

Original Research Article

Cultural practice and determinants of newborn care in rural areas of Ramanagara district in Karnataka: a community-based study

K. N. Prasad^{1*}, M. Puttaswamy², Maheshwari M.³

¹Department of Community Medicine, Arunai Medical College and Hospital, Velunagar, Thenmathur, Tiruvanamalai, Tamil Nadu, India

²Department of Community Medicine, Dr B. R. Ambedkar Medical College, Bangalore, Karnataka, India

³Assistant District Surveillance Officer, Bruhat Bengaluru Mahanagara Palike, Bangalore, Karnataka, India

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*Correspondence:

Dr. K. N. Prasad,

E-mail: prasadsri@rediffmail.com

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ABSTRACT

Background: There is considerable drop in neonatal mortality in India attributing to strategies by the National Health Mission and in rural areas cultural practices also plays role. The knowledge of recent cultural practices was intended and thus, the objective of this study was to explore the cultural practices and determinants in neonatal care in rural areas of Ramanagara district.

Methods: The community based, cross sectional, descriptive and exploratory study was done in selected villages. The recently born baby in the family was included as subject irrespective of their birth order and sex. Data collected by direct interview of mothers at their door steps using the pre tested, semi open-ended questionnaire containing relevant information about cultural practices in the family. Data was analysed in SPSS software version 23.

Results: Sex ratio among 550 newborns was 1:1. Birth orders of first and second or above were 59.5% and 40.5%. Majority of the mothers delivered at government hospitals (95%) and by vaginal delivery. The duration of hospital stay was less than 3 days in 52.5%. Breast feeding was initiated among 98% within 24 hours after birth, first bathing and oil massage after birth was within 7 days and 14 days respectively in majority. The prevalence of LBW was 19.5% and pre lacteal feeding was 21.1%.

Conclusions: The newborn care practices are better in this community. However, the pre lacteal and top feeding practices to be discouraged by appropriate health education to the mothers and care takers immediately after birth.

Keywords: Bathing, Massage, New born, Practices

INTRODUCTION

The survival period of life depends on care given during for first few days after birth. The new born care practices start on day one after delivery. The neonatal period is important aspect of life which is likely to face physical health issues, congenital anomalies, gestation period, place and type of delivery, person who conduct delivery, immunization status of mother, infections in the mother, customs, culture, superstitions in families or societies

etc.^{1,2} World Health Organization (WHO) recommended preventing neonatal mortality through the preparation of mothers for managing complications, adequate good quality antenatal care, practicing clean delivery, and cord care, to avoid hypothermia through the skilled care of mothers such as thermal care, early and exclusive breastfeeding and immunizing the child.² Better health care facilities to reduce neonatal mortality and improvement in child survival rate were strategies of safe delivery concept, incentives for hospitalized deliveries ,

free health care, essential ante natal care, introduction of ASHA workers in National Health Program has brought down the proportion of neonatal mortality in infant mortality rate (IMR).

The essential and appropriate care during antenatal and peri natal period are known to reduce the neonatal mortality.^{1,2} Institutional deliveries increased from 79 to 89% at all India level and concern about the increase in cesarean section (NFHS-5).³ Neonatal deaths in India was noticed from 83.6/1000 live births in 1971 to 29.5 in 2015.^{4,5} The estimated NMR was 24.9/1000 live births in 2019 (NFHS-5).³

Belief, rituals and customs are yet playing role in delay in breast feeding as well as practice of pre lacteal ad top feeding, bathing etc. Their prevalence varies across the globe and region wise throughout the world. There are multiple factors contributes other than health care to reduce neonatal mortality. Researches are required to find out those issues and addressing them to further decline in neonatal mortality. Wide cultural, languages, different health care delivery systems are existing in India and at time intervals studies to be done to find the neonatal care practices. The practices of neonatal care in Karnataka in southern parts are good attributing to less IMR. The present study was carried out in Ramanagara district which is close to Bangalore city with the objective to study the care of newborns practice and determining factors in rural area.

