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Assessment of early neonatal care practices among postnatal mothers in urban slums of Visakhapatnam city

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ABSTRACT

Background

In many communities around the world, newborn deaths were so common that children are not even named until they survive their first month of life. The aim of the study was to assess the early neonatal care practices among postnatal mothers.

Materials and methods

This was a community based cross sectional study conducted among 276 postnatal mothers who have delivered a live baby within the past 6 months prior to the conduct of this study using a pre-designed, semi-structured validated questionnaire.

Result

Rooming in was more common (78.3%) among the study population. Regarding breast feeding practices, all the postnatal mothers gave breast milk to their newborns, but only one-third of them initiated breastfeeding within an hour after delivery.Regarding Pre-lacteal feeds, they were offered by about half of the study population (51.2%). Regarding immunization practices, it was observed that nearly three-fourth (70.3%) of the study population have vaccinated their newborn within 24 hours after birth with BCG, zero dose of OPV, and zero dose of Hepatitis B.

Conclusion

Study findings reveal that timely breastfeeding initiation rate was low and there was higher prelacteal feeding rates are found even in institutional births.

Key-words Early neonatal care practices, Newborn Care, Postnatal mothers, Prelacteal feeds.

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INTRODUCTION

The neonatal period (the first 28 days of life) is the most important part in the life of a newborn for its survival and development as it carries the highest risk of mortality per day than any other period during the childhood. [1] The daily risk of mortality in the first 4 weeks of life is 30-fold higher than the post-neonatal period, that is, from 1 month to 59 months of age. [1] India contributes to one-fifth of global live births and more than a quarter of neonatal deaths. [2] Each year, 26 million infants are born in India. Of these, nearly 1.2 million dies during the neonatal period, before completing 4 weeks of life, amounting to one quarter of all the neonatal deaths in the world. [3] India, thus contributes to 30% of the 3.9 million neonatal deaths worldwide. [4] The current Neonatal Mortality Rate (NMR) of India is 28 per 1000 live births [5] with Andhra Pradesh having Neonatal mortality rate of 29 per 1000 live births, where around 50,000 babies die every year. [6] According to specific biological and psychological characteristics of neonates, they need higher attention regarding neonatal care.

After the birth of the child, its health depends upon the health care practices adopted by the family, especially by mothers. For all babies the interval between onset of illness and death can be in a matter of minutes or hours. It is, therefore, very important for us to recognize and plan for the care of a newborn. [7] Studies show evidence about contribution of care practices immediately following delivery to newborn's risk of morbidity and mortality and reported that most newborns in low-income countries like India die at home while they are cared by mothers, relatives, and traditional birth attendants. [8, 9] Though the babies are delivered in hospitals, there is a risk of being affected by traditional practices after discharge and these practices have an impact on neonatal morbidity and mortality patterns. In India, neonatal care practices were not studied comprehensively that too in the first one week of life and hence relatively less knowledge exists about the influence of practiced traditional neonatal care practices on newborn survival. [10] By virtue of the fact that communities have their own unique cultures and traditions, traditional newborn practices may differ from community to community. [11] Safe practices which are good for newborn need to be identified and promoted whilst harmful or bad practices must be discouraged. [12] Andhra Pradesh is a state bordering India's south eastern coast with different communities and traditions, and Visakhapatnam is a coastal, port city, often called the "Jewel of the East coast", located on the eastern shore of India, where people with different religions, caste and cultures reside here. There are various traditional practices which cannot be neglected in considering the achievement of better neonatal care and have an impact on the newborn health. In this study, we have specified with the aim to assess several practices adopted by the mothers in the early neonatal care viz. cord care, prevention of hypothermia, Rooming in, Kangaroo mother care (KMC), colostrum feeding, early initiation of breast feeding, and pre-lacteal feeding, immunization care which play a key role in neonatal survival.

OBJECTIVES

To assess the early neonatal care practices among postnatal mothers in urban slums of Visakhapatnam city

METHODOLOGY

Study design: This is a community based cross sectional study

Study setting: This study was conducted in the notified urban slums of Visakhapatnam City, Andhra Pradesh.

