in 2017 to 23.5 deaths per 1000 live births in 2020. Apart from great interstate and inter district variations, there is a huge variation seen in urban and rural areas as they have their unique set of problems.

The main causes of neonatal mortality are neonatal sepsis (33%), prematurity (35%), birth asphyxia (20%) and congenital malformations (9%).² Neonatal sepsis is largely preventable by taking proper hygienic measures, cord care, feeding practices etc. Prompt recognition of danger signs and timely referral to hospital can prevent neonatal deaths. Mothers should be provided frequent antenatal and postnatal counseling through home visits in the community and educate the expectant mothers regarding post-natal care practices. It has been proved through various studies that appropriate postnatal care practices of the newborn is very effective in preventing neonatal deaths. Practicing exclusive breastfeeding and providing warmth care to the newborn have effectively reduced neonatal morbidity and mortality caused by hypoglycemia, hypothermia and sepsis. India has a wide network of health workers at the community level (auxillary nurse midwife, Anganwadi worker under the Integrated Child Development Scheme and Accredited Social health activist (ASHA) introduced under the National Rural health Mission) to implement various maternal and child health services. They play key role in providing home based newborn care. Antenatal and post-natal counseling to the expectant mothers regarding care of the newborn and maternal nutrition is their responsibility. WHO recommendations suggest at least eight contacts with the health worker during the antenatal period.³ This contact during the antenatal period should be utilized to impart knowledge to the mother regarding postnatal care of newborn.

This study was undertaken in a tertiary care centre to assess the knowledge of post-natal mothers of babies admitted in NICU regarding neonatal care and to provide counseling on various aspects of newborn care so as to fill their knowledge gaps.

METHODS

This was a hospital based cross sectional study carried out in NICU, Government General Hospital, Kakinada, from February 2020 to March 2020.

Study population

A total of 100 postnatal mothers whose babies were admitted in the NICU and had given informed consent were included in the study. Mother who could not be reassessed after counseling and who did not want to participate were excluded from the study.

Study procedure and data collection

Post-natal mothers of the babies admitted in the NICU and involved in their care like feeding, providing warmth care etc were interviewed using a predesigned proforma that consisted data regarding sociodemographic factors of the mother like age, religion, place of residence, place of delivery, education, gravida and socioeconomic status. A pretest having 28 questions related to breastfeeding, warmth care, cord care, eye care, immunization, danger signs of newborn and maternal nutrition and supplementation after delivery were asked to assess the knowledge of the mothers. Whether they had contact with frontline health workers (ANM/AWW/ASHA) and received antenatal counseling was recorded. After the pretest they were counseled regarding these postnatal care practices and reassessed after 24 hours with a post test of same questionnaire. Study was done after prior approval of ethical committee.

Data analysis

Data was entered in excel 2017 and analysed in Statistical package for social sciences (SPSS) 21.

RESULTS

The socio demographic profile showed that majority of the mothers were in the age group of 18-24 years (70) and were predominantly from rural areas (84).

Table 1: Sociodemographic information of the postnatal mothers.

Variable	Frequency (out of 100)
Age (years)	
< 18	0
18-24	70
25-29	26
30-35	3
>35	1
Religion	
Hindu	84
Muslim	2
Christian	14

Continued.

Variable	Frequency (out of 100)
Place of residence	
Urban	14
Rural	84
Tribal	2
Gravida	
Primi	37
Multi	63
Education	
Illiterate	6
Primary school	8
Secondary school	60
Intermediate	18
Graduate	8
Place of delivery	
Home	2
Private hospital	16
Government hospital	82
Socioeconomic status	
Upper	0
Middle	20
Lower	80

Table 2: Knowledge of mothers on postnatal care practices of newborn before and after counseling.

