Study to assess the home-based newborn care (HBNC) visit in rural area of Lucknow: A cross-sectional study

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INTRODUCTION

Home-based newborn care (HBNC) is a strategy adopted by government of India to overcome the burden of newborn deaths in the first week of life, it provides continuum of care for newborn and post-natal mothers. HBNC introduced since 2011 is centred around Accredited Social Health Activist (ASHA) and it is the main community-based approach to newborn health.

AIMS AND OBJECTIVES: The objective of the present study was to assess the HBNC during HBNC visit in rural area of Lucknow, Uttar Pradesh (U.P.).

MATERIALS AND METHODS: The present cross-sectional study was carried out in the field practice area of Primary Health Centre Sarojini Nagar, Lucknow UP. A total of 200 mothers of newborn (age 03 days to 60 days) born in the catchment area of PHC Sarojini Nagar during 8 months period were included in cross-sectional study.

RESULTS: The result of study showed that majority of newborns got all the age appropriate home visit. None of the mothers had knowledge and awareness about the HBNC provision for home visits and the number of home visit by ASHA decreases as age of baby increases. All the ASHAs were aware about the schedule of home visit, the number of home visit in case of home delivery and institutional delivery.

CONCLUSION AND RECOMMENDATION: ASHA was found to be the major facilitator for HBNC programme. Knowledge and awareness of ASHA on importance of postnatal care needs to be enhanced via hands on training.

KEYWORDS: ASHA, HBNC, neonatal mortality rate, newborn, postnatal care

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to 2.5 million in 2018. Most of these newborns died within the first week of life with approximately one million dying in their first day and another one million dying in the following 6 days.\[3\]

Despite increasing rate of institutional delivery, Neonatal Mortality Rate in India is among the highest in the world. Unavailability of trained workers along with poor infrastructure is one of the major obstacles in ensuring quality health and neo-natal care. It is therefore essential that neonates are provided utmost care at the first month of life so that neonatal death could be prevented. The neonatal mortality constitutes about 75% of infant deaths in the country.\[4\] Under the National Rural Health Mission, several initiatives have been undertaken to accelerate the pace of reduction of child mortality. India contributes to one-fifth of worldwide live births and quite ¼ of neonatal deaths.\[4\] India has an Infant mortality rate of 33 per 1,000 live births while Uttar Pradesh has Infant mortality rate of 41 per 1,000 live births.\[5\] Infant mortality rate of Lucknow district was 44 per 1,000 live births.\[4\]

Most of those newborns die at home while being cared by mothers, relatives, and traditional birth attendants. Every newborn requires basic care, which has got to be provided by the mother at home. This comprises warmth, feeding support, skin to skin care, proper hygiene and identification of danger signs of newborn, and seeking help from health personnel whenever required. Therefore, all newborns get HBNC as per the perception and sociocultural behavior of the society. The World Health Organization recommendations for essential newborn care include cleanliness, initiation of breathing, thermal protection, skin to skin contact, early initiation and exclusive breastfeeding, eye care, immunization, management of illness and care of low birth weight babies. Studies have reported one-third to two-third drop of mortality among newborn after home-based care interventions. Identification of determining factors and effective up scaling of the home-based packages will prove to be of vast benefit in reducing neonatal mortality. Present study aimed at exploring the status of the home based newborn care and give an idea to primary care physician in improving newborn-care practices and quality of care at the primary health facility level.

**Aims and objectives**

1. To assess the status of HBNC in the study area.
2. To assess the knowledge of ASHA about HBNC.
3. To assess the problem faced by ASHA in providing HBNC.

**Methodology**

A cross-sectional Study was conducted in the service area of Sarojini Nagar block PHC of Lucknow district. During 8 months period, a total of 351 deliveries occurred at PHC Sarojini Nagar, out of which only 246 deliveries were from catchment area of PHC, in which 46 mothers refused to give interview so total 200 mothers were interviewed. Interview was conducted with mothers of newborn age 03 days to 60 days. Age of child was determined either from birth certificate or from immunization card or in case of unavailability of both, mother’s word was taken as final. At each village, a central point was assumed and direction of first house was selected by rolling pencil to get random starting point for data collection. Consecutive houses having newborn and fulfilling inclusion criteria were selected and the houses not having newborn and not fulfilling the inclusion criteria were excluded. Interview was conducted with mothers to fill the interview schedule and where it was impossible to get them or there was refusal, next household was considered for the study.