Study population: The study population comprised of women of reproductive age (15 to 49 years) who have delivered a live baby within the past 6 months prior to the conduct of this study. The 6-month limit was set with the intention of mitigating recall bias by the mother. **Study period**: 2018

Sampling technique and sample size calculation: Sample size is calculated as per the formula $\frac{4xpxq}{L^2}$

Where p = 22%, prevalence is obtained based on previous study by Siddarth agarwal et al [13] where clean cord care practices were reported to be 22%, q = 78% (100 – p). L= Absolute precision of 5% is taken and sample size is calculated to be 275.56 rounded off to 276. Hence, the present study was conducted among 276 postnatal mothers residing in notified urban slums of Visakhapatnam city. The slums list was obtained from urban community development department from Greater Visakhapatnam Municipal Corporation (GVMC) Office and slums are selected by using multistage random technique.The Urban Visakhapatnam city under GVMC is divided into 6 zones covering 793 slums, of which there are 359 notified slums. In the

first stage, by using simple random technique, 3 zones were selected out of the 6 zones. i,e Zone 1, Zone 4 and Zone 6. In the second stage, out of the total number of notified slums in each selected zone, 10% of the slums were selected by simple random sampling technique. So, 3 slums from Zone 1, 13 slums from Zone 4 and 10 slums from Zone 6 were selected and study was conducted in these localities. Samples were enlisted from the Anganwadi centres in each zone evenly and home visits were conducted for a total of 276 mothers and complete data was collected.

Inclusion criteria: Women of reproductive age (15 to 49 years) who have delivered a live baby within the past 6 months and those who accepted to give informed consent to participate in the study.

Exclusion criteria: Mothers who were not willing to participate in the study. Postnatal mothers of babies with remarkable congenital anomalies / severely ill babies as it is likely to interfere with newborn care practices.

Method of collection of data: The study participants identified were visited in their house for data collection and face to face interview was conducted using a pretested, semi structured validated questionnaire which included maternal socio demographic characteristics, information about the early neonatal practices of the mothers regarding newborn care such as cord care, thermal care, breast feeding and immunization following birth. Informed written consent in the local language Telugu was taken from all the mothers who were included in the study. For those who were illiterates, the consent was read out & explained to them and consent was obtained by taking their thumb impression in the presence of a witness.

Study variables:

Postnatal mother: Mothers of babies who delivered within the past 6 months from the day of interview.

Early Neonate/Newborn: Child aged zero to 7 days

Safe cord care: Dry cord care or no substance applied on the umbilical cord stump during the first 7 days of life.

Safe Thermal care: Drying or wrapping the baby in multiple layers of clothing immediately after birth and delaying the first bath for at least 24 hrs.

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

Rooming in: Newborn child is kept in the crib at the mother's bedside.

Safe/good breast-feeding practices: Initiation of breastfeeding as early as possible after birth, preferably within an hour for all normal newborns, feeding of colostrum and avoiding pre-lacteal feed.

Prelacteal feeds: Any food provided to a newborn before initiating breastfeeding except mother's milk.

Safe Immunization practices: Vaccination of the newborns within 24 hours of birth with birth doses of BCG, '0' dose of OPV and '0' dose of Hepatitis - B vaccines.

ETHICS APPROVAL: Approval was obtained from the Institutional Ethics Committee, Andhra Medical College, Visakhapatnam, before commencement of the study.

DATA ANALYSIS: Data was entered in Microsoft Excel worksheet 2013 and Analysis was performed using SPSS software (Trial version 21). Descriptive statistical analysis has been carried out in the present study. Categorical variables were represented as proportions/percentages and quantitative variables were represented as mean and standard deviation.

RESULTS

A total of 276 postnatal mothers were interviewed. The mean age of the study population was 23.09 ± 3.62 years, ranging from 17 to 34 years. The socio-demographic characteristics were represented in table 1.

