

CHAPTER 5

DISCUSSION

The current study was carried out at Doiwala Block, Dehradun, Uttarakhand. The study participants were randomly selected (110 ASHA workers) using the computer-generated random table (simple randomization technique). The study also included 205 postnatal mothers who were registered with those ASHAs. Three focus group discussions were conducted with ASHA representatives of different PHCs. The re-education program was developed based on HBNC ASHA training modules 6 & 7 by National Health Mission (NHM) 2014.

HBNC training of ASHAs includes newborn care during delivery, home visit schedule for newborn care, examination of newborns at birth, breastfeeding and management of breastfeeding problems, keeping the newborns warm, management of newborn fever, immunization, high-risk assessment, care of preterm newborns, diagnosis of birth asphyxia, and neonatal sepsis etc. In every meeting, assessment of ASHA was followed by reinforcement in an interval of 30 days. ASHAs knowledge, attitude, and practices were assessed using a structured knowledge questionnaire on HBNC, the attitude assessment scale of ASHA on HBNC and the self reported practice questionnaire for ASHA on HBNC. Postnatal mothers were assessed using safe practices of newborn care by mothers and an opinionnaire for mothers on HBNC provided by ASHA.

The study's findings are discussed under the following headings:

- I. Discussion on qualitative results about ASHA and HBNC program
- II. Discussion on quantitative results about ASHA and mothers HBNC practices

5.1 Description of factors affecting implementation of HBNC by ASHA with help of Focus Group Discussion (FGD):

This study used a qualitative research approach to acquire a better understanding of ASHA workers' perceptions about ASHA and HBNC programs. This study gained an insight into the ASHA's responsibilities and experiences as public health workers, identifying numerous opportunities and problems that ASHAs encounter in fulfilling their multiple roles.

5.1.1 Contributing factors in the implementation of HBNC program:

Source of Income:

The ASHAs were inspired to become an ASHA because they considered it to be autonomous and also a source of their earning. This income is used to fulfill the needs of their family members including education of their children. As a result, incentives are unquestionably desirable and crucial in motivating ASHAs to provide HBNC services to newborns on time. Janani Suraksha Yojana (JSY) has been introduced as a critical factor for influencing the perception of people regarding institutional delivery and also to promote maternal health through monetary benefits.

All ASHAs interviewed for the study confirmed their reliance on the JSY system because of which they could convince pregnant women for delivery in health centers. At the same time, ASHAs considered such activity to be a major source of income for their livelihood.¹⁹

Social recognition and acceptance

With the aim of serving the society, most ASHA workers have joined this initiative. Through their services, they have managed to establish themselves in the community without hesitation. They expressed that it took a long time for the community to cooperate them unconditionally. Community people, particularly postnatal mothers, were hesitated to engage with other health care providers, including doctors and nurses. However, they shared their problems and issues to the ASHAs comfortably as a relationship of trust has been established between them.

Prabhughate et al., (2018) recognized the significance of building a connection of confidence with the whole population through CHWs.⁶⁸ In the study, the importance of at least three times prenatal check-up in health care centers was significantly increased in postpartum mothers. The presence of ASHA in the village is one of the reasons for such progress, as they maintain proper documentation of eligible couples and pregnant women. They also provide health teachings and encouragement to all antenatal mothers to get regular check-ups, and accompany antenatal women to the hospitals before delivery.¹⁹

Source of knowledge

Since the ASHA program began, ASHAs felt that their understanding and awareness regarding healthcare have improved. They have been educated and equipped with the awareness of various age groups of individuals about health and its possible consequences. They learned how to handle certain health issues as a first-line, which allowed them to interact well with people. They have gained the confidence of the people in the community as they supported them whenever they were in need or difficulty particularly with respect to maternal and neonatal health care. They educated them on essential newborn care practices including hygienic feeding, inadequate breast milk production, available milk products in the market, personal hygiene, and the mothers' healthy diet. The ASHA provide an important opportunity to improve maternal health by facilitating community health services such as minor treatments, public awareness on healthy living, participation in national health programs etc.^{19, 68}

Improvement of self confidence

ASHAs have built a strong relationship with the community through their continuous efforts and services. A strong relationship of mutual understanding has been developed between ASHA and community people. This relationship helped ASHAs to develop self-confidence for providing more effective services to the people. ASHA's dedication, trust, and support from supervisors also help to resolve challenges, and to make important decisions.⁶⁸

Benefits to newborns and public health

Since the implementation of the HBNC program, ASHAs have been in continuous service for the community. They have been teaching people about the importance of regular weighing of infants, maintenance of body temperature, seasonal clothes, exclusive breastfeeding, treatment during sickness, postnatal diet, regular immunization, etc as people in many areas lack awareness of child care and maternal health.

