



NEONATAL CARE EXPENDITURE IN URBAN BELAGAVI: A COMMUNITY BASED CROSS-SECTIONAL STUDY

Community Medicine

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ABSTRACT

Introduction: A newborn infant or neonate is a child under 28 days of life¹. The first 28 days of life is considered as a critical age, where there is a higher chance of neonatal mortality and morbidity. The most common infections in neonates are congenital herpes, Group B streptococcus, toxoplasmosis and other types of the medical conditions.² Hence, to reduce the neonatal mortality and morbidity preventive steps like appropriate breast feeding and care is required.

Objectives: To know the total health care expenditure incurred during Neonatal period, in the year 2014- 2015 and to know the various factors influencing the health care expenditure for neonates of family residing at Urban Field Practice Area of Ram Nagar of Belagavi city.

Methodology: A community based cross-sectional study was carried out among 100 mothers who had delivered their baby within the period of 1st Feb 2015 – last of the Jan 2016 (12 months) using pretested, self administered questionnaire. The study was conducted at Ram Nagar, a urban Belagavi district, India. A simple random sampling technique (Lottery method) was used to select the participants. Ethical clearance and informed consent were taken from the concerned authority and participants prior to conduction of study. Data was analyzed using appropriate statistical tools in SPSS 20. Data was presented on tabular and graphical form as per necessity.

Result: The majority i.e. 44% of the respondent were belonged to socio economic status of class IV. 89 percent had suffered from illness during the neonatal period out of which 36.4 percent of the participants had suffered from cough, followed by fever i.e. 34.5 percent and very least number of participants had suffered from Pneumonia i.e. 6.1 percent. 61.8 percent of the respondents sought for the private doctor when their child was ill. The total expenditure spent for the 88 ill neonates was Indian Rs 944949. The per capita expenditure for medicines was the highest i.e. Indian Rs 3140.636 which was 29.24 percentages of the total expenditure. 56.5% of the respondents spent the money from their own pocket for the health care of their neonates;

72.72% of the families had catastrophic health expenditure. Out of the total health expenditure, 78.8% was direct cost and the remaining 21.17 was an indirect cost.

Conclusion: Community health insurance has to be encouraged and the people should be made aware on the proper utilization of the public health services to reduce the catastrophic health expenditure.

KEYWORDS:

Neonatal, catastrophic expenditure, health care, direct cost, indirect cost.

Introduction: A newborn infant or neonate is a child under 28 days of life¹. The first 28 days of life is considered as a critical age, where there is a higher chance of neonatal mortality and morbidity. Hence, to reduce the neonatal mortality and morbidity preventive steps like appropriate breast feeding and care is required.

Globally, 9.2 million children die every year before within their fifth birthday and 2.9 million babies die during the first month of their life (new born period). In the year 2015 around 45 percent (i.e. 2.7 million) of all under-five deaths occurred during this period. Out of which one million neonatal deaths occurred on the first day of life and around two million die in the first week of life. The first day of the life is considered as a very dangerous day in the life of the child both in the developed and under developed countries. Each year 1,049,300 children die on the first day of their life, which is 15% of the under five deaths each year. The situation is more serious on Asia & Pacific. These deaths could be prevented by increasing the spending on neonatal health care. Spending on health is just US dollar 26 per capita per year in South Asia (Afghanistan, Bangladesh, Bhutan, India, Nepal & Pakistan). Nations must concentrate their attention towards the quality delivery care at the time of birth and during the neonatal period. In India, every year 27 million babies are born, which is 20% of the global births. Out of which one million die before the first four weeks of their life, 40% of the neonatal death occurs in the first day of life. This is about 25% of the total neonatal deaths worldwide. At present the neonatal mortality rate (NMR) of India is 39 per 1000 live births (NFHS-3; 2005-06). The NMR is also affected by the rural-urban and socioeconomic condition. The leading causes of the neonatal deaths in India are infection, asphyxia and the prematurity, which is similar to the global pattern. The states like Kerala where the institutional

delivery is high accounts less neonatal in comparison to other states.⁵ In rural Karnataka unhealthy newborn care practices are more common for example cord cutting by unhygienic equipments, delayed in breast feedings, throwing of clostridium milk, and early bathing.⁶