METHODS

Study design

It was a cross sectional, community based, descriptive and explorative study.

Study area

This study was conducted in rural community Kanakapura taluk of Ramanagara district of Karnataka in the year 2016. This district is neighbor to southern part of Bangalore city. The ten villages under the Sathanur Hobli in Kanakapura taluk was selected as study area. The main occupation is agriculture, horticulture, sericulture and floriculture. The villages are accessible government and private health care facilities in the taluk and referred to Bangalore city for higher care if needed. Majority villagers speak only Kannada language.

Selection of subjects

Inclusion criteria

Baby in the family and aged less than one year were study subjects.

Exclusion criteria

If the mother not available at the time of interview or care takers didn't know about the care given to the newborn.

Sample size

All newborns with the above inclusion criteria in the selected villages were selected as estimated sample size of 550 which includes the non-response, incomplete information or rejection of data if necessary.

Sampling method

Purposive sampling technique was used for selection of subjects and aimed to collect information among subjects who were eligible as per the inclusion criteria.

Data collection tool

The pre tested, semi opened questionnaire was used for data collection. The questionnaire was in English language.

Data collection method

Direct interviewing of the mothers or care takers of subjects at their door steps was followed. The interview was non biased but prompted to get information when necessary on certain variables related to cultural practices. The interviewer asked question in the local language and translated to English to fill the questionnaire. The contents of the questionnaire included socio demographic information of the family, age, occupation and literacy of the parents of the children, type of family, care taker of the respective neonates, place and type of delivery, birth order, birth weight, age and sex of the eligible child, duration of respective child pregnancy, breast feeding initiation, pre lacteal feeding, top feeding, first bathing to baby after birth, first oil massage to the baby, vaccination status etc.

Data analysis

The collected information was entered in MS excel sheet and analysed using SPSS software version 23. The necessary cross tables were prepared with independent and dependent variables and analysed using appropriate statistical tests.

Meaning of the terms

Birth order

Selection of birth order of the subjects were done irrespective of the previous birth order were alive or dead. The birth order includes even if mother terminated her pregnancy either in full term or premature emergency by natural or cesarean section. Previous history of abortions

in the mother was excluded for birth order consideration. The study considered birth orders not pregnancy orders.

The newborn in this study as mentioned in inclusion criteria was considered as subject and the same term is used in results and discussion.

RESULTS

The male and female subjects were 274 and 276 among 550 total accounting to ratio of 1:1 as shown in Table 1. Majority of the subjects were Hindus (97.5%). The birth orders of first and second order or above subjects were 59.5% and 40.5% respectively. Male and female babies among similar birth orders were 58.1%, 41.9% and 61.2%, 38.8% respectively. Nearly 20 % of the mothers of the subjects were either aged less than 21 or above 30

years. Both the parents' literacy status was more than 90%. The working mothers were 22% and remaining were home makers. Agriculture based working was occupation among 68% of the fathers.

Table 2 showing the mothers in the age group of 21-25, 26-30 and 31 years or above gave birth to second or more 38.9%, 69% and 84% respectively. Nearly 95% of the subjects were born in government sector care. The babies born in government hospitals of first birth order were 60.9%, second and third birth orders were 91% and 93%.

The babies born by normal delivery (vaginal) and cesarean section were 401 (71.9%) and 144 (26.1%) irrespective of birth order. The prevalence of cesarean section among the first, second and third birth order or above were 21.9%, 32.4% and 27.2% respectively.

Table 1: General characteristics of the study subjects.