In their respective communities, ASHAs found several antenatal mothers who did not visit health centers for antenatal checkups as well as who were not willing to go to health centers for delivery. They inspired and informed pregnant women about the importance of antenatal check-ups and institutional delivery. Moreover availability health services to the mothers become easier as they reside with the ASHAs in the same village. The services offered included health information, minor medications, blood pressure monitoring and the detection of complications related to pregnancy.¹⁹

CHWs effectively utilized HBNC skills to avoid neonatal deaths, according to delivery reports and many safe deliveries have been perform. It is also reported that possessing HBNC skills is not adequate for CHWs; they must be prepared for emergency situations and trained to deal with a variety of situations and issues.⁶⁸

5.1.2 Hindering factors in the implementation of HBNC program:

Less incentive

Almost all the ASHA workers of this study indicated that they were less incentivized as compared to the work load. They were not satisfied and less motivated.

This aspect of the ASHA program was mentioned in many literatures and emphasized the need for increasing the incentives provided to ASHAs.^{19, 65, 68} Most of the ASHAs were not satisfied with their incentives and felt it inappropriate for their work. They expected additional benefits with respect to their work or minimization of workload.⁶⁵ Serving the customers to the satisfaction, trying to accomplish their workload on time, and managing their home with the little incentive have been a distressful for ASHAs. Providing sufficient incentives to the ASHAs may act as a motivating factor and encourage them to continue their active participation in the program.¹⁹ They also stressed the need of increment of their incentives or set a wage and timely payment in order to boost their commitment towards the society.⁴⁷

Overloading works

ASHAs have been active in a variety of activities, such as the government surveys, DOTS, dengue, measles, diarrhea disease control programs, and recent program for AYUSHMAN card, etc. other than HBNC and maternity care. At times when there was overloading works, they were distracted from their services related to newborn and maternal care. This may affect the morbidity and mortality of newborns. They were engaged in many other activities that broke the continuity of HBNC services. It also compromised their skills to provide quality care for newborns. Therefore they need to be motivated and provided trainings regularly. Without proper orientation, it is difficult for them to track several community health programs such as surveys, due to their lower level of formal education.⁴⁸

Less community participation

ASHA usually faced resistance from community members regarding the delivery of health services as well as helping people to make use of these services. They struggled to give advice and convince pregnant mothers to visit for antenatal checkups, especially migrants from Uttar Pradesh and Bihar. Home delivery is rare today but still, some percentage of people prefer to deliver at home, particularly Gujjar, a marginalized tribe, due to lack of education, societal norms, or taboos. These home deliveries can lead to a number of mishaps (cataclysms) due to mismanagement of delivery and childbirth.

According to tradition and belief, some mothers delayed the initiation of breastfeeding after the birth of the infant, because the first feed (e.g. Ghutti, honey, water, sugar water, etc.) must be offered by their grandmother or paternal aunt. This practice affects the infant in a number of ways, such as newborn infection, and may also impair proper lactation of the mothers. During the immunization visit, some mothers objected and refused to receive the vaccine as they believed its adverse health effects on the child. Community opposition persisted in the form of women who refused to share pregnancy information because their families did not support the Sakhi (ASHA).⁶⁸ Other Indian studies also commented on the lack of confidence in the public health system by the population.⁶⁰ Pervasive misconceptions, social and cultural attitudes deterred people in the community from seeking health care or putting their faith in ASHAs.⁶⁹

According to the study, some of these problems led to the people's refusal to embrace the CHW. It stressed that the approval of the community is a prerequisite for the successful provision of HBNC services in the community.⁶⁸ ASHAs suggested need of

involvement of religious leaders and male health professionals in order to engage difficult-to-reach or resilient families.⁴⁷

