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New-born care practices among postnatal mothers in a rural area of Ahmedabad, Gujarat: A community-based cross-sectional study

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ABSTRACT

Background

New-born care is one of the important ways of preventing neonatal deaths.

Objective

To study the new-born care practices among postnatal mothers in rural areas of Ahmedabad district, Gujarat.

Materials and Methods

The community based cross-sectional study was conducted among postnatal mothers in rural area of Ahmedabad District of Gujarat from August 2017-18. Total 353 postnatal mothers were interviewed by using of a semi-structured questionnaire. Analysis was done by Microsoft offices excel-2016.

Results

The mean age of the postnatal mothers was 24.37 years (SD± 3.75). 57% of mothers applied things (like mesh, kajal & ointment) around new-born's eye, 30.31% applied something on baby's cord. 57.79% bathed their baby within 48 hours. 78.47% of neonates had started breastfeeding within one hour. 81.30% of neonates had given colostrums. 86.40% of infants were on exclusive breastfeeding. 11.04% of new-born were given pre-lacteal feeds (like honey, ghee, malai). Top feeding was given to 18.13% of new-born.

Conclusion

There was still some poor practices (like eye care &delayed bath) exist among postnatal mothers because they are unaware about correct practice and tradition belief. Mothers should be educated and aware about correct new-born care practices during sessions, ANC visits, HBNC visits & encourages to good new-born care practices.

Key words: Cord care, Eye care, Feeding, New-born, Mothers

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INTRODUCTION

Globally, neonatal mortality rate (NMR) has declined 49%, from 37 deaths per 1000 live births in 1990 to 19 death per 1000 live births in 2016, much slower than for under-five mortality.[1] Ninety-nine percent of all new-born deaths occur in developing countries.[2] The largest number of new-born deaths occurred in Southern Asia (39%), followed by Sub-Saharan Africa (38%). India, Pakistan, Nigeria, the Democratic Republic of the Congo, and Ethiopia were five countries that accounted for half of all new-born deaths. In India, the NMR has declined from 44 per 1000 live births in 2000 to 28 per 1000 live births in 2016.[1] The three major causes of neonatal deaths worldwide are infections (36%, which includes sepsis, pneumonia, tetanus), pre-term births(28%) and birth asphyxia (23%).[3]

New-born care is very important in preventing neonatal deaths, particularly essential care of the normal new-born to prevent illnesses.[4]The new-born health depends on the care provided by the caregivers. New-born care immediately after birth is critical in determining its survival. Simple cost effective interventions such as hygienic cord care and early and exclusive breastfeeding helps in prevention of infection and promote child growth respectively.[2] New-born health is closely related to that of their mothers. New-borns have a unique need that must be addressed in the context of maternal and child health services.[5]

Many programmes and schemes are launched to decreasing NMR in rural areas. Home-based new-born care (HBNC) is one of important strategy where home visits done by ASHAs play a pivotal role in rural areas.[6] Very few studies have been done on home-based postnatal new-born care and new-born care practices in Gujarat. With this endeavor, this study had been done on new-born care practices in rural areas of Ahmedabad district of Gujarat.

Materials & Methods

Study design, setting, sample size & study participants

This was a community based cross-sectional study done in rural area of Ahmedabad District of Gujarat from August 2017-18. The sample size was calculated using n-Master software 2.0 estimating single proportion based on cluster sampling (design effect) with expected proportion taken as 60% based on NFHS 4 data[7,8] of mothers are practicing exclusive breast feeding with absolute precision of 6% and 95% confidence interval and 1.38 design effect[9]. Sample size was 353 of postnatal mothers.

Sampling Procedure

The multi-stage sampling procedure was used to select the required 353 sample size. As per the census 2011, Ahmedabad district has 9 taluka. Four taluka were selected purposively from the total. 2 PHC were selected randomly from each taluka and finally 2 sub-center were selected randomly from each PHC by using lottery method. Then we checked list of mothers who were registered in the sub-center and selected mothers who gave birth within six months periods in the selected sub-center. Finally from all listed mothers, proportional allocation was employed for 16 sub-center and 22 postnatal mothers were interviewed in each of 16 sub-center villages which were selected. At the end, we used systematic random sampling techniques to select study participants.