Table 1:Distribution of study population according to Socio-demographic characteristics

Variable	Frequency (%)
1. Age of mother (in years)	
15-19	32 (11.5)
20-24	160 (58)
25-29	62 (22.5)
≥30	22 (8)
2. Education	
Illiterate	56 (20.3)
Primary school	26 (9.4)
Secondary school	113 (40.9)
Intermediate	45 (16.3)
Graduate	33 (12)
Post graduate	3 (1.1)
3. Occupation	
Employed	19 (6.9)
Unemployed	257 (93.1)
4. Religion	
Hindu	230 (83.3)
Christian	32 (12. 6)
Muslim	14 (5.1)
5. Socio economic status (As per Modified Kuppuswamy's socioeconomic status scale, revised for 2016)	
Upper	-
Upper middle	19 (6.9)
Lower middle	74 (26.8)
Upper lower	174 (63)
Lower	9 (3.3)
Total	**276 (100)**

Among the study population 55.1% were Primi-para and 44.9% constituted multi-para. Among the Multi para study participants, most of them (87.9%) had spacing of more than two years between the birth of current child and older child. About half of the newborns of the study population were in the birth order of 1 (55.1%). Regarding birth weight of the newborns, majority (82.6%) had a birth weight of 2.5 kgs and more, while 17.84% were low birth weight babies. Place of antenatal care services availed, type of delivery and place of delivery was represented in Table 2

Table 2:Distribution of study population according to Place of Antenatal care services availed and details of delivery

Variable	Frequency (%)
1. Place of antenatal care services availed	
PHC	2 (0.7)
District	4 (1.4)
Tertiary	153 (55.4)
Private hospital	117 (42.4)
2. Parity	
Primi	152 (55.1)
Multi	124 (44.9)
3. Place of delivery	
Government hospital	187 (67.8)
Private Hospital	87 (31.5)
Delivery during travel	2 (0.7)
4. Mode of delivery	
Normal delivery	154 (55.8)
Caesarean section	122 (44.2)
5. Delivery conducted by	
Trained Birth attendant	274 (99.3)
Untrained birth attendant	2 (0.7)
Total	**276 (100)**

Instrument used for cutting the umbilical cord and material used to tie the cord was shown in Figure 1 and Figure 2