Characteristics	Male		Female		Total	
	N	%	N	%	N	%
Religion						
Hindu	264	96.4	272	98.6	536	97.5
Muslim	10	3.6	4	1.4	14	2.5
Birth order						
1	159	58.0	169	61.2	328	59.6
2	93	33.9	81	29.3	174	31.6
3	22	8.0	26	9.4	48	8.7
Mother age group in years						
<20	33	12.0	43	15.6	76	13.8
21-25	146	53.3	147	53.3	293	53.3
26-30	76	27.7	72	26.1	148	26.9
>31	19	6.9	14	5.1	33	6.0
Mothers literacy						
Illiterate	16	5.8	22	8.0	38	6.9
Primary, higher primary	59	21.5	63	22.8	122	22.2
Secondary	152	55.5	151	54.7	303	55.1
Higher secondary	39	14.2	32	11.6	71	12.9
Degree	8	2.9	8	2.9	16	2.9
Mother occupation						
Home maker	205	74.8	224	81.2	429	78.0
Farming	37	13.5	24	8.7	61	11.1
Working	22	8.0	21	7.6	43	7.8
Self-business	10	3.6	7	2.5	17	3.1
Father literacy						
Illiterate	11	4.0	10	3.6	21	3.8
Primary, higher primary	62	22.6	82	29.7	144	26.2
Secondary	126	46.0	118	42.8	244	44.4
Higher secondary	55	20.1	54	19.6	109	19.8
Degree	20	7.3	12	4.3	32	5.8
Father occupation						
Farming/agriculture related	95	34.7	94	34.1	189	34.4
Working	96	35.0	91	33.0	187	34.0
Driving	26	9.5	27	9.8	53	9.6

Continued.

Characteristics	Male		Female		Total	
	N	%	N	%	N	%
Self-business	57	20.8	64	23.2	121	22.0
Total	274	100.0	276	100.0	550	100.0

Table 2: Distribution of the subjects with birth orders and other variables according to sex.

Variables	Birth order of the baby						Total
	1		2		>3		
	Male	Female	Male	Female	Male	Female	
Age group of mothers in years							
<20	33	42	0	0	0	1	76
21-25	102	101	43	46	1	0	293
26-30	20	25	41	31	15	16	148
>31	4	1	9	4	6	9	33
Literacy status of the mothers							
Illiterate	4	13	8	6	4	3	38
Primary, higher primary	34	35	17	17	8	11	122
Secondary	99	92	45	48	8	11	303
Higher secondary	17	24	20	7	2	1	71
Graduate	5	5	3	3	0	0	16
Type of hospital							
Government	152	164	84	74	21	24	519
Private	5	4	7	5	0	2	23
Home delivery	2	1	2	2	1	0	8
Type of delivery							
Vaginal	120	136	67	51	13	20	407
C-section	39	33	26	30	9	6	143
Birth weight in grams							
<2499	21	39	19	18	4	6	107
2500-2999	84	91	33	31	15	16	270
3000-3499	50	35	39	29	2	4	159
>3500	4	4	2	3	1	0	14
Breast feeding initiation in hours							
<24	159	166	93	80	22	26	546
>24	0	3	0	1	0	0	4
Hospital stay days after birth							
<3	83	100	44	40	8	14	289
4-5	46	32	25	18	5	8	134
6-7	16	24	17	11	7	2	77
>8	14	13	7	12	2	2	50
Sub total	159	169	93	81	22	26	550
Total	328		174		48		

The prevalence of low birth weight was 19.5% and their prevalence in first, second and third birth orders were 18.3%, 21.2% and 20.8% respectively. The babies with birth weight of 2500-2999 and 3000-3499 grams were found to be 270 (49.1%) and 159 (28.9%) irrespective of their birth orders. Birth weight more than 3500 grams were 14 and more in number among the first birth order babies. Birth weight was not recorded for 8 babies born at home.

Breast feeding was initiated within 24 hours after the birth among 98.5% all the birth orders. The hospitalization duration of less than 4 days after birth among the first birth order subjects was 55.8% and second order or above was 47.3% irrespective of gender. The proportion of hospitalization days of 4-5 days, 6-8 days and more than 8 days were approximately 24%, 16% and 6% among second and more birth orders.

The cultural practice of physical health care of babies was shown in Table 3 as first bathing within first 7 days after

birth was 367 (66.7%) and after 10 days (8%) for 44 babies. Less than 50% of the third birth order or above babies got first bathing in less than 6 days. The frequency of bathing per week after the first bathing among 283 (51.4%) and 267 (48.5%) was 1-3 and 4-7 times per week.