	Response before counseling (frequency out of 100)			Response after counseling (frequency out of 100)		
	Correct	Partially correct	Incorrect	Correct	Partially correct	Incorrect
Breastfeeding practices	2	62	36	86	14	0
Warmth care practices	4	54	42	77	23	0
Cord care	61	0	39	99	0	1
Immunization	50	0	50	99	0	1
Danger signs	0	50	50	1	97	2
Oil massage	83	0	17	99	0	1
Eye care	29	0	71	95	0	5
Maternal nutrition and supplementation	15	39	46	89	10	1

Table 3: Showing relation between socio demographic factors and mean scores of mothers.

Socio-Demographic Factor	Pre test Mean Score	Post test Mean Score
Gravida		
Primi	8.864	25.126
Multi	11.126	25.507
Place of residence		
Urban	13.285	25
Rural	9.666	25.476
Tribal	15.5	25
Literacy		
Illiterate	11.333	23.5
Primary+Secondary	10.014	25.42
Intermediate+Graduate	10.769	25.769

Table 4: Analysis based on result values divided on basis of (<14, >14).

	Pretest		Post test	
	Chi-square value	P value, df	Chi-square value	P value, df
Education (illiterate, primary+secondary, intermediate+graduate)	2.781	0.249, 2	1.647	0.439, 2
Education (illiterates, literates)	0.305	0.581, 1	1.288	0.256, 1
Gravida (primi, multi)	1.951	0.162, 1	0.463	0.496, 1
Place (urban, rural, tribal)	2.099	0.350, 2	0.160	0.923, 2
Place (urban, non urban)	1.225	0.268, 1	0.038	0.846, 1
Age (18-24, >25)	0.167	0.683, 1	0.540	0.462, 1

Table 5: Mothers with correct knowledge on different aspects of breastfeeding before and after counseling.

	Response before counseling n=100	Response after counseling n=100
Initiation of breast feeding immediately after delivery or within an hour	54	100
Exclusive breast feeding up to six months	58	97
No prelacteal feeds	61	99
No use of pacifiers	35	97
No water or any other liquids should be given in first 6 months even during summer	34	99
No use of milk bottles	20	95
Use of paladay /spoon for feeding if unable to breastfeed	68	94
Breastfeeding on demand or 8-10 times per day	37	92
Knowledge regarding adequacy of feeds	12	85
Continuation of breastfeeds till 2 years of age	40	91
Pregnant woman can continue to breastfeed	13	98

Table 6: Knowledge of mothers on various aspects of warmth care before and after counseling.

	Response before counseling n=100	Response after counseling n=100
Newborn should be clothed immediately after birth	52	96
Technique of wrapping	7	85
First bath to newborn should be delayed by atleast 24 hours	51	77

63 out of 100 mothers were multigravida and 37 of them were primi gravida. 60% mothers were educated up to secondary education. 98 out of 100 were institutional deliveries (82 in Government hospital and 16 in the private hospitals). The postnatal mothers mostly belonged to lower socio-economic strata (80).

Table 2 shows response of the postnatal mothers to various aspects of newborn care practices before and after counseling. The mothers had good knowledge regarding breastfeeding (64), warmth care (58), cord care (61) and oil massage (83) compared to other aspects like immunization (50), danger signs (50), eye care (29) and maternal nutrition and supplementation (54). After counseling their responses improved significantly in all

the aspects of neonatal care with 95-100% mothers answering appropriately.

The pretest mean score was 10.29 and the posttest mean score was 25.40.

Table 4 shows that there is no statistical significance in pre and post test scores of mothers in relation to their education, place of stay, gravida and age.

Table 5 shows that majority of mothers had good knowledge regarding initiation of breastfeeding immediately after delivery or within an hour (54), exclusive breastfeeding till six months of age (58), no pre

lacteal feeds to babies (61) and using spoon or paladay as alternative method of feeding breastmilk (68).

Their knowledge was limited in aspects like use of pacifiers (35), no other liquids to be given to the baby even during summer (34), breastfeeding on demand (37), assessment of adequacy of breastmilk (12), continuation of breastfeeds till 2 years of age (40) and continuation of breastfeeding during pregnancy (13). Post test scores after counseling significantly improved in all aspects of breastfeeding.