Fail to remember correct practices at the time of care

ASHAs have been active in a variety of projects since the first day of their service. As they engaged in many tasks, during the visits to newborns and mothers, they spend less time and often missed the exact skills of care. This condition creates a gap in the relationship between the mother and ASHA. ASHAs felt the requirement of regular training to retain their knowledge and skills on updated HNBC information for continuous community acceptance. ASHAs, regardless of their level of education, had very less practical awareness of health problems. With the ongoing trainings on capacity building, the ASHAs basic knowledge and skills can be developed. The National Health Systems Resource Centre (NHSRC) also recommended that ASHAs should be supported with skill-based training and enhanced their counseling skills.²⁹

Shortage of required kit contents such as instruments & medicines

Adequate equipments and supplies are essential for the successful delivery of health services to people by CHWs. In this study, ASHA claimed that they are struggling with inadequate supplies of equipments and medicines. They faced many difficulties while visiting the mothers and the newborns for care. It hinders the delivery of services and the maintenance of records as necessary. This affects mutual relationship between the ASHA and the society. This also may create a hesitation to people to seek and accept services from ASHAs.

Prabhughate et al., (2018) also supported our finding as the equipment was not accessible in some cases or was dysfunctional in the facility.⁶⁸ This research illustrates a variety of aspects influencing the work of ASHAs that emerge from the supply side. ASHAs' functionality and reputation in the community are compromised by inadequate supplies and materials. When facilities are lack community people are unwilling to follow recommendations of ASHAs to avail facility-based services.⁴⁷

5.2 Effectiveness of HBNC re-education program on ASHA

1. All the ASHA workers were female and their ages ranged between 28-56 years. The majority (49%) of them aged between 28-40 years. Most of them were married (92.16%) and educated up to high school (45.10%). About 91.18% of ASHA workers were Hindu and belonged to nuclear families (57.84). Many of the ASHA workers (58.82%) had more than 10 years of experience in the field and about 65.70% of ASHAs have received training related to HBNC in the last six months.

2. Level of HBNC knowledge, practices and attitude of ASHA

Briefly, the baseline and end-line data of various domains of knowledge of the ASHA workers were (a) general information about high-risk newborns (70.92% and 94.12%), (b) Eye & umbilical cord care (58.68% and 83.61%), (c) Prevention of hypothermia (59.80% and 92.02%), (d) Breastfeeding care (60.66% and 87.62%), and (e) hygiene and prevention of infection (82.35% and 94.90%) respectively. (Table 3)

Despite the fact that over half of the ASHA workers had more than ten years of experiences, 90.19% of them were found to possess average knowledge regarding HBNC during our initial assessment. However, significant improvement of knowledge of the

ASHA workers in all domains was observed after subsequent reinforcements ($p < 0.001$). At the end of reinforcements, the knowledge level of 84.31% of ASHA workers was enhanced to a good category.

During pretest analysis, only 22.55% of the ASHA workers could name mandatory vaccines of newborns such as BCG, Hepatitis B (Birth dose), and OPV (Birth dose). Besides, 50% of ASHA knew the underlying principle of immunization. About 25-40% of ASHA workers knew the correct way of managing eye infection of babies and the explicit method of applying antibiotic ointments or drops by squeezing a thin line of the ointment moving from inside to the outside of the eyes.

It was alarming to note that only 14.71% of ASHA workers knew the right procedure of cleaning umbilical cord i.e. cleaning of the umbilical stump first followed by its base, only 30.39% of ASHA workers knew the correct position used in KMC for newborns, i.e. Frog- leg position and just 48.04% of the ASHA workers knew that the highest heat loss of the newborns occurred through their head, which is the major part of their body. Only 29.41% of ASHA workers were aware of hypothermia complications in newborns, i.e. Infections and death. About 18.63% of ASHA workers knew about the correct positions that mothers should adopt for breastfeeding, i.e. sitting position, lying position, and underarm and alternate underarm positions. Surprisingly, only 2.94% of ASHA workers knew the frequency of breastfeeding newborns, i.e. whenever the newborn cries.

Approximately 30-45% of ASHA did not know the cause of low body temperature in newborns, i.e. inappropriate drying, wrapping & left head uncovered, the

importance of cord care i.e. infection prevention, breastfeeding problems i.e. engorged and painful breasts, common causes of engorged breast, i.e. incomplete breast emptying, the complication of prolonged contact with the soiled cloth to the newborn i.e. cloth rash, when should a newborn be immediately referred to hospital i.e. Neonatal Sepsis.