Oil massage to the babies was initiated as early as within 7 days of their birth among 236 (42.9%) and after 22 days among 68 babies (12.4%). It was initiated between 7 to 21 days among 201 (36.5%). The frequency of oil massage was 1-3 times per week among 433 (78.7%) and was irregular among 45 (8.2%) babies. There was an association between bathing frequency per week with the male and female babies in different birth orders which is statistically significant ($p < 0.05$). Top feeding was given

to 282 (51.3%) of the babies, 52% of the first and second birth ordered babies received the top feeding compared to 45% of babies born in third order or more.

The association of various factors influencing on the bating and oil massage after birth to the newborns in Table 4 depicts there are statistically significant differences between type of delivery and birth weight of babies (< 0.001) with first bathing and oil massage initiation after birth separately.

Similarly, birth order of the baby influences the frequency of bathing per week ($p < 0.01$) and type of delivery with frequency of oil massage per week ($p < 0.01$). There were no such statistically significant associations with pre lacteal and top feeding with the different factors.

Table 3: Distribution of the subjects with birth orders and other variables according to sex.

	Birth order of the baby						Total
	1		2		>3		
	Male	Female	Male	Female	Male	Female	
First bathing in days							
1-3	51	37	15	21	5	4	133
4-6	66	73	42	30	6	17	234
7-9	33	46	27	23	7	3	139
>10	9	13	9	7	4	2	44
Bathing frequency per week							
1-3	91	92	45	36	9	10	283
4-7	68	77	48	45	13	16	267
Oil massage initiated in days							
Not done	9	11	9	10	2	4	45
1-7	72	63	41	35	9	16	236
8-14	38	52	24	22	7	2	145
15-21	19	19	8	5	3	2	56
>22	21	24	11	9	1	2	68
Oil massage frequency per week							
Not done	9	11	9	10	2	4	45
1-3	131	135	68	60	19	20	433
4-7	19	23	16	11	1	2	72
Pre lacteal feed							
Yes	34	35	19	15	7	6	116
No	125	134	74	66	15	20	434
Top feeding							
Yes	81	89	51	39	8	14	282
No	78	80	42	42	14	12	268
Total	159	169	93	81	22	26	550

Table 4: Distribution of the subjects with practices and determining variables.

	Gender		Place of delivery		Type of delivery		Birth order		Birth weight in kg		
	Male	Female	GH	PH	C-sec	Vaginal	1	>2	<2.5	>2.5	Total
First bathing in days											
1-3	71	62	126	7	17	116	88	45	36	97	133
4-6	114	120	223	7	36	198	139	95	75	159	234

Continued.

	Gender		Place of delivery		Type of delivery		Birth order		Birth weight in kg		
	Male	Female	GH	PH	C-sec	Vaginal	1	>2	<2.5	>2.5	Total
7-9	67	72	126	9	63	76	79	60	63	76	139
>10	22	22	44	0	27	17	22	22	17	27	44
P value	0.65		0.16		0.00		0.21		0.00		
Bathing frequency per week											
1-3	138	145	264	15	68	215	183	100	100	183	283
4-7	138	129	255	8	75	192	145	122	91	176	267
P value	0.49		0.17		0.27		0.01		0.75		
Oil massage initiated in days											
Not done	25	20	42	3	11	34	20	25	17	28	45
1-7	114	122	223	9	31	205	135	101	65	171	236
8-14	76	69	134	7	65	80	90	55	58	87	145
15-21	26	30	54	2	21	35	38	18	25	31	56
>22	35	33	66	2	15	53	45	23	26	42	68
P value	0.83		0.87		0.0001*		0.09		0.0382*		
Oil massage frequency per week											
Not done	25	20	42	3	11	34	20	25	17	28	45
1-3	215	218	418	11	104	329	266	167	150	283	433
4-7	36	36	59	9	28	44	42	30	24	48	72
P value	0.75		0.000*		0.027*		0.08		0.88		
Pre lacteal feed											
Yes	56	60	108	8	34	82	69	47	41	75	116
No	220	214	411	15	109	325	259	175	150	284	434
P value	0.64		0.11		0.36		0.97		0.87		
Top feeding											
Yes	142	140	265	13	68	214	170	112	89	193	282
No	134	134	254	10	75	193	158	110	102	166	268
P value	0.93		0.61		0.30		0.75		0.11		
Total	276	274	519	23	143	407	328	222	191	359	550