51 out of 100 mothers knew about clothing the baby immediately after birth and a similar number also agreed that the first bath should be delayed by at least 24 hours. Only 7 mothers knew the technique of wrapping the baby to keep the baby warm. After counseling there was significant improvement in their knowledge.

90% of the mothers had contact with health care workers like ANM, ASHA and AWW but only 52% mothers received antenatal counseling regarding neonatal care.

DISCUSSION

Good postnatal care is an effective tool to reduce neonatal mortality and morbidity. Breastfeeding is widely promoted as a major life saving initiative in newborns. It plays a large role in preventing neonatal deaths. A breastfed child is less likely to die due to respiratory infections (4 times) and diarrhea (14 times). Breastfeeding plays a significant role in reducing under-5 morbidity and mortality particularly in developing countries like India and is also cost effective. Exclusive breastfeeding up to 6 months has shown to reduce under-5 mortality rate by 13%. 62% mothers in this study had good knowledge, 2% mothers had complete knowledge and 36% mothers lacked any knowledge on breastfeeding practices. After counseling 86% mothers could answer all questions correctly. In the current study, initiation of breastfeeding immediately or within an hour after birth was acknowledged by 54% mothers which is similar to studies by Memon et al in Sindh, Pakistan (54.6%), Odisha (52.78%) and Tanzania (58.8%) but lower than study in Mizan Aman town of Ethiopia that was 73.3%.⁵⁻⁷ 54% mothers in this study knew not to give any prelacteal feeds because of its harmful effects.⁴ The findings are similar to study by Memon et al (57.5%). In a study done in Ethiopia, 95.9% respondents stated that pre-lacteal feed should not be given.⁸ In this study only 40% mothers responded that breastfeeding should be continued till 2 years of age which is lower than study in Dharan, Nepal by Chaudhary et al.⁹ 34% mothers in this study answered that no other feeds other than breast milk should be given during the first six months which is lower than study by Alamirew et al in Northwest Ethiopia. Despite knowledge regarding various aspects of breastfeeding there is a wide gap between knowledge and practices as seen in NFHS-4 survey which shows breastfeeding was initiated within one hour of birth in 42.8% , 41.1% and 41.6% in urban,

rural and tribal areas of India respectively.¹⁰ 57 % mothers in this study knew that exclusive breastfeeding should be done till six months. NFHS-4 survey shows that exclusive breastfeeding is being practiced in 52.1% (urban), 55.9% (rural) and 54.9% (tribal) areas. Postnatal mothers received antenatal counseling by health care workers regarding time of initiation of breastfeeding, exclusive breastfeeding and avoidance of pre lacteal feeds. Knowledge gaps were seen on other aspects like avoidance of use of pacifiers, that no other liquids to be given to the baby in the first six months even during summer, avoidance of milk bottles for feeding. Proper counseling was also not given about breastfeeding on demand, assessment of adequacy of breastfeeds, duration of breastfeeding and continuation of breastfeeding during pregnancy. Mothers answered these questions based on their own interpretation and information given by other members of the family.

Postnatal mothers were questioned on knowledge regarding warmth care like clothing the baby immediately after birth, technique of wrapping and delayed bathing in newborn. WHO recommends delayed bathing after six hours preferably on second or third day. In the present study, 51% mothers knew that delayed bathing and clothing immediately after birth is very essential. Hypothermia is a significant contributor to neonatal mortality. Hypothermia was seen in 81% babies in a study by Johansen et al and 81% by Anderson et al. Studies on knowledge about warmth care practices found that 25.8% (Iyengar et al), 14.1% (Baqui et al), 77 % (Padiyath et al) and 91.7% (Naicker et al) mothers had correct knowledge.^{11,12} 75% and 15.1% mothers said that first bath should be delayed for 24 hours in studies by Padiyath et al and Gupta et al respectively. Very few mothers knew about the technique of wrapping the baby for warmth. Mothers should be educated about this technique and their knowledge to be re-enforced periodically by the health care workers.