Data collection & analysis

A semi-structured questionnaire was developed after reviewing relevant literature to include all the possible variables that address the objective of this study. The questionnaire was pre-tested before the actual data collection time on 18 participants (5% of the sample) outside the actual study area. A semi-structured questionnaire included the information regarding socio-demographic characteristics, antenatal profile, knowledge & practices of new-born care among mothers. Data analysis was done by Microsoft excel-2016 and chi-square test was applied. A calculated *P* value < 0.05 was considered statistically significant.Socio-economic classification (SEC) was done on the basis of modified Prasad's classification (revised-2017).[9]

Operational definitions: [10,11]

Good cord stump and eyes care: Not applying anything to the umbilical cord of the neonate in the entire neonatal period except on medical advice by a qualified doctor.

Not applying anything to the eyes except on medical advice.

Wrapping baby: Wrapping the neonate in multiple layers of clothing.

Good bathing practice: Not giving a bath to the new-born until at least 48 hours after delivery.

Kangaroo care (skin-to-skin care): Holding the new-born with his/her bare skin in contact with the bare skin of the mother/ caregiver.

Good feeding practices: Breastfeeding should be started within 1st hour after delivery, baby on exclusive breastfeeding for six months with fed the first milk (colostrum) and without pre-lacteal feeds (fluids or foods before starting of breastfeeding) and top feeds (fluids or foods other than breast milk except medical advice).The study was approved by the Ethical Committee of institution (Ref no: IEC/Certi/62/17). Informed written consent was taken from participants.

Results

A study showed that around (70.25%) of postnatal mothers were between 19-25 years of age group. The mean age of the postnatal mothers was 24.37 years (SD± 3.75). The majority were Hindu (94.05%) and 35.69% were belonging to the OBC caste. 100% of mothers were housewives. More than half of the mothers were educated up to the primary level (56.37%) and class-IV socio-economic status (53.54%). (Table 1)

Table 1 Socio-demographic profile of postnatal mothers

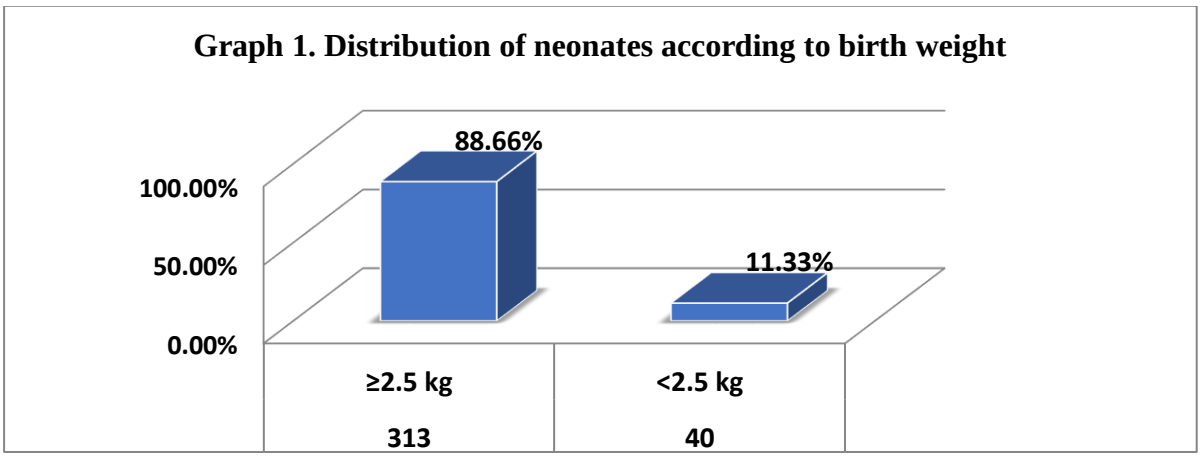
Variables	Frequency (n=353)	Percentage (%)
Age(years)		
≤18	4	1.13
19-25	248	70.25
26-30	83	23.51
>30	18	5.09
Caste		
General	113	32.01
OBC	126	35.69
SC/ST	93	26.34
Others	21	5.94
Religion		
Hindu	332	94.05
Muslim	21	5.94
Education		
Illiterate	65	18.41
Primary	199	56.37
Secondary/higher secondary	78	22.09
Graduation/PG	11	3.11
Occupation		
Housewife	353	100
Working	0	0
Socio-Economic Class (SEC)		
SEC –I	04	1.13
SEC –II	06	1.69
SEC –III	136	38.53
SEC–IV	189	53.54
SEC–V	18	5.09