All 48 ASHAs in the catchment area of PHC were included in our study for assessment of their knowledge and awareness about HBNC programme and problem faced by ASHA in providing HBNC. Status of HBNC was determined on the basis of home visit done by ASHA. A semi-structured, pre-tested questionnaire was used for study. All participants were informed regarding the purpose of study and their consent was obtained for data collection. The Ethical clearance was obtained from the Institutional Ethical Committee of the King George’s Medical University UP, Lucknow (Ref No. 78th ECM II B-Thesis/P10) before commencing of the study. The statistical data was recorded and analyzed using by the SPSS Software. Obtained on 10th June 2016.

**Results**

A total of 200 newborns with an age range of 03 to 60 days were included in the current study. Majority of the mothers were Hindu by religion and more than half of the mothers belonged to nuclear families. 45% of mothers were educated up to middle school and only 06% mothers were illiterate, 42.5% families belonged to lower socioeconomic class [Table 1]. The data shows that the majority of the newborns got all the age appropriate home visit and no mothers knew about the HBNC visit provision. General examination of majority of the mothers and their newborns were done. During the home visits, majority of the newborns temperature and weight were measured. ASHA washed her hands with soap and water before examining the baby in 75% of the cases [Table 2].

All the newborns who were 07 days or less in age, their weight, temperature measurement, and general examination done by ASHA on the day of HBNC visit. On the 28th day of the HBNC visit, the weight, temperature measurement, and general examination of newborns were 80, 80, and 72%, respectively. On the 42nd day of HBNC visit, more than half of newborns were weighted and temperature measured and the less than half of newborns were general examined by ASHA. These findings represented that as the number of HBNC visit increases, the HBNC services given by ASHA (weighing, temperature measurement, and general examination) decreases [Table 3]. More than half the mothers were counselled about exclusive breastfeeding, 41% on proper positioning and attachment, and 60% on frequency of breastfeeding. 58% on timing of first bath, less than half on proper wrapping of baby, only 24% about skin to skin contact, on cord care and eye care 67%, and
99% of the mothers were counselled about immunization and 77% about hand washing. Counselling given to mother on danger signs, about fever and fast breathing were 96% and 78%, respectively. Only 33%, 10.5%, 4%, and 2.5% got counselling on chest in drawing, hypothermia, lethargy/

Table 1: Biosocial characteristic of mother

| Characteristics                  | n=200 |   |
|----------------------------------|-------|---|
| Religion                         |       |   |
| Hindu                            | 176   | 88 |
| Muslim                           | 24    | 12 |
| Type of family                   |       |   |
| Nuclear                          | 105   | 52.5 |
| Joint                            | 95    | 47.5 |
| Educational status of mothers    |       |   |
| Illiterate                       | 12    | 6 |
| Primary school                   | 58    | 29 |
| Middle                           | 90    | 45 |
| High school                      | 31    | 15.5 |
| Intermediate and above           | 9     | 4.5 |
| Occupation of mothers            |       |   |
| Housewife                        | 196   | 98 |
| Un-skilled worker                | 4     | 02 |
| Socioeconomic status             |       |   |
| Class III (Middle)               | 7     | 3.5 |
| Class IV (Upper lower class)     | 108   | 54 |
| Class V (Lower class)            | 85    | 42.5 |

