Research Article

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An assessment of effect of national rural health mission on newborn care practices in Bangalore rural area

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ABSTRACT

Background: Despite efforts by the government and other agencies, neonatal morbidity and mortality continues to be high in India. Among other reasons, Newborn care practices are major contributors for such high rates.

Methods: Community based, cross sectional study was done in the rural field practice area covered under Primary Health Centre, Hesaraghatta, and Bengaluru rural. A semi structured, pre-tested questionnaire was used to interview 160 mothers of the newborns in the study area.

Results: 160 mothers were interviewed at their home within 15 days of delivery. All the mothers (100%) had registered at the time of pregnancy, received prescribed doses of tetanus toxoid and Iron folic acid (IFA) tablets. 160 study participants underwent institutional deliveries. Among all the deliveries sterile blade and sterile cord clamp was used for cord care. Immediate bath was given to 2.5% of cases. About 62.5% of the mothers initiated breast feeding within 1 hour and colostrum was fed to 95.6% of babies. About 137 (85.6%) babies were immunized up to date.

Conclusions: Irrespective of the educational and socio-economic status of the mothers there were 100% institutional deliveries in our rural field practice area. This is because of various Maternal and Child Health (MCH) related schemes under National Rural Health Mission (NRHM) to reduce maternal and neonatal mortality by increasing institutional deliveries.

Keywords: Newborn care, National Rural Health Mission, Institutional deliveries, Tetanus toxoid, Iron folic acid, Breast feeding, Colostrum

INTRODUCTION

Healthy children are the greatest resource and pride of a nation. Investment in child development is an investment in the future of the nation. The first 28 days life of neonatal period is the most vulnerable time for a child's survival. Every year, about 2.8 million newborns die within 1 month of birth and half of them die within 24 hours after birth. Of these, 98 % of deaths occur in developing countries. Newborn deaths now contributes to about 44% of all deaths in children under 5 years of age globally.²

As depicted in Figure 1, neonatal deaths results from diseases and conditions that are readily preventable or treatable with proven, cost effective interventions like essential newborn care.²

According to World Health Organization, essential newborn care encompass cleanliness, thermal protection, initiation of breathing, early and exclusive breast feeding, eye care, immunization, management of illness, and the care of low birth weight infants.³

Though the under-five and infant mortality rates have declined over the past four decades, the neonatal mortality rates have remained relatively unchanged. This is the sufficient evidence to say that most of the basic neonatal care which is delivered through primary care is highly cost-effective and need to give more importance.⁴ Hence we have conducted a study in rural area to assess Newborn care practices.

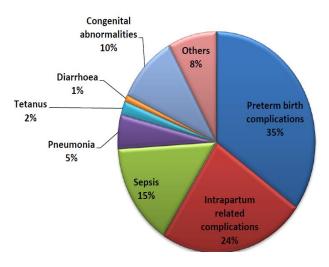


Figure 1: Causes of neonatal death.

METHODS

A community based cross sectional study in rural area (Hesarghatta), from October 2013 to September 2014.

Study population: Live births occurring during the study period

Study sample size: The sample size of 160 was decided for this study bases on previous prevalence.

Under Primary health centre of Hesaraghatta, there are 4 sub-centres and 27 Anganwadi centres. Out of these, 3 Anganwadi centres were selected from each sub-centre by simple random sampling method. All the deliveries in the selected Anganwadi centres during the study period were used for data collection till the desired sample size reached. Information regarding recent deliveries was collected using a pretested semi structured questionnaire within 15 days of delivery.

RESULTS

Totally 160 mothers were interviewed at their home and the mean age of mothers were 23.15+3.1 years. Among 160, 47.5% of mothers were educated till high school level and 96.3% of mothers were home makers.73.1% of the mothers belonged to "Class I" socio-economic status. The mean age of marriage among the study participants were 19.1+2.14 years; almost half of the mothers (48.1%) had delivered their second child. All the mothers had registered their pregnancy and 91.2% of the mothers had

≥4 antenatal visits. 81.9% of mothers had received2 doses of tetanus toxoid. All 160 (100%) women had underwent institutional delivery by a trained personnel (Table 1 & 2).

Table 1: Distribution of mothers according to age & socio-economic status.