Although the practice of providing gripe water to newborns is not recommended by UNICEF and WHO, the practice has continued as a traditional way of improving digestion and alleviating colic caused by gas accumulation in many parts of India. Just 38.56% of ASHA were found to be aware of potential negative impacts of gripe water on newborns during the pre-test. The proportion however was raised to 54.25% after the second reinforcement.

In order to maintain a warm environment as a womb, newborns need to be wrapped in multilayer clothes. However, only 53.92% of ASHAs were found to know the value of covering newborns with multilayer clothing. The percentage at the end of reinforcements was raised to 88.89%. Bathing is recommended for healthy newborns after 48 hours of birth. However, according to their religious or cultural belief, some sections of people immediately or within 24 hours give baths to newborns. These activities can increase neonatal mortality due to sepsis and hypothermia. Interestingly, only 26.80% of ASHA did not know about the potential adverse effects of early bathing of neonates during pre-test and after regular reinforcement, the number was reduced to 11.11%. Similarly, only 27.78% of ASHA were found to be aware of the importance of properly cleaning the umbilical stump, and no major developments on the concept were observed even after the reinforcements.

Though it is not recommended to apply kajal (black color paste) to the eyes of newborn babies, some groups of people still used to continue such activities as part of their custom. They claimed that applying kajal to the eyes of babies would improve the health of the eyes and protect black magic. However, 36.27% of ASHAs were found to be unaware of the negative effects of applying kajal to the eyes of newborn babies during the pre-test.

Newborn babies come from a very sterile environment, so the babies and their environment must be provided with all necessary sterile measures. Touching or kissing the baby should be avoided in order to keep the baby free from infection. In this regard, 35.29% of ASHA was found to be unaware of certain practices during the pretest and the percentage decreased to 20.92% after the second reinforcement.

It is necessary to avoid the gathering of crowds surrounding the newborn, and only 58.82% of ASHA were found to support the concept of restricting the number of visitors to newborns to prevent potential infections during the pre-test. After regular reinforcements, the number was raised to 80.07%.

Although babies born in hospitals are the safest and highly recommended, Professional Healthcare Providers (PHP) provides the best possible examination and care for the babies. Complete physical examination of the babies, including length, weight, body temperature, head, and abdominal circumferences, genitals and anus, breathing rate, heart sound, reflexes, etc., is carried out within the first 24 hours of delivery to assess any indications of complications. Nevertheless, in many Indian villages, including Uttarakhand, the tradition of giving birth at home without the aid of PHP continues.

Initially about half of ASHA were not aware of the newborns' early examination, but 78.43% of ASHA could understand the utmost need for the first examination of neonates to the earliest mainly within 24 hours of delivery after the regular training.

Adaptation of newborns to the external environment (extrauterine life) is a challenge due to enormous differences in the conditions as compared to the maternal womb. The body temperature of unborn babies inside the womb is slightly higher than the normal body temperature of the mothers (37°C) due to higher metabolic processes. It is reported that the body temperature of the babies drops rapidly by about 2°C within half an hour of life due to the lower temperature of the outer environment and the evaporation of amniotic fluid.⁷⁰ Moreover, the babies tend to lose heat in several ways to the external environment.⁷¹ The surface area to body weight ratio of babies is multiple times higher than adults. It is estimated that about 75% of heat loss may occur from the uncovered head of the babies that accounts for large in proportion to the body. Other reasons for loss of heat include lower subcutaneous fat content, thin skin, immature circulatory and respiratory systems of babies, etc. The number of ASHAs who supported delaying the bath of babies to keep them warm increased from 75.49% to 85.29% after the training. Similarly, the number of ASHAs who comprehended the inability of newborns to maintain their own body temperature increased from 47.06% to 64.71% after the training. Hence the babies need to be wrapped with multiple layers of clothes to maintain body temperature.