*Indicates statistical significance.

Table 5: Distribution of the subjects with determining factors.

	Yes		No	
	N	%	N	%
BPL card	491	89.2	59	10.8
Mother card	474	86.2	76	13.8
High risk pregnancy	95	17.3	455	82.7
Prelacteal feed	116	21.1	434	78.9

Table 5 is showing BPL (below poverty line) card facility was available in 89.3% of the mothers to avail the free benefits from the government of Karnataka. BPL card will be available to the low-income group families to avail all health facilities for free in government sectors. There were 404 care takers for mothers and babies after birth irrespective of their birth orders. Mother card or tai card used under the national program for mother and child care services were available among 86.3% and remaining were having ANC/PNC care support documents from private sectors. The high-risk pregnancy was noted among 95 (17.3%) of the mothers irrespective of their birth orders. Few of the newborns were given pre

lacteal feeds before initiating breast feeding among 116 (21.1%).

DISCUSSION

The practice of new born care is varying across the globe with differences in weather conditions, society structure, education status, availability of health care facilities, traditions, belief, birth weight and gestation period of the newborns.¹⁻³ Similarly customs are related to each religion, tribe as well rural and urban dwellings etc.⁴⁻⁷ The sex of the newborn also plays an important role in taking care of the both mother and newborns in most of the parts of the world.¹ The male being more vulnerable for early mortality compared to female newborns. The study was aimed to find the newborn care practices and determining factors in rural areas of southern part of Karnataka.

At the time of data collection, the age of the subjects were less than 6 months among 90% and information were obtained from mothers and or care takers. It is fortunate that mothers were available for giving information by direct interview in more than 90% of the subjects. In

addition, care takers were also present at the time of interview. The care takers for the mother of first birth order is essential to take care of needs as well to teach the skills of handling babies, feeding, bathing and hygiene in respect to their cultural background. The care takers are important in case of high-risk pregnancy, cesarian section or sick babies in the families. The care taker becomes influential person in feeding, bathing the babies as well as to identify the sickness among the babies in the neonatal period. Care takers of newborns and mothers in this study were either maternal grandmother, or close relative to the mother of the subjects,

The study conducted among 550 newborns as subjects for the study irrespective of the sex and religion. There were 274 male and female 276 subjects. In the present study, there were no twin babies and the serious morbidity in neonatal period requiring admission to stay in hospital for longer period. There were no babies with congenital anomalies or complications at birth or later.

The mothers with high risk factors during their pregnancy to the subjects were 95 accounting to 17.3% and the cesarean section was choice of delivery among 143 (26%) mothers. Most of the cesarean sections were observed among mothers delivering in private sector hospitals and the reason were not completely known. Most of the comparable studies showed that vaginal delivery was common elsewhere.^{5,8-10}

The home delivery with the trained health attendant is a norm according to the national health program for mother and children. In this study 8 subjects born at home and delivery conducted by the trained health care worker and the reasons were on economic and financial issues. In other studies, 40-68% of the deliveries happened to home and reasons were not known.^{8,10-15} The home deliveries continue to be around two third of the births in rural communities of Uttar Pradesh, Bihar, Jharkhand, West Bengal etc., most of the deliveries conducted by the trained health care workers.^{5,16,17} In southern states home deliveries are not common.