Oil massage is an age-old custom being practiced in India. A variety of oils like coconut oil, sesame oil, mustard oil, herbal and olive oils are used in different parts of the country. Oil massage is beneficial to the babies in form of better weight gain, good sleep, better thermoregulation, prevention of infections, emotional bonding and better neurodevelopmental outcome. Transcutaneous absorption of medium chain triglycerides which are abundant in coconut oil help to improve weight gain particularly in premature babies. Coconut oil is also inexpensive and easily available. In the present study, 83% mothers preferred to give oil massage to the babies without knowing its actual benefits but were willing to follow it as a tradition. A study by Dhar et al from Kolkata has clearly shown that oil massage is beneficial and scientifically proven.¹³ Proper technique and oil should be ensured. Mustard oil may cause irritation and eczema in babies and should be cautiously used. 81.6% of the mothers were of the opinion that bones of the baby become strong after massage in a study in Lucknow by

Khanna et al.¹⁴ Most of the mothers in our study opined to use coconut or sesame oil for oil massage as commonly practiced in South India. This traditional practice should be encouraged as it is beneficial to the baby.

It is a common practice in many developing nations like India to apply kohl or kajal to the eyes of newborn babies. In the present study mothers were asked if kajal or kohl can be applied to the newborn baby's eyes and 71% answered in affirmative. They believed that applying kajal to the eyes makes them bigger, beautiful and wards off evil spirits. 99% mothers recognized this as a harmful practice after the counseling. A study by Amolo et al at a Kenyan National hospital found that only 1.6% mothers received ante natal counseling regarding eye care.¹⁵ Lack of proper antenatal counseling by health care workers regarding eye care leads to harmful practices.

Proper cord care practices should be followed to avoid umbilical cord infection. Around the world various substances like mud, dung, turmeric, petroleum jelly, spices, oils, tar, charcoal and others are applied to the cord for healing, to ward off evil spirits and to prevent abdominal pain. Though studies to link the application of these substances to the cord and sepsis are not available, there is a strong possibility that this practice can cause umbilical sepsis and neonatal mortality. In this study 39% mothers said that oil or antiseptic ointment should be applied to the cord as they believed it was needed for a healthy cord. This is similar to study by Padiyath et al (41%). 99% mothers, after counseling were willing to follow WHO recommendation of leaving the cord dry or applying chlorohexidine as an alternative. In a study in Nigeria by Ango, it was found that 87.6% mothers knew about umbilical cord care which is much higher than our study.¹⁶

The newborn should receive BCG, zero dose OPV and hepatitis B immediately after birth or before discharge from the hospital. In the present study only 50 percent mothers were aware of this fact which improved to 99% after counseling. Though all the mothers were aware that their children should be vaccinated, only 50% had knowledge about the timing of these vaccines and which vaccines are being given at birth. Multiparous mothers had better awareness in this regard because of their previous experience. The study by Amolo et al found that none of the mothers knew about Hepatitis B vaccine and only 17% mothers knew about BCG and OPV vaccines.

Only 50 percent mothers in this study had knowledge regarding danger signs in newborn. Most of the mothers answered that fever, poor feeding and respiratory distress are danger signs when unprompted but other signs like apneic attacks, skin pustules, jaundice, lethargy, bleeding, vomiting were identified as danger signs when prompted. After counseling, 97% mothers had knowledge of 3 or more danger signs. A study in Central Ethiopia by Bulto

et al, 2019, found that only 20.3% post-natal mothers had good knowledge on neonatal danger signs and could name 3 or more. 70 % mothers could name atleast one danger sign and 30 % did not have knowledge of any danger signs.¹⁷ Commonest danger sign recognized by mother was fever, as seen in study by Elavasarn et al (81.4%) and poor feeding was identified by 42% mothers.