Kangaroo mother Care (KMC) is a simple and useful practice that has been developed for ambulatory care of newborns primarily low birth weight infants considering vulnerability to diseases and death due to overcrowding and sepsis. The

practice has been introduced to enhance sensitivity, awareness, competence, and parental care of their babies to ensure better development and survival of the infants. Initially, KMC was considered for implementation in developing countries with limited resources. However, considering the effectiveness of the practice on the physiological, psychological, and clinical status of infants, it has become a universally accepted procedure. It relieves possible stressful conditions of the babies encountered during exposure in neonatal intensive care units. Initially, about 48-55% of ASHAs thought that KMC is only for preterm babies and it must be provided only by the mothers. However, at the end of the training, about 70-87% of ASHAs could realize that KMC is necessary for both preterm and full-term babies and the practice can be provided by anybody caring for the infant. Although optimal care provided to the newborns using KMC has been reported to stimulate and produce positive impacts on mother-infant bonding, breastfeeding, psychological effects, physiological effects, infection, behavioral and cognitive development of the infant, etc.⁷²⁻⁷³ Surprisingly 71.57% of ASHAs initially thought that the benefits of KMC are exaggerated and the number was subsequently decreased to 58.82% after the training. After narrating the possible benefits of KMC, 96.08% of ASHAs were convinced to educate people, particularly parents, to practice KMC regularly.

Further, human milk is quite species-specific and uniquely superior to other markedly available formulated feed for neonates. Breast milk is economical, temperature-controlled, and highly nutritive as it contains abundant nutrients such as carbohydrates (glucose, galactose, lactose, and oligosaccharides), proteins, fats (essential fatty acids and polyunsaturated fatty acids), vitamins, minerals, macro, and

microelements, etc. that play crucial roles in infants development.⁷⁴ Most ASHAs (>95%) recognized the need of breastfeeding the babies to the earliest within an hour of delivery as per norms of UNICEF/WHO.⁷⁵ The number of ASHAs who admitted unnecessary to provide other formula feed along with breast milk to the infants was increased from 37.25 to 54.90% after the training. Besides, breast milk also contains other components related to metabolic processes and immune function of the body including IgA, leukocytes, cytokines, enzymes, hormones, bioactive components, polyamines, growth factors, nucleotides, etc.⁷⁶⁻⁷⁷ Thus breastfeeding has been corroborated with its distinct protective actions against allergy, asthma, rheumatoid arthritis, obesity, respiratory infection, gastrointestinal and urinary tract infections of newborns including low birth weight and premature babies.⁷⁸⁻⁸⁷ Besides reports are also available on the protective role of breastfeeding against illnesses such as diabetes, atherosclerosis, bowel and coeliac diseases, breast cancer, ovarian cancer, acute lymphoblastic leukemia, myeloblastic leukemia, etc.⁸⁸⁻⁹⁸ All the ASHAs acknowledged the protective role of breastfeeding in infants after the training. Moreover, previous studies have reported an association between breastfeeding and a tremendous reduction of jeopardy of sudden infant death syndrome (SIDS) as compared to artificial feeding infants.⁹⁹⁻¹⁰⁰ A positive relationship between breastfed babies and cognitive development was also observed irrespective of maternal intelligence.¹⁰¹⁻¹⁰⁵ Subsequently, the mothers are also benefited as breastfeeding is associated with necessary hormonal changes required for decreasing maternal stress, losing weight gained during pregnancy, reducing postnatal uterine bleeding, and recovery after delivery of the child.¹⁰⁶⁻¹⁰⁷ Moreover, it

strengthens bonding between the mother and child that was appreciated by most of the ASHAs (96.08%).

Milk production in lactating mothers primarily depends on the extent of consumption, demand, and emptying of the breast. The rate of synthesis of milk is related to the degree of draining of milk from the breast. Normally breastfed infants do not completely drain the breast and are satisfied before the breasts get empty of accessible milk. It is estimated that more than 20% of milk remains in each breast after a minimum of two feedings per day.¹⁰⁸⁻¹⁰⁹ Most of the ASHAs (>90%) knew the fact that the frequency of breastfeeding does not compromise the milk production of the mothers. Moreover, milk production of even challenging mothers could be further enhanced through proper draining of the milk either by the infant or by expressing milk from the breasts.¹¹⁰⁻¹¹¹ According to WHO/UNICEF standards, all newborns should be breastfed exclusively for the first six months of their lives in order to achieve optimal growth and development.¹¹² However, in many villages of India, water, ghutti, gripe water, and animal milk have been provided as prelacteal feeds as a part of customs and beliefs. Ghutti and gripe water have been provided to infants to get relief from colic, stomach ache, cold and cough, fever, accumulation of gas, etc. Ghutti is locally prepared as a mixture of herbal extracts (primarily ajwain), hing (Asafoetida), sugar (or honey or gur), and water (or milk). The sweetening taste of sugar or honey is generally used to conceal the pungent or bitter taste of the ingredients. Similarly, gripe water also contains high sugar and sodium bicarbonate along with herbal extracts. Honey may perturb the underdeveloped digestive system of infants and cause food poisoning (botulism) while sugar may damage the developing teeth of the infants. Excess sodium bicarbonate may