Out of 353 postnatal mothers, 149(42.21%) mothers had para-1 followed by 119(33.71%) of para-2, 62(17.56%) of para-3, 17(4.81%) of para-4, 6(1.69%) of para≥5. 164 (46.45%) of mothers had ≥4 ANC visits followed by 154(43.62%) had 3 ANC visits and 35(9.91%) had only 1-2 ANC visits. 100% of them had received tetanus toxoid injection while 342(96.88%) had taken iron tablets. 140(39.66%) of mothers had anaemia during recent pregnancy. Most (61.76%) of deliveries occurred in private hospitals while 38.24% occurred in government facilities and 0.85% occurred at home. 271(76.77%) of mothers had normal delivery, 79(22.38%) had caesarean section (CS) and 3(0.85%) had premature delivery. (Table 2) 313(88.66%) neonates had a birth weight (BW) between ≥2.5 kg and 40 (11.33%) had a BW of <2.5 kg. (Graph 1)

Table 2 Distribution of postnatal mothers according to antenatal-intranatal history (n=353)

Variables	Frequency (n)	Percentage (%)
Parity		
Para-1	149	42.21
para-2	119	33.71
Para-3	62	17.56
Para-4	17	4.81
para≥5	6	1.69
ANC visits		
≥4 ANC visits	164	46.45
3 ANC visits	154	43.62
1-2 ANC visits	35	9.91
Anemia during pregnancy		
Present	140	39.66
Absent	213	60.34
Outcome of delivery		
Normal	271	76.77
Caesarian section (CS)	79	22.38
Premature delivery	3	0.85
Place of delivery		
Private	218	61.76
Government	135	38.24
Home	3	0.85

Graph 1. Distribution of neonates according to birth weight



Around (57%) of postnatal mothers applied things (like Mesh-12%, Kajal-44.4% & ointment-0.5%) around the baby's eye which means poor eye care practices were found in 56.5% of mothers. Around 30.31% of mothers applied things (like neomycin powder-26.9%, others-3.4% such as kanku, ghee, and malai) over cord stump in which poor cord care practices were found to 3.4% among mothers & 57.79% practiced bathing within 48 hours which was poor practice. Practices like wrapping the baby in multilayer clothes (99.15%) & hand washing before handling the baby (82.71%) were found good among mothers. Overall feeding practices were found good such as 78.47% of neonates had started breastfeeding within 1st hour, 81.30% of neonates had given colostrums, 86.40% of infants were on exclusive breastfeeding, 89% of new-born were not given pre-lacteal feeds & 82% of the new-borns were not given top feeding without medical advice. But still, pre-lacteal feeds (11% like honey, ghee, and malai) and top feeds (18%) were given to new-borns which were poor practice. (Table 3)

Table 3 Distribution of postnatal mothers according to new-born care practices (N=353)

Variables	Yes N (%)	No N (%)
Application of things around eyes	201 (57)	152 (43.06)
Application of things on cord stump	107 (30.31)	246 (69.68)
Multilayer wrap	350 (99.15)	3 (0.85)
Bath within 48 hours	204 (57.79)	149 (42.21)
Hand washing	292 (82.71)	61 (17.28)
Breastfeeding initiation within 1st hour	277 (78.47)	76 (21.52)
Feeding of colostrums	287 (81.30)	66 (18.69)
Exclusive breastfeeding	305 (86.40)	48 (13.60)
Pre-lacteal feeding	39 (11.04)	314 (88.95)