The 2013 WHO recommendations on post-natal care state that all post-natal mothers should be given iron and folic acid supplementation for at least 3 months after delivery and also receive proper nutrition. The health workers during the antenatal and post-natal contact with the mothers should emphasize on proper nutrition for the benefit of the mother and baby. Only 15% mothers in this study were aware of the need for good nutritious diet and iron and folic acid supplementation after delivery. There are several cultural practices regarding maternal nutrition in this area like avoiding certain foods, giving solid foods to mother only on 3rd post-natal day, no night meals till 21st day after delivery which may affect lactation. 89% mothers changed their views after counseling.

In this study 90% mothers had contact with health care workers like ASHA and ANM during their antenatal period but only 52 % received counseling regarding newborn care. India has a wide network of frontline health care workers like ASHA, ANM and AWW who work at the community level to provide mother and child health services. Due to the low doctor patient ratio in our country, we rely on these grass root workers for promotion of good health care practices like newborn care practices through antenatal and postnatal counseling. A recent study by Namasivsyam et al found that 80.6% mothers had contact with frontline health care worker during antenatal period but only 12.7% received prenatal counseling. Avoidance of prelacteal feeds (73.5%) and early initiation of breastfeeding (48%) were followed by mothers who received antenatal and postnatal counseling.¹⁸ This study shows that there is a wide gap in antenatal counseling services. A study by Satyavani et al found an alarming gap in the knowledge of ASHA workers and ANM's about newborn danger signs.¹⁹ Namazzi et al study found that the knowledge of CHW's on danger signs was low (20%), increased to 85% after training and decreased to 58.9% after one year of training stressing the need for periodic reinforcement of training of health workers.²⁰ The pregnant women should be counseled regarding various aspects of newborn care both by the doctor and health care workers at every contact. Reinforcement will help proper newborn care practices.

In the present study multiparous women had better knowledge about newborn care than primi mothers with better with pretest mean scores (11.126 versus 8.864). This is particularly in knowledge related to breastfeeding and immunization which could be due to their experience. Post test mean scores were similar in both primi and multi gravida mothers. There is no significant difference in the knowledge of illiterate and literate

mothers. Pretest scores of urban mothers was higher. Bhattarai et al study on knowledge and practices of newborn care among postnatal mothers in a teaching hospital, Kaski, Nepal also found that 65.1% mothers had good knowledge and 34.9% had poor knowledge with multigravida mothers (61.9%) faring better than primigravida mothers (54.2%).²¹ Will this knowledge lead to implementation is a question. But repeated counseling to the mother and her family will definitely bring a notable change in health care practices. This is especially important in the care of vulnerable high-risk newborns like preterms, IUGR babies who are discharged from the NICU after recovering from complications like hypoglycemia, RDS, sepsis, PDA etc as these babies need more attention.

CONCLUSION

This study found that knowledge of mothers on various aspects of neonatal care is poor and their post test mean scores (after counseling) increased significantly irrespective of parity (primi/multi), location (urban/rural/tribal) and education status of the mothers. This study also shows that knowledge on breastfeeding and immunization is good compared to knowledge on danger signs in newborn. Cultural practices like oil massage and delayed bathing should be encouraged as it is beneficial to the baby and easy to convince the mothers. Eventhough 90% of the mothers had contact with health care workers during their antenatal period only 52% received antenatal counseling on newborn care. This shows the need for training the frontline workers on various aspects of newborn care and also emphasize the importance of antenatal counseling. Various means of communication like posters, skits, newspapers, television advertisements and shows on newborn care, can be utilized effectively as they have great visual and auditory impact on pregnant women. Every visit to the health care personnel must be utilized to educate mothers on various aspects of newborn care which helps in reducing the neonatal mortality and to reach the INAP goal of single digit NMR by 2030.

Funding: No funding sources

Conflict of interest: None declared

Ethical approval: The study was approved by the Institutional Ethics Committee

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Cite this article as: Vijayalakshmi VV, Padma KJ, Mohan MM, Manikyamba D, Prasad AK. Impact of postnatal counseling on care of newborn. *Int J Contemp Pediatr* 2021;8:1939-46.