disturb the pH of the infant's metabolic system and cause toxic effects such as alkalosis and milk-alkali syndrome. Moreover, some of the gripe water contains soothing constituents such as alcohol up to 9% that is high enough to get adults addicted.¹¹³⁻¹¹⁴ The neonates need to be treated with utmost care as they have an immature immune system. The administration of ghutti or gripe water to the infants may cause other side effects such as loss of appetite, constipation, vomiting, listlessness, etc. Besides, it further increases the risk of introducing infectious bacteria and many other harmful microorganisms to the babies. Amongst infection of newborns with *Pseudomonas aeruginosa* and *cryptosporidium* through gripe water have already been reported.¹¹⁵ Jain et al. (2015) reported no effective action of gripe water on the prevention of colic in infants. Besides, the issue of vomiting, constipation, and diarrhea was higher in infants supplemented with gripe water.¹¹⁶ Therefore the natural way of treating colic such as burping the baby, maintaining the right position of the baby right during feeding is highly recommended and beneficial. About half of the respondents (51.96%) initially believed in giving ghutti or gripe water to newborns as prelacteal feeds for good health and for the treatment of colic. They felt it safe to provide ghutti as a supplement along with breast milk during the first 6 months of delivery of the babies. They believed that ghutti cleanses the intestines. After the training, 67.65% of ASHAs became aware of the need for exclusive breastfeeding to the babies at least up to six months. They could realize that giving colostrums to the infants is imperative and providing gripe water to the babies should be avoided. Weaning to the infants can be started after six months of age to meet the required energy for proper growth as per guidelines of WHO.

5.3 Newborn care practices of mothers and their view on HBNC provided by ASHA

This study evaluated the essential newborn care carried out by postnatal mothers with reference to the advice of ASHA workers. Empowering mothers with sufficient information, knowledge, and practice is imperative to strengthen our challenge with the goal of reducing neonatal morbidity and mortality. The majority of the participants were from rural areas that were deprived of essential facilities. Most of the mothers were homemakers and learned up to high school. The majority of mothers didn't feel the importance of visiting any obstetrician. Interestingly 94.15% of mothers delivered their babies in health facilities such as CHC, PHC, and hospitals. However, the rest of mothers (5.85%) were reported to adopt home delivery which was performed by local dais or their relatives.

About 50% of newborns in Northern India die because of neonatal tetanus (NT) infection.^{117, 118} As a result, the National Immunization Schedule of India has made TT immunization of pregnant mothers mandatory, as recommended by WHO, in order to protect mothers and their newborn babies from this fatal illness.¹¹⁹ TT immunization induces long-term immune responses through T-cell activation mechanisms. This defense action is primarily mediated by IgG because of its higher affinity with the antigen.¹²⁰ TT immunization in pregnant mothers is safe and likely to deliver optimal impact at the community level where deliveries take place in unhygienic conditions such as rural parts of India. Despite the fact that TT immunization is the most effective means of preventing tetanus, routine TT vaccination faces difficulty in rural regions of India owing to

socioeconomic and cultural differences. In the present study, 93.66% of postnatal mothers had received two doses of TT immunization during their pregnancy. Moreover, 96.59% of newborns were reported immunized, out of which 47.40% received BCG, OPV, and HEP-B vaccinations, and only 3.40% received BCG, Penta I, and HEP-B vaccinations (Table 16).

Delivery in health centers or hospitals generally takes place under the observation of health workers availing all required facilities. This lowers the chances of stillbirths and improves the survival of both mothers and newborns. They need to be kept under intense observation of the healthcare workers at least for 24 hours. In our study, about 90% of postnatal mothers were hospitalized for at least 48 h following delivery.