Table 2: Number of Home visits and services provided during Home visit by ASHA

| Characteristics                          | n=200 |   |
|------------------------------------------|-------|---|
| Age appropriate home visit to the newborn|       |   |
| All due visit                            | 129   | 64.5 |
| Partial due visit                        | 58    | 29 |
| No visit                                 | 13    | 6.5 |
| Mother's awareness about HBNC visits provision |       |   |
| Yes                                      | 0     | 0 |
| No                                       | 200   | 100 |
| Services to be provided during home visits to the mother and newborn |       |   |
| General Examination of mother            |       |   |
| Yes                                      | 124   | 62 |
| No                                       | 76    | 38 |
| General Examination of newborn           |       |   |
| Yes                                      | 130   | 65 |
| No                                       | 70    | 35 |
| Weighing of newborn                      |       |   |
| Yes                                      | 147   | 73.5 |
| No                                       | 53    | 26.5 |
| Temperature measurement of new born      |       |   |
| Yes                                      | 147   | 73.5 |
| No                                       | 53    | 26.5 |
| ASHA washed her hands with soap and water before examining the baby |       |   |
| Yes                                      | 151   | 73.5 |
| No                                       | 49    | 24.5 |

Table 3: HBNC Services given by ASHA on 3rd, 7th, 14th, 21st, 28th & 42nd day

| Age at day of visit (in days) | No. of new-born | Weighing of newborn | Temperature measurement of newborn | General examination of newborn |
|------------------------------|-----------------|---------------------|----------------------------------|-------------------------------|
| 3                            | 4               | 4                   | 100                              | 4                             |
| 7                            | 12              | 12                  | 100                              | 12                            |
| 14                           | 16              | 14                  | 87.5                             | 14                            |
| 21                           | 28              | 26                  | 92.9                             | 26                            |
| 28                           | 39              | 31                  | 79.5                             | 31                            |
| 42                           | 101             | 59                  | 58.4                             | 59                            |

Table 4: Counselling given to mothers by ASHA regarding various aspects of newborn Health during HBNC visit

| Counselling given to ASHA to mother* | n=200 |   |
|--------------------------------------|-------|---|
| Exclusive breastfeeding              | 123   | 61.5 |
| Proper positioning and attachment    | 82    | 41 |
| Frequency of breastfeeding            | 119   | 59.5 |
| Timing of first bath                  | 115   | 57.5 |
| Proper wrapping of baby              | 72    | 36 |
| Skin to skin contact                 | 48    | 24 |
| Care of cord                         | 133   | 66.5 |
| Care of eye                          | 99    | 49.5 |
| Immunization                         | 197   | 98.5 |
| Hand washing                         | 154   | 77 |
| Counselling of mothers about Danger signs of newborn* |       |   |
| Fever                                 | 192   | 96 |
| Fast breathing (≥60 breaths/min)      | 156   | 78 |
| Chest indrawing                      | 66    | 33 |
| Flaring of nostrils                   | 0     | 0 |
| Grunting                             | 0     | 0 |
| Not taking feed                      | 62    | 31 |
| Bleeding or oozing stump             | 0     | 0 |
| Convulsion                           | 5     | 2.5 |
| Hypothermia                          | 21    | 10.5 |
| Lethargy/unconscious                 | 8     | 4 |
| Jaundice                             | 0     | 0 |

50%, respectively. 99% of the mothers were counselled about immunization and 77% about hand washing. Counselling given to mother on danger signs, about fever and fast breathing were 96% and 78%, respectively. Only 33%, 10.5%, 4%, and 2.5% got counselling on chest in drawing, hypothermia, lethargy/

Recapitulating the knowledge and awareness of ASHA about HBNC, all the ASHAs were aware about the schedule of home visit, the number of home visit in case of home delivery and institutional delivery. 60% were aware that breastfeeding should be initiated within 1 h of delivery and all ASHA knew that the colostrum should be given to the newborn and the exclusive breastfeeding should be done for 6 months. Majority of ASHA told that breastfeeding should be done on demand. 73% ASHA had knowledge about the normal temperature of a newborn, 83% knew that in fever the temperature is above 97.7°F and 65% had knowledge that in hypothermia the temperature goes below
Table 5: Knowledge and awareness of ASHA about HBNC