Poor eye care practice was found significantly ($p<0.05$) more in mothers with their parity ($x^2=13.56$ and p value 0.0088) & ANC visit ($x^2=9.46$ and p value 0.0088) during the current pregnancy. A relationship between parity, ANC visit with bathing practice within 48 hours after delivery of the baby was found to be significant ($x^2=12.13$, $p=0.0164$ and $x^2=9.6$, $p=0.0081$ respectively at $p<0.05$). A relationship between good cord care practice and the education of mothers was found to be significant ($x^2=8.2$, p value= 0.034, $p<0.05$). A significant relationship was found between feeding practices (like breastfeeding initiation within 1st hour of birth, colostrums feeding to new-born, top feeding to new-born, baby on exclusive breastfeeding) with the literacy of postnatal mothers ($x^2=20.9$, p value=0.0001, $x^2=17.5$, p value= 0.000553, $x^2=9.18$, p value=0.02687, $x^2=13.5$, p value=0.003646 respectively at $p<0.05$). A relationship between top feeding to new-born, and the pre-lacteal feed given to the baby with SEC of mothers was found to be significant ($x^2=20.29$, p value=0.00043, $x^2=11.57$, p value=0.01756 respectively at $p<0.05$).

Only 28(7.93%) mothers knew about kangaroo mother care (KMC) and practiced it. Very few 4(1.13%) mothers knew about how to make homemade oral rehydration solution (ORS). The knowledge among postnatal mothers regarding danger signs, in which 100% mothers consider a fever as a danger sign followed by excessive crying of baby (50.14%), cough-cold (33.14%), diarrhea (13.59%), vomiting (6.51%) and baby

stopped feeding (3.68%). 336(95.18%) of mothers were visited by ASHAs at their homes. 286(81%) of ASHAs had completed 6 home visits. 292(82.72%) of infants were immunized as per their age.

Discussion

The practice of kajal application to the eye is a cultural & traditional belief, but its application to the eye can cause conjunctivitis, dacryocystitis, and fingernail trauma.[12]In present study, 57% of mothers practicing kajal & mesh application to the eyes. Other Indian studies showed that kajal application to the eye was highly prevalent in different areas due to unawareness and tradition.[10,13,14] Some studies showed that educating mothers regarding healthy practices were decreasing poor eye care practice.[13,14]In this study, 26.9% of mothers applied neomycin powder and applied other substances which were poor practices (3.4%) like ghee, kanku, and malai on the baby's cord stump. Several studies reported that application of substances on the cord stump not advised medically was more or less prevalent due to traditional belief.[15-17] Applying substances over cord stump practice is harmful because all substances are contaminated which leads to infections. As per WHO,[11] a good cord care practice is not applying anything over the cord stump which was recommended medically, and it is achieved by educating them by trained health staff. The present study also showed a significant association between education and cord care practices. A study done in Kakinada[13] showed that poor practice decreased after education.

The majority (99.15%) of mothers practiced wrapping the baby in multilayer clothes in the present study. A study done in Bangladesh,[14] showed that mothers had a good knowledge of maintaining body temperature with warm clothes &a study done at Mewat(96%),[10] Nepal (100%),[16]and Ghana (99.9%)[17] showed a practice of wrapping the baby with warm clothes. Wrapping of multilayer clothes is approaching universal practice in this and other studies. Simple warming may be effective to reduce neonatal mortality and morbidity.[18]But still some studies in India showed that practices of wrapping the baby was neglected due to traditional beliefs and different cultures.[19]More than half of the mothers (57.79%) bathed their babies within 48 hours in our study. The early bathing practice was more prevalent than in this study in Nepal (All)[16], Ghana (93.6%)[17], rural Uttar Pradesh (80%)[19], and Uganda (87.3%)[20] but, it was less than in present study was in the study done at Navsari(37.8%)[15], & Mewat (36%)[10]. We need to focus on this to reduce hypothermia in neonates because the poor practice was prevalent in >50% of mothers in this study. One study done in Gujarat[27] found that instead of bathing, wiping the baby with a cloth soaked in lukewarm water was common practice among mothers which was recommended by the elderly till 7 days.