In the developing country like India, the socio economic status of the population is very low and at the same time the expenses (including direct & indirect expenses) for neonatal care is high. The high health care expenses are the barrier between the people and health facilities. Largely because of the high expenses, the neonatal mortality and morbidity is high in India.

The community based studies regarding the health care expenditure pattern of the family on neonatal care are very few. Hence, the present study is designed to know the total expenditure of the family on neonatal care and also to know the various factors influencing the health care expenditure for the care of neonate (during the age of 28 days) residing at Urban field Practice area of Urban Health Centre (UHC) Ram Nagar of Belagavi city.

Material & Methodology:

Study design and period: A community based cross-sectional study was conducted over a period of 12 months from 1st Feb. 2015 – 31st Jan. 2016

Study area: Ram Nagar, Belagavi district, Karnataka, India
Sample size: The sample size was calculated by using the formula $n = \frac{4pq}{d^2}$, (assuming the prevalence of neonatal care expenditure as 50%)
 Where, n= sample size
 p= Out of pocket expenses of the family for the neonate care assume to be 50%

q= 100- p= 50%
 d = 10% Absolute error (10% of p) Now,
 n = 4pq/d²
 4x50x50/10² = 10,000/100 = 100

Hence, the sample size for the study was estimated as 100. Sampling technique: Simple random sampling method (i.e. lottery method) Inclusion criteria: Mothers of Rama Nagar, who had delivered the baby within the period of one year i.e. 1st June 2014 to 31st of the May 2015

Ethical clearance: Ethical clearance taken from Institutional Ethics Committee (IEC) of J.N.M.C, KLES, Belagavi and informed consent were taken from participants prior to conduction of study.

Tool of data collection: A pretested and predesigned questionnaire was used to collect the data.

Statistical analysis: Data was analyzed using appropriate statistical tools in SPSS 20. Data was presented on tabular and graphical form as per necessary.

Results: The study was conducted in the year 2015 /16 with total sample of 100. 79% of the respondents were female and 73% of the informants were mother. Table no. 7 shows the distribution of the study participants as per the respondent's occupation. According to the modified B.G. Prasad's classification of socio-economic status maximum i.e. 44% of respondent belonged to class IV (see table no. 1). 86% of the study respondents did not have any type of health insurance facility. Out of hundred study participants, 89% had suffered from illness during the neonatal period. The distribution of the study participants as per the type of illness is given in table no. 7.

Table No. 1: Distribution of the study participants as per the types of socio economic status:

SN	Socio economic status	Frequency	Percentage
1	Class I	4	4
2	Class II	12	12
3	Class III	12	12
4	Class IV	44	44
5	Class V	28	28
	Total	100	100

98.9% of the ill neonates got treatment at health facilities where as 1.1% of the neonate got only home treatment when they were ill. Out of 89 ill neonates 98.9% sought health care outside the home (i.e. health institutions) and 1.1% had gone for home remedy for the treatment of illness. Out of those who sought health care outside the home, 62.5% had sought for private doctors (see table no. 4). 39.8% of the ill neonates had required admission at health institution. 38.9% of the ill neonates were admitted for more than 10 days followed by 22.2% admitted for 4 to 6 days, 25% for 1-3 days and very least i.e. only 13.9% of the neonates were admitted for 7 to 9 days for the treatment. Total expenditure for 88 ill neonates as a study subjects was IRs 9, 44,949.00/- (\$13,849.46) and Per capita expenditure per episode was IRs 10,738.05/- (\$157.380) (see table no.5). The study showed that 56.5% of the respondents spent the money from their own pocket for the health care of their neonates; however some of the respondents also borrowed from others i.e. 34.4% and very minimal respondents i.e. 0.8% had to mortgage their goods for the money for the care of their neonates (table no. 6). 72.72% of the families had catastrophic health expenditure on neonate. Out of the total health expenditure, 21.17% was indirect cost like travelling and food expenses.