| Characteristics                              | n=48 |    |    |
|----------------------------------------------|------|----|----|
| No. of visits in case of home deliveries     |      |    |    |
| 7                                            | 48   | 100|    |
| 6                                            | 0    | 0  |    |
| No. of visits in case of institutional deliveries |    |    |    |
| 7                                            | 0    | 0  |    |
| 6                                            | 48   | 100|    |
| Initiation of breastfeeding                   |      |    |    |
| Within 1 hour                                | 29   | 60.4| |
| 1 to 4 hours                                 | 19   | 39.6| |
| Given colostrum                              | 48   | 100|    |
| Exclusive breastfeeding                       | 48   | 100|    |
| Frequency of breastfeeding                    |      |    |    |
| On demand                                    | 36   | 75 |    |
| Every 2 hours                                | 4    | 8.3|    |
| 6 to 8 times                                 | 8    | 16.6| |
| Knowledge about temperature                  |      |    |    |
| Fever (>97.7)                                 | 40   | 83.3| |
| Hypothermia (<97.7)                          | 31   | 64.6| |
| Low birth weight baby                        | 48   | 100|    |
| Home visit in case of LBW baby               |      |    |    |
| Up to 2 years                                | 0    | 0  |    |
| Don’t know                                   | 48   | 100|    |

97.7°F. All the ASHAs had knowledge about the cutoff weight for low birth weight but none of them had knowledge about the number of home visits in case of low birth weight baby [Table 5]. During the home visits, ASHAs were not able to provide HBNC care because of unavailability of medicine and cultural practices of caregivers (Not allowed house entry up to 7 days of life) in 23% and 13%, respectively. About suggestions for betterment of HBNC services, 41.7% ASHA responded that medicines should be made available and 4.2% suggested more training of ASHA were required on newborn care. In majority of HBNC visit both the community and family support were good [Table 6].

**Discussion**

In the current cross-sectional study, 88% mothers were Hindu, 47.5% belonged to joint family and most of the mothers (98%) were homemakers. Similar assessments were assessed by different study in our country by some authors. The present study assessed that 45% mothers were educated up to middle school, 54% families belonged to upper lower socioeconomic class, and 42.5% families belonged to lower socioeconomic class. Some authors in their study found that almost half of the families (51.9%) belong to lower socioeconomic class. The present study revealed that 74% of mothers got counselling on newborn care in postnatal period and the maximum counselling were given on Breastfeeding (66.5%), Immunization (66.5%), and the danger signs of Newborn (51%) and the least was given on Eye care (4%) and the 102 Ambulance services (3.5%). On awareness about breastfeeding, (60.4%) was aware that breastfeeding should be initiated within 1 h of delivery. All the ASHA had knowledge that colostrum should be given to the newborn and exclusive breastfeeding should be done for 6 months. Similar observations were also reported by some authors in their study.

In current study, it was suggested that the majority of ASHA workers aware about the temperature in fever (above 97.7 F) and 64.6% had knowledge that in hypothermia the temperature goes below 97.7. It has also been observed that as the number of HBNC visit increases, the HBNC services given by ASHA (Weighing, temperature measurement, and general examination) decreases. Observations of present study corresponds with the study of Yonzon KK et al. presented that the coverage of the home visits decreases with increasing age of the child. In the present cross-sectional study, all the ASHAS (100%) were aware about the schedule of home visit, the number of home visit in case of home delivery and institutional delivery regarding HBNC and majority of HBNC visit, both the community and family support were good, similar finding were also reported in earlier studies.

**Conclusion and Recommendation**

Our present study concluded that majority of newborns got all the age appropriate home visit but none of the mothers had knowledge and awareness about the HBNC provision for home visits and as the number of HBNC visit increases, the HBNC services offered by ASHA decreases. The study suggests following recommendations: Need to improve the coverage and quality of the HBNC program by improving the pace and quality of training, operationalizing an effective supportive supervisory mechanism and timely reimbursement of ASHA incentives. Health education for the community focused on newborn care practices like exclusive breastfeeding for 6 months,
proper positioning and attachment, timing of first bath, proper wrapping of baby, skin to skin contact, cord care and eye care, immunization and hand washing. The community and mother needs to be educated about danger signs of newborns.

**Declaration of patient consent**

The authors certify that they have obtained all appropriate patient consent forms. In the form the patient(s) has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

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**Conflicts of interest**

There are no conflicts of interest.

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