Very few (7.93%) mothers practiced KMC in the present study. Indian studies were done in Gujarat[21] and Mewat[10] showed that KMC was not practiced due to unawareness. Similarly, other studies done at Uganda[20]and Bangladesh[14]showed that mothers were not aware of KMC due to inadequate information provided by healthcare workers during antenatal and postnatal visits. A multi-site implementation research study done in India and Ethiopia showed KMC coverage can be achieved with the support of government leadership, health workers' belief about KMC is the standard of care, the practice of KMC acceptance by mothers and families, and changes in infrastructure, policy, skills, and practice.[22]

Breast milk provides optimal nutrition and promotes the growth and development of children and also reduces the risk of infection. Early initiation and exclusive breastfeeding promote beneficial effects for mothers and children.[11] Present study showed that more than 3/4th (78.47%) started breastfeeding within 1st hour & 86.40% of babies were on exclusive breastfeeding which is comparable to studies done in Nepal[16]where good feeding practices were found and also found good in a study done at Pakistan[23] and rural Bangladesh[24]. Our study result was higher than the NFHS-4[7] data of India, and also higher than other studies.[10,13,15,17] This difference may be due to less awareness among mothers. But some studies found that it can be improved by increasing knowledge about its importance among mothers which was significantly associated with education found in studies.[13,19,25,26]Giving pre-lacteal feeds to the new-born is found in majority of countries. Many studies from India [13,15,27] and other countries[17,26]have reported that women

commonly gave this feed due to traditional beliefs and culture. Only 11% of mothers gave pre-lacteal feeds (like honey, ghee, and malai) in our study which is similar to study done in Nepal[16] where < 15% of mothers gave pre-lacteal feeds to their new-born. This behavior can be changed by increasing awareness among mothers and families.[25]

Colostrum is the first breast milk that is highly nutritious and contains antibodies to protect from infections.[11] Colostrum (81.30%) feeding was observed good in this study were nearer results found in studies done at Kakinada[13],Navsari[15],&Ghana[17] while others have reported lower rates of colostrum feeding.[16,21] Most common reason was custom (53%) not to give colostrum, followed by harmful for baby (26.1%) and mother's illness (3.5%).[28] This behavior could be accelerated by increasing awareness of the benefits of colostrums.[18]In this study, 18.13% of mothers did practice giving top feeding to their babies. A study done in Nepal[16] showed that 9.7% of mothers did practice it which was less than that of our study. But a study done at Uganda[20] showed a higher rate of mixed feeding practiced. A study among infants in Kurdish refugees found that an estimated 12% of infants died due to higher use of formula feeding in a food insecure and unhygienic environment.[29]So this practice requires correction by ASHAs & grass root workers in rural areas.

As per WHO,[11] early danger sign recognition can lead to decreased mortality. The HBNC program is run by the ministry of health and family welfare in which ASHA plays a major role in rural areas to identify these danger signs during every visit.[6] Present study showed that Knowledge of new-born danger signs other than fever, excessive crying of baby, cough-cold, and diarrhoea was inadequate. Many studies have revealed that mothers from developing countries including India, Nepal, and Bangladesh had inadequate knowledge about the recognition of new-born danger signs.[14,30,31] Only 1.13% of mothers knew about how to make homemade ORS (Oral rehydration solution). The ORS practices found among the participants were generally low in many studies.[32-34]This was because low awareness can lead to low adoption of these practices.In the present study, as per age completed immunization was found in 82.72% of babies which is higher than the NFHS-4[7] data (62%). A positive attitude toward immunization is reported from developing and developed countries and ranges from 80-98% in different studies.[35-37]

In this study, it was concluded that there were still some poor practices (like eye care, cord care, and delayed bath) existing regarding new-born care that were seen among postnatal mothers because they were unaware of correct practice and traditional belief. Utilization of ANC care is good but still knowledge regarding KMC, homemade ORS was less. Immunization was found good because of more focus on that during the visit.

Recommendations:

Knowledge of the mothers is vital for the growth and development of under-5 year children in the community. So, Mothers should be educated and aware of correct new-born care practices during sessions, ANC visits; HBNC visits & encourages good new-born care practices by grass root level trained workers (ASHA & Auxiliary Nurse Midwife).

STRENGTHS & LIMITATIONS

In our study, a multistage sampling technique was used. This ensures that each participant has an equal chance of being selected for the study and the sample is representative of the population. Our limitation is that our study was cross-sectional and subject to certain biases, such as recall bias: most data collected from mothers are subject to recall-her bias.

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