Age of the mothers (In years)	No. of mothers (n)	Percentage
18-22	77	48.2%
23-27	73	45.6%
>28	10	6.2%
Total	160	100%
Class	No. of mothers (n)	Percentage
Class I	117	73.1%
Class II	34	21.3%
Class III	9	5.6%
Total	160	100%

Table 2: Distribution of mothers according to parity & numbers of antenatal visits.

Parity	No. of mothers	Percentage
1	68	42.5%
2	77	48.1%
3	15	9.4%
Total	160	100%
Antenatal visits	No. of Mothers	Percentage
<4 ANC visits	14	8.8%
4 & above ANC visits	146	91.2%
Total	160	100%

Table 3: Distribution of mothers according to number of iron and folic acid tablets taken & delivery practices.

IFA tablets	No. of Mothers	Percentage
Below 100	74	46.3%
100	78	48.7%
Above 100*	8	5%
Total	160	100%
Place of delivery	No. of Mothers	Percentage
Home	Nil	Nil
Institutional	160	100%
Total	160	100%
Delivery conducted	by	
Trained personnel	160	100%
Total	160	100%
Nature of delivery		
LSCS	42	26.2%
Normal deliveries	118	73.8%
Total	160	100%

The study revealed that 94.4% of the newborns were full term babies and 48.1% (77) were males and 51.9% (83)

were female babies. The birth weight was recorded at the time of birth and it was found that 12.5% (20) of babies were low birth weight.

Table 4: Distribution of newborns according to their gestational age.

Duration	Frequency ((Percentage)		
Preterm	7 (4.4 %)	7 (4.4 %)		
Term	151 (94.4%)			
Post term	2 (1.2%)			
Total	160 (100%)			
Sex of Newborn	Frequency ((Percentage)		
Male	83 (51.9%)			
Female	77 (48.1%)			
Total	160 (100%)			
Birth weight (Kg)	Number	Percentage		
< 2.5Kg	20	12.5%		
2.5 Kg & above	140 87.5%			
Total	160	100%		

Table 5: Distribution of newborns according to the care given at birth.

Cleaning the air passage	Frequency (Percentage)
Mucus extractor	89 (55.6%)
Don't know	71 (44.4%)
Total	160 (100%)
Eye care	Frequency (Percentage)
Sterile cotton	79 (49.4%)
Don't know	81 (50.6%)
Total	160 (100%)
Instrument used to cut	100 (10070)
the cord	Frequency (Percentage)
Sterile blade	157 (98.1%)
Don't know	3 (1.9%)
Total	160 (100%)
Material used to tie cord	Frequency (Percentage)
Sterile cord clamp	158 (98.7%)
Don't know	2 (1.3%)
Total	160 (100%)
Application on cord	
	Frequency (Percentage)
stump Yes	
stump	0 (0%)
stump Yes	
Yes No	0 (0%) 77 (48.1%)
stump Yes No Not Applicable*	0 (0%) 77 (48.1%) 83 (51.9%)
Stump Yes No Not Applicable* Keeping the baby warm	0 (0%) 77 (48.1%) 83 (51.9%) Frequency (%)
stump Yes No Not Applicable* Keeping the baby warm Yes	0 (0%) 77 (48.1%) 83 (51.9%) Frequency (%) 158(98.8%)
stump Yes No Not Applicable* Keeping the baby warm Yes No	0 (0%) 77 (48.1%) 83 (51.9%) Frequency (%) 158(98.8%) 2(1.2%) 160(100%)
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stump Yes No Not Applicable* Keeping the baby warm Yes No Total Cleaning the body	0 (0%) 77 (48.1%) 83 (51.9%) Frequency (%) 158(98.8%) 2(1.2%) 160(100%) Frequency (Percentage)
stump Yes No Not Applicable* Keeping the baby warm Yes No Total Cleaning the body Immediate Bath	0 (0%) 77 (48.1%) 83 (51.9%) Frequency (%) 158(98.8%) 2(1.2%) 160(100%) Frequency (Percentage) 4 (2.5%)
stump Yes No Not Applicable* Keeping the baby warm Yes No Total Cleaning the body Immediate Bath Dry cloth	0 (0%) 77 (48.1%) 83 (51.9%) Frequency (%) 158(98.8%) 2(1.2%) 160(100%) Frequency (Percentage) 4 (2.5%) 151 (94.4%)

^{*}if cord was fallen of before my visit

44.4% (71) of the mothers did not know whether the respiratory passage was cleaned and 50.6% (81) of mothers were not aware of newborn eye care. Since all were institutional deliveries, sterile cord clamp and sterile blade were used for umbilical cord care. Only 2.5% of Newborns were washed with warm water immediately. Breast milk was given as the first feed in 94.4% of the babies, 62.5% of the mothers initiated breast feeding within ≤ 1 hour and colostrum was fed to 95.6% of babies. About 85.6% (137) of babies were appropriately immunized.