Proper breastfeeding and colostrum feeding have been shown to reduce infection-related newborn mortality significantly by Mullany et al. (2008).¹²¹ Assessment of responses on safe neonatal practices showed that 93.66% of mothers used to clean their breasts before feeding (Table 17).¹²² Breastfeeding of newborns has been recommended to start within one hour of delivery as per guidelines of UNICEF. The health of newborns is determined by several factors including time of initiation and duration of breastfeeding, time at which weaning starts, etc. However, 21.95% of the mothers delayed breastfeeding due to a variety of reasons, including cesarean delivery, low milk production, baby being treated on machines, etc. Besides, other factors that may account for deterring early initiation of breastfeeding are literacy, beliefs, socioeconomic, health conditions, intrapartum, neonatal characteristics, customs, and cultural activities of the participants. Prelacteal feeds that are given to the neonates as a part of tradition include water, honey, ghutti, and gripe water. Some of the mothers also fed cow milk diluted

with water as prelacteal to their baby. Gripe water was commonly administered to babies with the notion of health benefits as a laxative by 11.71% of the mothers, their family members, or relatives. They believed that their traditional feedings help in the relief of abdominal discomfort, the clearing of the stomach, and the easy passage of feces. The provision of traditional feeds, on the other hand, may be a cause of infection for newborns. This may also interfere with the appropriate lactation and breastfeeding of the mothers.¹²³

In 2016, the government of India, under the MHFW started a new initiative called Mother's Absolute Affection (MAA) with the goal of raising awareness among people, primarily mothers, about the benefits of breastfeeding.¹²⁴ Colostrum of mother's milk is ideal for proper neonatal nourishment because it contains abundant carbohydrate, protein, cholesterol, lipid, minerals, vitamins, growth factors, enzymes, hormones, immunoglobulins etc. Colostrum from human breast milk is also anticipated to play a vital role in the excretion of appropriate meconium in neonates. Even though 5.85% of mothers in the present study refrained from giving colostrum to the infants due to several reasons such as LSCS delivery, babies on machines, tradition, and cultural beliefs. Approximately 98% of the mothers considered it important to breastfeed multiple times (7-8 times) a day or whenever the baby cried. Previous studies have reported early and exclusive breastfeeding of newborns for at least the first 6 months after birth to reduction in neonatal morbidity and mortality.^{122,125-130} Despite this convincing evidences of the benefits of early and exclusive breastfeeding, many communities in rural regions still continue to be naive.

Newborns generally face challenges due to different environmental conditions between intrauterine and extrauterine life. Due to comparatively higher temperature inside the womb, the baby generally loses heat by about 2°C after birth to the environment.⁷¹ Hence newborns need to be covered with several layers of clothes to maintain a warm body temperature. Furthermore, Kangaroo mother care has been practiced as an efficient and reliable technique for child healthcare in both developing and developed countries. Benefits associated with regular practice of KMC include a significant increase in growth and development (length, weight, and head circumference), breastfeeding and mother-infant bonding. Besides, KMC could significantly decrease hypothermia, sepsis, and mortality of the infants.^{72,131} However, 25.37% of mothers didn't practice KMC since they were not aware of the benefits of KMC. Similarly, the correct way of cleaning umbilical cord was not known to 18.54% of mothers. Some of the mothers (6.34%) practiced traditional approaches of umbilical cord treatment such as the application of turmeric powder and ghee. A majority of mothers (94.15%) were quite informed regarding the need of keeping their hands clean and sterile before handling their babies. They cleaned the eyes of their babies using warm water or clean cloth. A thorough assessment of knowledge and practices on newborn care of the mothers enabled us to reveal some of the major challenges including bathing babies before completion of 48 hours after delivery, evasion of KMC, delay initiation of breastfeeding, etc (Figure 14).

Almost all the mothers (99.51%) felt a regular visit by ASHA and their necessary advised regarding newborn care was useful (Table 19).¹²² The mothers also acknowledged receiving advice regarding breastfeeding techniques and the usefulness of

exclusive breastfeeding. More than 95% of the mothers benefited from the education provided by ASHAs regarding the need for maintenance of hygiene during newborn care practices etc. It is imperative to execute sincere and collaborative services from all related departments including government and non-government health sectors.