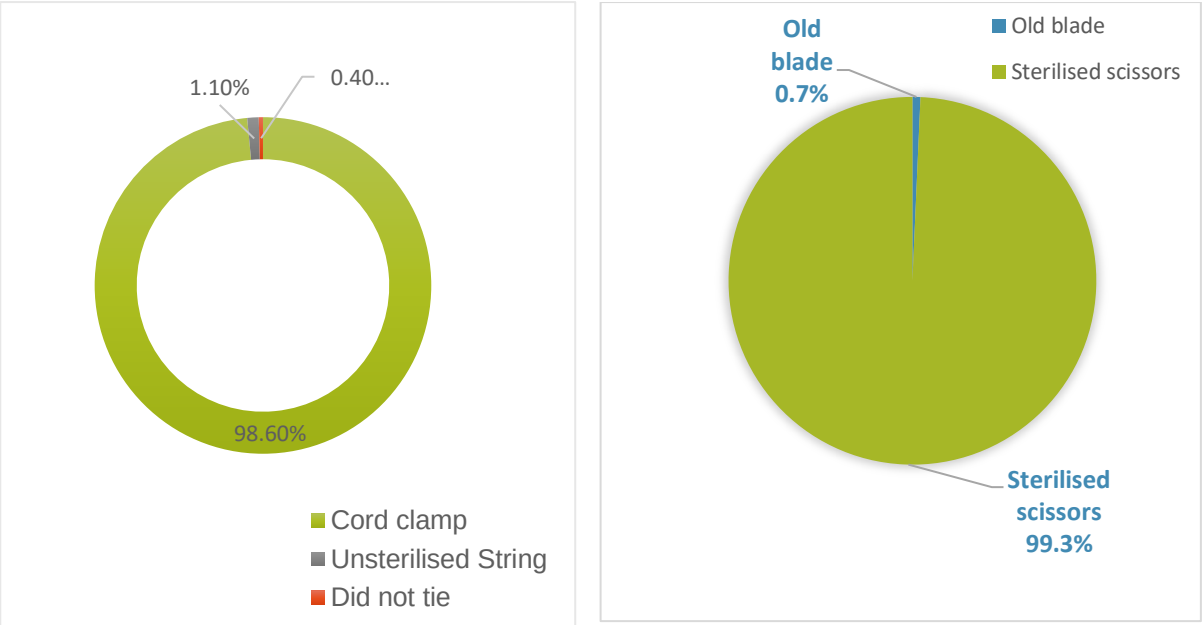
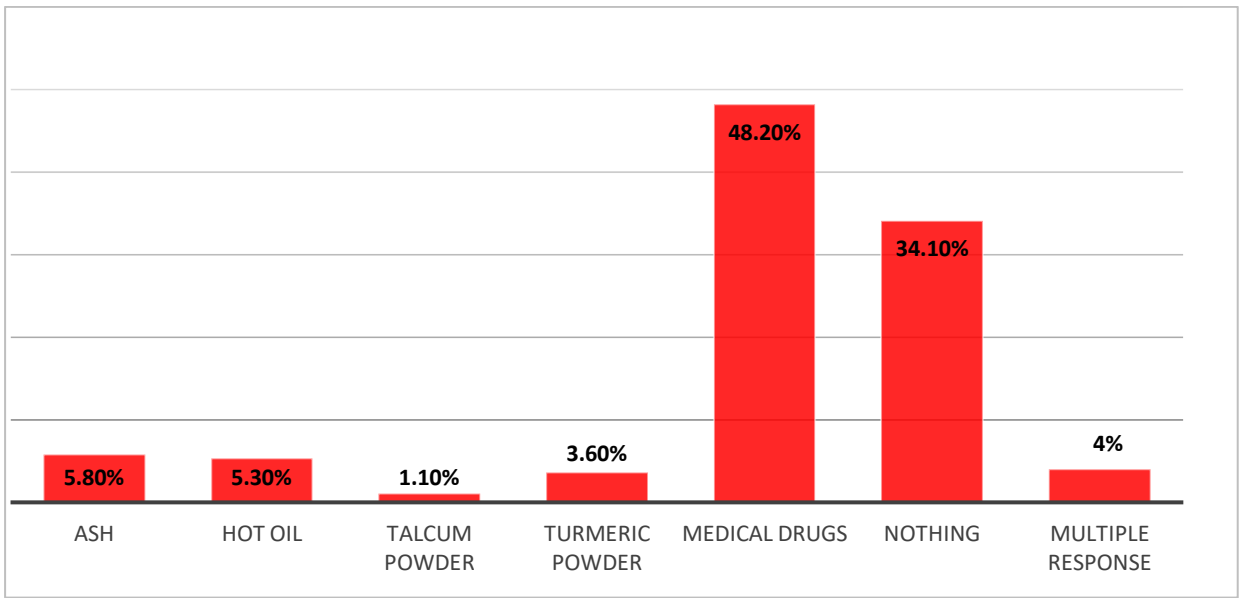


Figure 1 & Figure 2: Instrument used for cutting the umbilical cord and Material used to tie the cord.

Regarding their practice of application of substances to umbilical cord stump, 34.1% have not applied any substance to the cord stump, which is considered as safe or good practice. The other substances applied to the umbilical cord stump were medicated products like neomycin powder / co-trimoxazole powder which was practiced by nearly half of the study participants, followed by Ash (5.8%), Hot oil (5.3%), Turmeric powder (3.6%), talcum powder (1.1%). Around 4% have applied more than one substance to the cord. (Figure 3)



. **Figure 3: Distribution of Practices of Application of substances to the umbilical cord by the**

Regarding thermal care it was observed that in about half of the newborns bath has been delayed by 24 hours and all of them had wrapped their baby immediately after birth. Kangaroo mother care was practiced by 55.1% postnatal mothers. Rooming in was more in practice (78.3%) among

the study population. Most common reason stated for separation of the baby from the mother were medical reasons (90%) followed by traditional practices. (10%) (Table 3)