In spite of 100% institutional deliveries, there are few harmful Newborn care practices prevailing in the community such as discarding of colostrum, delayed initiation of breastfeeding etc. as shown in Figure 2 & 3.

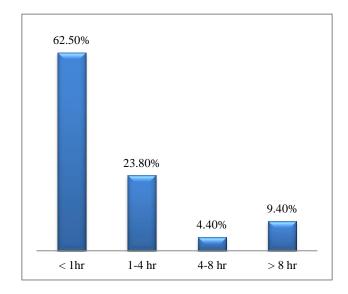


Figure 2: Time of Initiation of breast feeding.

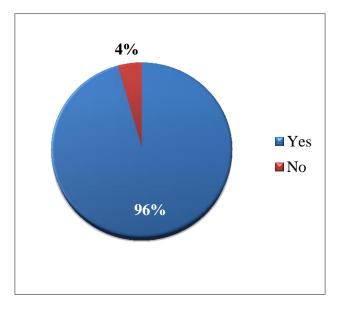


Figure 3: Colostrum given to newborn.

Table 6: Distribution of newborns according to the immunization status.

Immunization status	Frequency (Percentage)
*Appropriately immunized	137 (85.6%)
**Not yet immunized	23 (14.4%)
Total	160 (100%)

^{*}Appropriately immunized: Newborns immunized with BCG (Bacille Calmette Guerin), birth dose of Oral Polio Vaccine (OPV) and Hepatitis B vaccines are said to appropriately immunized for the age.

DISCUSSION

As shown in Table 1, 48.2% of the mothers were in the age group of 18-22 years and only 6.2% were above 28 years. The mean age of mother was 23.15 years with standard deviation of 3.1. In a study by Chandrasekhar T et al the median age of the mothers was 24years.⁵

Table 2 shows distribution of mothers according to their parity. Around 48.1% of the mothers were of second parity and 9.4% were of third parity. Study by Yasmin S et al revealed that 48% were primi parous and 3% had delivered their fifth child or higher.⁶

Table 2 shows that the mean number of antenatal visits was 6.57 and 91.2% of the mothers had ≥4 antenatal visits; hence only 8.8% of the mothers had failed to take recommended minimum four antenatal visits. It was remarkable to note that all the mothers (100%) had registered their pregnancy.

Among the mothers who had received IFA tablets only 48.7% had consumed 100 IFA tablets i.e. 46.3% had consumed less than 100 tablets (Table 3). Agarwal S et al. undertook a study in Indore, while 86.2% received iron and folic acid tablets and only 11.5% had consumed them.⁷

The results of the study show that 100% were institutional deliveries (table no 3), as against country's average of 41% according to NFHS-III. The following table shows institutional deliveries in India (NHFS-3), Karnataka & Bengaluru rural (DLHS-4).

The observations of this study revealed that most of the newborns (94.4%) were full term babies, 4.4 % were preterm and 1.3% were post-term (Table 4). In a study by Puri S et al. it was observed that Post term deliveries were more in urban area, 5.3% and 15% were pre term deliveries in slums. Proportion of mothers who delivered at full term was similar in urban and slum area. ¹¹

Table 4 shows that out of total 160 newborns 51.9% (83) were males and 48.1% (77) were females. In a study done by Gandhi SJ et al. in rural area of Navsari district. It was

found that male (51.4 %) and female (48.6 %) children were almost in equal proportion. 12

Table 7: Institutional deliveries in India, Karnataka and Bengaluru rural.

NFHS 3	Karnataka-DLHS 4	Bengaluru rural- DLHS 4
41%	89%	97.1%

Table 8: Showing the few MCH indicators in India, Karnataka & Rural Bengaluru.