Table No.2: Distribution of the study participants as per the religion, type of family, and the type of house they live in.

SN	Variables	Frequency	Percentage
1	Religion		
	Hindu	43	43
	Muslim	54	54
	Others	3	3
	Total	100	100
2	Type of family		
	Nuclear	44	44
	Joint	56	56
	Total	100	100

3	Type of house they live in		
	Own house	59	59
	Rented house	41	41
	Total	100	100

Table No. - 3: Distribution of the study participants as per their choice of health care provider. (n=88)

SN	Choice of health care provider	Frequency	Percentage
1	ANM	1	1.1
2	Anganwadi worker	1	1.1
3	Gov. Doctor	25	28.4
4	Pvt. Doctor	55	62.5
5	Pharmacists	6	6.8
6	Quack	0	0
	Total	88	100

Table No. 5: Distribution of the study participants as per the expenditure patterns by the family for the neonatal illness. (N=88)

SN	Particulars	Total expenditure in	Expenditure in Rs. Per capita	Percentage
1	Doctor's consultation fee	1,31,550 (\$1,928.03)	1494.886 (\$21.90)	13.92
2	Admission Charge	2,04,703 (\$3,000.19)	2326.17 (\$34.09)	21.66
3	Investigation	132,145 (\$1,936.75)	1501.647 (\$22.008)	13.98
4	Medicines	2,76,376 (\$4,050.65)	3140.636 (\$46.030)	29.24
5	Travelling cost	79,000 (1,157.84)	897.727 (\$13.157)	8.36
6	Expenses for food	91,525 (1,341.41)	1040.056 (\$15.243)	9.68
7	Miscellaneous	29,650 (\$434.55)	336.931 (\$4.938)	3.13
	Total	9,44,949 (\$13,849.46)	10,738.05 (\$157.380)	100

Table No. - 6: Distribution of the study participants as per the source of money spent as a health expenditure

SN	Source of money spent	Frequency	Percentage
1	Own pocket	74	56.5
2	Borrowed from others	45	34.4
3	Health Insurance	5	3.8
4	Selling of family belongings	6	4.6
5	Mortgage of goods	1	0.8
	Total	131	100

Table no. 7: Distribution of the participants as per their occupation

SN	Particulars	Frequency	Percentage	
1	Occupational status			
	1.1	Farmer	5	5
	1.2	Laborer	9	9
	1.3	Self-employed	9	9
	1.4	Gov. service	11	11
	1.5	Pvt. Service	26	26
	1.6	Unemployed / homemaker	40	40
	Total	100	100	
2	Type of illness			
	2.1	Pneumonia	10	6.1
	2.2	Diarrhea	23	13.9
	2.3	Fever	57	34.5
	2.4	Vomiting	15	9.1
	2.5	Cough	60	36.4
	Total	100	100	

Discussion:

Family socio- demographic data

The study showed that 79 percent of the informants were female. Among the informants about the neonates, 73% were mothers, followed by father i.e. 20%. The study showed that 54 percent of the respondents were Hindu, 43 percent were Muslim and 3 percent were belonged to the other religions. The study reported that as per the modified BG Prasad's classification of socio- economic status 44 percentage of the respondents belonged to the class IV, followed by class V i.e. 28 percentage. The respondents belonged to the class II and III were 12 & 12 percentage respectively and only 4 percent of the respondents belonged to the socio economic status of class I.

Family details: The study reported that maximum i.e. 59% of the respondents had their own house. 72% were under BPL, 86% respondent's family had no any type of health insurance.