Table 3:Thermal care practices among the study population

Variable	Frequency (%)
1. First bath to baby	
Less than 24 hours	123 (44.5)
More than 24 hours	153 (55.4)
2. Wrapping of the baby after birth	
Done immediately	276 (100)
3. Kangaroo mother care	
Yes	152 (55.1)
No	124 (44.9)
4. Rooming in	
Yes	216 (78.3)
No	60 (21.7)
Total	**276 (100)**
5. Reasons for separation of baby (n=60)	
Medical reasons	54 (90)
Traditional reasons	6 (10)
Total	**60 (100)**

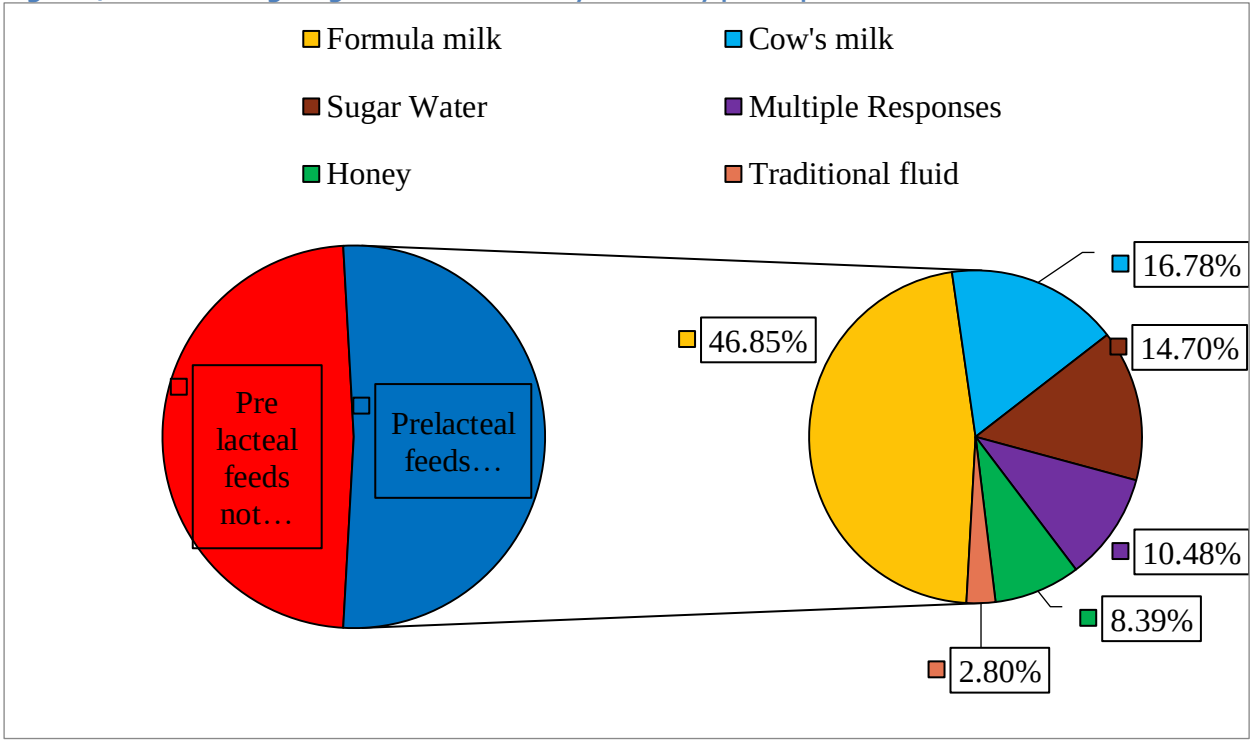
As shown in Table 4, Regarding breast feeding practices, all the postnatal mothers gave breast milk to their newborns, but only one-third of them initiated breastfeeding within an hour after delivery and the reasons stated by remaining mothers who initiated breast feeding after an hour were C-sec (37.5%), poor milk secretion (23.4%), separation of baby (14.7%), mother's illness (10.86%), Fatigue (7.06%), inability of baby to suck (4.34%) and social customs (2.17%). Majority of the study population (94.2%) gave colostrum, and 5.8% discarded colostrum, the reasons stated for discarding colostrum were belief of causing harm (68.75%), followed by traditional practices (31.25%).