Indicators	India (NFHS 3)	Karnataka (DLHS 4)	Bengaluru Rural (DLHS 4)
Trained personnel	48.2%	92.2%	97.5%
LSCS	13.6%	22.2%	35.4%
Normal delivery	86.40%	77.8	64.6%

The birth weight was recorded in all cases, out of which 12.5% (20) were low birth weight (Table 4) against national average of 22%. ¹³

Table 9: Showing Prevalence of LBW in different sources.

Source of the data	NFHS-	Dandekar	Rajashree
	III ⁸	RH et al. ¹⁴	Ket al. ¹⁵
Prevalence of LBW	22%	11.67%	31.3%

In Table 5 some of the early Newborn care practices which were given immediately after birth are shown. 55.6 % of the mothers told mucous extractor was used to clean respiratory passage and about 44.4% of the mothers did not know whether the respiratory passage was cleaned or not. About 50.6% of the mothers did not know how the eyes were cleaned and remaining mothers told sterile cotton was used to clean the eyes. In our study it is showed that, 98.7% used sterile blade and 100% used umbilical cord clamp for cord care and nothing was applied to the cord stump. 94.4% cleaned with dry cloth. Because of 100% institutional deliveries in our field practice area, the care given to Newborn was good.

In a newborn care study in Meerut, it was reported that, only 50% of the newborns received complete cord care (new blade, new thread and nothing applied to the cord) almost all 93% mothers reported that the cord was cut only after the placenta was delivered. ¹⁶

Sharma RK et al stated that in tribal areas of Madhya Pradesh, umbilical cord is cut with the blade or sickle in most of the cases. In some tribes, cord is cut by bamboo piece or arrow-head in case of male child and by a knife or blade in case of female child. After delivery both

^{**}Not immunized: Newborn who missed either BCG or Hepatitis B vaccine.

mother and baby take bath with warm water mixed with turmeric. The child is also given a massage with locally available oil (mustard or tore oil) and child is kept warm through indigenous methods. Firewood is lit at the place of seclusion, which keeps the place warm.¹⁷

Table 10: Relationship between the Mothers literacy status and Breast feeding initiation.

Literacy status	Breast feedi	Total	
Literacy status	<1 hour	>1 hour	Total
Illiterates	15 (75%)	5 (25%)	20 (100%)
Literates	85 (60.7%)	55 (39.3%)	140 (100%)
Total	100 (62.5%)	60 (37.5%)	160 (100%)

(Chi-square: 0.217, df: 1, p: 0.217)

The observation in our study showed that 62.5 % of the mothers initiated breast feeding within 1 hour of birth. In

India the rate of initiation of breast feeding within 1hour of birth in rural areas is only 22.4 % (NFHS-3).8

Madhu K et al study of breast feeding practices and newborn care in rural areas, shows that most of the mothers initiated breastfeeding (97%) and the other 3% were not able to initiate due to separation from mother or due to advice from the mother-in-law.¹⁸

Table 11: Eligibility for JSY.

Costo	BPL car	BPL card holding families		
Caste	Yes	No	Total	
SC	29	17	46	
ST	9	3	12	
Others	51	51	102	
Total	89	71	160	

Table 12: Relation between the Literarcy status of the mother and their awareness about ASHA worker, 24/7 PHC and JSY scheme.

Awareness about		Illiterate	Literate	Total	p valvue (Fisher's Exact Test)
ASHA worker	Yes	18	115	133	
ASHA WOIKEI	No	2	25	27	p = 0.531
24/7 hospitals	Yes	19	139	158	 0.235
24/7 hospitals	No	1	1	2	p = 0.235
ICM	Yes	13	96	109	- 0.700
JSY	No	7	44	51	p = 0.799

There are 156 (97.5%) women were aged 19 years and above. From the above table it shows that there are 109 (68.1%) women eligible for JSY. Among these eligible mothers only 56 (51.4%) women have recieved cash incentive under JSY. The reason is that not availability of funds to issue cheque in time.

It can be concluded that irrespective of the literacy status majority of the women were aware about ASHA worker, 24/7 hospital and JSY scheme. Same is shown by Fisher's Exact Test, that there is no statistical association between the literacy status and others (p = 0.531, p = 0.235 p =0.799). From this we can say that health workers (ANM and ASHA) are working efficiently in our study settings.