Age of the mother

The median age of the mothers was 24 years (mean 24.4 ± 3.6) in this study which is less compared to the studies at other parts of India.^{5,7} Around 40% of the mothers delivered their babies before their age of 25 years in other studies.^{5,14-16} Nearly one third of the deliveries were primi.^{5,12,15,17}

Birth weight

The mean birth weight of the study subjects was 2721 ± 334 gm (median 2750). The differences in mean birth weight between male and female newborns were not much. The first order born babies mean birth weight was 2745 ± 454 gm (median 2810) compared to second or

above order babies 2697 ± 348 gm (median 2715). Birth weight was not recorded for 8 babies born at home. The prevalence of low birth weight was 19.5% and their prevalence in first, second and third birth orders were 18.3%, 21.2% and 20.8% respectively.

Breastfeeding

Delayed breast feeding may result in poor immunity to the newborns. Nearly 95% of newborns initiated breast feeding within 24 hours in the current study irrespective of place and type of delivery. The trend of early initiation of breast feeding is changing towards healthier side because of ASHA workers in the communities under the national program for mothers and child care throughout the country. The prevalence of early initiation of breastfeeding was within 24 hours in 80% in most of the studies.^{5,7,9,15,18}

Pre lacteal feeding

It is a common practice in most of the communities irrespective of the caste or religion to feed the newborns with ghee, honey, cow milk, sugar or jaggery water etc known as pre lacteal feeding and 21.1% (116) of the subjects were given pre lacteal feeding in the present study. The prevalence of pre lacteal feeding very from 31.8% to 86.4% of newborns as notified in studies across India.^{5,8,12,15,18} These studies noted the high prevalence of home deliveries, illiterate parents and care takers. The cultural practices tend to change towards the healthy habits which are influenced by the digital media as well domestic television media there are efforts to preserve, promote the healthy habits of newborn are and mothers among families in order to have good social and nutritional status of the mother.

Hospitalisation days

The duration of hospitalization was varying from 2 to 21 days in this study owing to the type of delivery, type of health care, complications present in newborns and mothers. The median duration was 3 days (mean 4.9 ± 2.3).

First bathing

In this study first bathing was given to the subjects on an average of 5.6 ± 2.5 days after birth whereas in other parts of India it as between 48 to 72 hours.^{5,9,11,12,14} The place of delivery, duration of hospital stay, birth weight and gestational age plays an important role in determining the day of the first bathing as ritual in this community. The frequency of bathing after initiation was an average of 4.6 ± 2.1 (median 3) times per week. Further 306 (55.6%), 210 (38.2%) and 27 (4.9%) of babies got first bathing on 1-5, 6-10 and more than 10 days after their bath.

Oil massage

Initiation of oil massage to the body and head to the newborns was done at the median 7 days (mean 16.6±8) days of life. The oil massage was quite a common practice in southern parts of India. The frequency of oil massage was an average of 2.5±1.5 times per week (median 3) irrespective of birth order, sex of the baby.

The detailed analysis to find the association between gender, place and type of delivery, birth order and birth weight in relation to first bathing, oil massage initiation, frequency of bathing and oil massage per week, pre lacteal and top feeding as depicted in Table 4 explored the statistically significant association between first bathing and first oil massage after birth with type of delivery and birth weights correspondingly ($p < 0.001$). However, none of the other factors determine the pre lacteal or top feeding.

In addition, the practice of application of drops of oil to the eyes and ears to the newborns were followed in some parts of Puducherry.^{14,16,18} The care of the babies will not include only on personal or physical health aspects also belief of spirit or supernatural influences factors. The application of kajal to the eyes, face, coloring the babies, branding the skin with hot needles, clothes for babies, status of care takers etc. are also found in many communities in India.

CONCLUSION

Better health care utilization, healthy cultural factors and good knowledge in addition to the good support by the health team at village level reduces the mortality among neonates. However there needs to be more awareness to be created to the mothers and care takers to discourage the practice of pre lacteal and top feeding. This should be focused as health education during pregnancy and immediately after delivery in the hospital by the health staff.

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Ethical approval: The study was approved by the Institutional Ethics Committee

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