Table 4:Breast feeding practices among the study population

Variable	Frequency (%)
1.Time for initiation of breast feeding	
Within 1 hour of birth	92 (33.3)
More than 1 hour of birth	184 (66.7)
Total	**276 (100)**
2.Reasons for delaying breast feeding for more than an hour (n =184)	
C sec	69 (37.5)
Poor milk secretion	43 (23.4)
Mother's illness	20 (10.86)
Fatigue	13 (7.06)
Baby was separated	27 (14. 67)
Inability of baby to suck	8 (4.34)
Social customs	4 (2.17)
Total	**184 (100)**
3. Colostrum given	
Yes	260 (94.2)
No	16 (5.8)
Total	**276 (1000**
4.If no, Reasons for discarding colostrum (n= 16)	
Belief of causing harm to the baby	11 (68.75)
Traditional practices	5 (31.25)
Total	**16 (100)**

About half of the study population (51.2%) offered Prelacteal feeds to their newborns. The most common prelacteal feed given was formula milk (46.85%), followed by cow's milk (16.78%), sugar water (14.7%), honey (8.39%), traditional fluid (2.8%), which is a mixture of karakaya, nutmeg, ginger and jaggery and 10.48% of them stated that they gave more than one prelacteal feed to their newborn (Figure 4).

Figure 4:Practices of giving Prelacteal feeds by the study participants



Immunization within 24 hours after birth with BCG, zero dose of OPV, and zero dose of Hepatitis B was practiced in nearly three-fourth (70.3%) of the study population. Reasons stated by the study population who have delayed vaccination for more than 24 hours, were ignorance (45.12%), unawareness regarding the need for vaccination (24.39%), medical reasons (15.85%), preterm babies (12.19%) and prohibition by family members (2.43%). (Table 5)

Table 5: Immunization practices by the study population

Variable	Frequency (%)
1. Vaccination with BCG, 'o' dose of OPV & Hep B within 24 hrs	
Yes	194 (70.3)
No	82 (29.7)
Total	**276 (100)**
2. If no, reasons are: (n=82)	
Ignorance	37 (45.12)
Medical reasons	13 (15.85)
Not aware of need for vaccination	20 (24.39)
Preterm	10 (12.19)
Prohibition by family	2 (2.43)
Total	**82 (100)**