The study conducted out in rural Vietnam in the year 2001 reported that only 2% of the patients were benefited from the health insurance which created the severe economic problem in the families who had the poor socio economic status.²⁴ Another study to assess catastrophic household expenditure on childhood illness in an urban slum in Bijapur in 2009 illustrated that out of 190 households, only 13 households were having some forms of health insurance and 30 households were planning to have some forms of health insurance very soon.¹⁴

Child Data: The study showed that 89 percent of the study neonates had suffered from some types of illness during the neonatal period. It showed that cough was the leading cause of illness among the neonates i.e. 36.4%, 34.5% had fever, 13.9% had diarrhea, 9.1% had vomiting and only 6.1% of the neonates had suffered from Pneumonia.

A study conducted on mother's health services utilization and health care seeking behavior during infant rearing: a longitudinal community based study in South West Ethiopia in 1992 showed that 46.5 percentage of the baby had suffered from diarrhea, followed by cough i.e. 42.7 percent.¹⁶

Health seeking practice of patients: The study showed that maximum i.e. 98.9% of the neonates got treatment at health facilities when they were ill. Out of 89 neonates who had suffered from some types of illness during the neonatal period, 97.8 percent had sought health care outside their home and the remaining 2.2 percent did not preferred to go outside the home for the treatment. Out of those who had sought health care outside the home, 62.5 percent had consulted the private doctors followed by government doctors i.e. 28.4 percent, 6.8 visited pharmacists, and those who had visited to ANM and Anganwadi workers was 1.1 and 1.1 percent respectively. Out of those who had visited health care facilities, 39.8 percent had required admission Out of those who had admitted, maximum i.e. 38.9 percent of the neonates had been admitted for more than 10 days, for their treatment.

A study conducted in Uganda in the year 2005-2007 for the first outside consultation showed that 36 percent of the respondents went to the government hospital, 25 percent went to private providers, 20 percent to government health centers, and the remaining 7 percent went to NGOs clinics for the treatment.²⁸ A longitudinal study conducted in Ethiopia in the year 1992-1994 showed that 45 percent of the mothers seek help for their infant in health institutions, followed by home remedies i.e. 24 percent.¹⁶

Expenditure patterns of the family for the treatment of their ill neonate: The present study showed that the per capita expenditure for medicines was Indian Rs 3140.636 which was 29.24 percent of the total expenditure, for Admission charge was IRs 2326.170 (21.66%), for investigation was IRs 1501.647 (13.98%), for doctor consultation was IRs 1494.886 (13.92), for food expenses was IRs 1040.056 (9.68%), and it was IRs 897.727 (8.36%) for travelling, for the treatment of their ill neonates. The study also showed that the per capita expenditure for the miscellaneous works like buying dolls for neonates was IRs 336.931 (3.13%). Total expenditure for 88 ill neonates as the study subjects was IRs 944,949.00. Per capita expenditure per episode was IRs 10,738.05. Among the 88 families whose neonate had been ill, 56.5 percentage spent money from their own pocket, followed by borrowed from others i.e. 34.4 percent and only 0.8 percent of them spent by mortgage of goods. The study showed that direct cost was 78.8 percent and the indirect cost was 21.17 percent of the total expenditure for the treatment of neonate.

A study conducted in Vellore, India in the year 2008 showed that the doctor's visit cost comprised 59 percent, diagnostic costs 25 percent and medication cost was 29 percent of the total direct costs at Christian Medical College (CMC) where as it was 81 percent, 0 percent and 12 percent for doctor's visit cost, diagnostic cost and medication cost respectively.¹⁵

Conclusion and recommendations:

Community health insurance has to be encouraged. – Awareness programmes have to be conducted to include more families in to

health insurance and also encourage participation in Self Help Groups/ Mahila Mandals. The people should be made aware on the proper utilization of the public health services to reduce the catastrophic health expenditure.

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