According to Table 11 and 12. Beneficiaries for JSY Scheme were 109 individuals of them 100% awareness was present regarding the scheme.

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Ethical approval: The study was approved by the

Institutional Ethics Committee

REFERENCES

- Thomas S. A Study to compare the knowledge and practices of postnatal mothers regarding neonatal care from selected urban and rural settings of Bangalore. 2005;1-119. Available at: www.dspacerguhs.ac.in. Accessed on 2 June, 2016.
- UNICEF. Committing to child survival: a promise renewed. UNICEF progress report 2012. Available at;
 - http://www.unicef.org/publications/index_65820.ht ml. Accessed on 4 July, 2016.
- 3. World Health Organization. The world health report 1998: life in the 21st century A vision for all. World Heal Organ. 1998;226. Available at: http://www.who.int/whr/1998/media_centre/50facts/en/#\nhttp://bases.bireme.br/cgibin/wxislind.exe/iah/online/?IsisScript=iah/iah.xis&

- src=google&base=PAHO&lang=p&nextAction=lnk &exprSearch=25006&indexSearch=ID. Accessed on 4 July, 2016.
- 4. Ahmad S, Goel K, Agarwal G, Goel P, Kumar V, Prakash A. community medicine & health education assessment of the newborn care practices in home deliveries among urban slums of Meerut, UP India. 2012;2(8):8-11.
- 5. Sreeramareddy CT, Joshi HS, Sreekumaran B V, Giri S, Chuni N. Home delivery and newborn care practices among urban women in western Nepal: a questionnaire survey. BMC Pregnancy Childbirth. 2006;6:27.
- 6. Yasmin S, Osrin D, Paul E, Costello A. Neonatal mortality in low birth weight infants in Bangladesh. Bull World Health Organ. 2001;79(7):608-14.
- 7. Maternal and newborn care practices among the urban poor in Indore, India. Development. 2007; Available from: http://uhrc.in/downloads/Reports/MNH_REPORT-August-2007.pdf. Accessed on 4 July, 2016.
- Government of India. NFHS-3. Gov India. 18:29. Available at: http://www.rchiips.org/nfhs/pdf/India.pdf. Accessed on 4 July, 2016.
- 9. District Level Household and Facility Survey -4
 State Fact Sheet Karnataka [Internet]. 2012.
 Available from: https://nrhm-mis.nic.in/DLHS4/Karnataka/Karnataka.pdf
- District level household and facility survey -4 district fact sheet. 2012. Available from: https://nrhm-mis.nic.in/DLHS4/Karnataka/District Factsheets/Bangalore Rural.pdf. Accessed on 4 July, 2016.
- 11. Puri S, Bhatia V, Sharma M, Swami H, Magnat C. Comparison of prevalent newborn rearing practices,

- in urban and slum population of chandigarh, UP, India. Intern J Pediatr Neonatol. 2007;9(1):25-7.
- Gandhi SJ, Godara N, Modi A, KanthariaSL. Newborn care practices of mothers in rural areas of Navsari district. Int J Med Sci Public Heal. 2014;3(7):1. Available at: http://www.scopemed.org/?mno=163468. Accessed on 4 July, 2016.
- 13. Child Health Report, MOHFW. 2006. Available at: http://hetv.org/india/nfhs/nfhs3/NFHS-3-Chapter-09-Child-Health.pdf. Accessed on 4 July, 2016.
- 14. Dandekar RH, Shafee M, Sinha SP. Prevalence and risk factors affecting low birth weight in a district hospital at Perambalur, Tamilnadu.
- 15. Rajashree K, Prashanth HL, Revathy R. Study on the factors associated with low birth weight among newborns delivered in a tertiary-care. 2015;4(9):1287-90.
- 16. USAID. Newborn Care scenario in the slums of Meerut, Uttar Pradesh: Implications for Program & Policy. Available at; http://uhrc.in/downloads/New_Born_Care_Fact_She et.pdf. Accessed on 4 July, 2016.
- 17. Sharma R. Newborn health among tribes of Madhya Pradesh-an Overview. RMRCT Updat e. 2007;4(1):1-12.
- 18. Madhu K, Chowdary S, Masthi R. Breast feeding practices and newborn care in rural areas: a descriptive cross-sectional study. Indian J Community Med. 2009;34(3):243-6.

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