DISCUSSION

In order to reduce neonatal mortality and mortality, the mothers and care givers need to be equipped with adequate knowledge on newborn care practices and its importance. The early neonatal care components studied were cord care, thermal care, breastfeeding and immunization mainly based on the mother's recall of her practices in the newborn care during the first 7 days of life. The present study shows that out of 276 mothers, more than half (58%) were in the age group of 20 to 24 years and literates constituted 79.7% of the study participants. This shows that female literacy rate was fairly good in the study area and majority of the mothers were in the safe reproductive period. This is in accordance with the study findings of Kumar et A al [14] in Varanasi and Rama R et al [15] from Tamil Nadu. Safe cord care was always stressed since it can function as the entry point for infections. [16] Findings from the present study show that a new/sterilised scissors was used in cutting the umbilical cord in 99.3% of the deliveries, and clean cord tie was used in 98.6% (cord clamp) which was consistent with WHO recommendations. [18] As most of them were institutional deliveries, the initial part of cord care is taken care of by the hospital staff. However, our data shows that poor cord care was driven mainly by putting substances on the cord. Only 34.1% have applied nothing to the cord, the rest of the study participants applied various substances including medical drugs like neomycin powder, co-trimoxazole powder, Ash, Hot oil, Turmeric powder and Talcum powder in order to hasten healing process of the cord stump. This shows the lacuna in the education provided to them. In contrary, Kumar A et al [14] and Ahmad S et al [17] in Uttar Pradesh mentioned that a new shaving blade was majorly used to cut cord, while the type of substances applied to the cord stump in both of these studies was almost similar to our study. While another study from Karachi, Pakistan by Gul S et al [19] reported a very higher percentage of application of various substances to the cord stump compared to our study. The deviation in the cord care practices could be due to the cause of cultural variation in different areas. Regarding thermal care WHO has emphasized that temperature control of the neonate is an essential part of neonatal care, [18] and bathing the neonate either immediately or within half an hour negatively affects thermal control. [20] Maintaining the normal body temperature is extremely important in newborns because of their larger body surface area. [16] To maintain optimal thermal care, the baby should be dried and wrapped immediately after birth plus delaying first bath for atleast 24 hours after birth. Our data shows that in about half (55.4%) of the newborns, bathing is delayed beyond 24 hrs after birth. Wrapping seems to be a very common practice as all the study participants have recalled wrapping their baby in multilayers of clothes immediately after birth. In contrary, studies carried out in other parts of India reported that large proportion of the neonates were bathed immediately after birth. [14, 21-22] This is similar to findings in other south Asian countries [23] and studies outside Asia. [12, 24] This negative practice on WHO recommendation could be due to religious or cultural beliefs, that the blood/fluid/vernix which stays on newborn's skin after birth is impure and has to be removed thoroughly and bathing is "ritual cleansing". [16] Regarding Kangaroo mother care (KMC) or skin to skin contact, which is a simple and low-cost intervention was practiced by more than half of the postnatal mothers, while rooming-in was practiced by more than three-fourths of the mothers. Medical reasons followed by traditional practices were stated by the mothers for separation of the baby from them. In contrast, findings of Sinha LN et al [25] from South Haryana reported very low practice of kangaroo care method. Regarding Breast feeding, it should be initiated within one hour of delivery. The delay in initiation will lead to a delay in the development of oxytocin reflexes, which are very important for the contraction of the uterus and the breast milk reflex. [26] In the present study, all the postnatal mothers gave breast feeding to their newborns, but only one-third (33.3%) of them initiated breastfeeding within an hour after delivery, which is less as compared to urban NFHS 4 data. [27] As most of the deliveries were institutional deliveries, the health personnel will have to stress upon initiation of breast feeding at the earliest, motivate and educate the mothers even during antenatal period. Pre-lacteal feeds were not recommended to the newborns, still about half of the study participants gave prelacteal feeds in the present study. This might be due to delay in breast

feeding by the mothers due to various reasons. Formula milk was found to be the most common pre-lacteal feed given to the newborn followed by cow's milk, sugar water, honey, and traditional fluid, which is a mixture of karakaya, nutmeg, ginger, and jaggery. Such a practice, by delaying initiation of breastfeeding, may adversely affect establishment of lactation and introduce enteric infections if pre-lacteal feeds are not given in hygienic manner. Feeding colostrum was found to be a common practice by the study population (94.2%) and for those mothers who discarded colostrum, majority of them believed that giving colostrum would cause harm to the baby. Similar findings were reported by Sinha LN et al [25] regarding breastfeeding within the first hour and colostrum feeding. In contrast Kumar D et al [28] from Palsora, Chandigarh reported very low breast-feeding initiation rates within 1 hour of birth and prelacteal feeding was lesser (40%) than the current study, however cow's milk and honey were the two most common pre-lacteal feeds. Regarding Immunization, it is an important way to protect the newborn from life-threatening diseases and vaccines were among the safest and most effective preventive measures against life threatening diseases. It is important to see that the newborns are vaccinated in time according to the universal immunization program and the mothers are imparted the elementary lessons regarding immunization and its importance. [16] In the present study, it was observed that nearly three-fourth of the study population has vaccinated their newborns within 24 hours after birth with BCG, zero dose of OPV, and zero dose of Hepatitis B. In contrast, urban slums of Meerut UP showed poor immunization coverage in the study by Ahmad S et al [17] where there is huge deficiency of immunization coverage, and reasons stated were restriction by family members and sickness of baby. The better immunization coverage in our study population has probably occurred due to the improved access to free immunization services by the government and improved social mobilization of the health workers that have helped to tackle previous barriers to immunization, such as illiteracy and low socioeconomic status.

CONCLUSION

Study findings reveal that thermal care was good and Rooming in was practiced by majority of the mothers. Timely breastfeeding initiation rate was low and there was higher prelacteal feeding rates found even in institutional births. Unsafe practices of application of substances on umbilical cord stump was noted to be high.

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