

Out of pocket expenditure of neonatal illnesses and health seeking behaviour of care-givers of sick newborns in Burdwan Municipality of West Bengal: A community based cross sectional study

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Abstract

Background: The neonatal period is very important for survival of every infant. As neonatal period is vulnerable to various diseases; people have to pay a lot as a part of out of pocket (OOP) expenditure. It is part of the private health expenditure and it includes service user fees, consultation fees, health insurance contributions, drug costs and cost of laboratory tests. Every household is forced to sacrifice basic needs and sell productive assets, incur debt or become improvised if OOP expenditure crosses a threshold level. **Objectives:** This study was undertaken to find out socio-demographic profile, care seeking behaviour and out of pocket expenditure of the care-givers according to morbidity pattern of newborns in Burdwan municipality of West Bengal, India. **Material and Methods:** It is a community based cross-sectional study done at Burdwan municipality. Study tools include interview and record review. Sample size was found to be 200. Multi stage sampling technique was used. **Results:** In this study 59.1% of the newborns developed any kind of illness for that care is sought. Mean out of pocket expenditure was found to be 418 INR (n=198). The mean expenses for jaundice, URTI and umbilical discharge were 634 INR, 416 INR and 420 INR respectively. In this study, it was found that neonatal illness and care seeking behaviour was associated with education of the care givers and socio-economic status of the family. **Conclusion:** It may be concluded that, more than half of the babies suffered from morbidity during neonatal period. The cost of management was high, especially in private health care.

Key words: out of pocket (OOP) expenditure, neonate, expenditure, care-seeking behavior.

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Introduction

The neonatal period is very important for survival of every infant. There is high chance of morbidity and mortality, as there is lack of immunological response, problems of adaptation to extra uterine life. In India, neonatal mortality is unacceptably high. As per data in 2013, nearly, 0.75 million neonates died in India, the highest for any country in the world.[1-2] The leading causes of neonatal mortality are birth asphyxia, neonatal sepsis and prematurity. Low birth weights (LBW), neonatal sepsis, severe birth asphyxia, neonatal jaundice are among the most important diseases requiring hospital admissions. In India, neonatal deaths constitute two third of infant deaths and more than half (52%) of these occur due to infection.[3] Illness in this period requires specialized care, longer duration of hospitalisation especially for the preterm infant, and use of sophisticated equipment and facilities, resulting in huge medical bills. Out of pocket (OOP) expenditure on health is defined as direct and indirect expenses incurred by an individual or household to secure or maintain their health. It is part of the private health expenditure and includes service user fees, consultation fees of doctors, health insurance premium, drugs and laboratory tests. Additional cost may include costs for various nutritional supplements, transport costs, and

care and support costs. There are some associated opportunity (indirect) costs, such as loss of production cost and loss of earnings incurred during neonatal illness. These indirect costs may be difficult to measure especially in unorganised sector. As government investment is low in comparison to requirement and there is very little insurance payment mechanism for health care, some households are tipped into financial catastrophe if the OOP expenditure exceeds a threshold mark. The commonly accepted generic threshold level is 10% of the total household expenditure.[4] This threshold represents the level beyond which the household is forced to sacrifice basic needs and sell productive assets of the family, incur debt or become improvised. Costly health care deters people from using health services thereby generating prolonged or worsened health problems.[5] In addition, illness often place large intangible costs on households in terms of quality of life, discomfort and pain. However, unfortunately, there is a little option to mitigate such burden. As a result, protecting households from catastrophic health expenditure continues to remain as a formidable challenge to the developing countries. It was noted that, over 63 million persons are pushed to poverty every year due to health care costs.[6] In 2011-12, the share of out of pocket expenditure on health care as a proportion of total household monthly per capita expenditure was 6.9% in rural areas and 5.5% in urban areas.[7] The share of households reporting OOP spending in excess of 10% of their total expenditure increased from 15% in 2000 to 18.9% in 2012 among rural households and from 12.4% in 2000 to 15.9% in 2012 among urban households.[8] It has been observed that in 2014, the average amount spent per child birth in private hospitals was nine times of

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that spent in public hospitals for both rural and urban areas.[9] Equity in access to care and financing is a key policy concern in India, as suggested in multiple policy documents, including most recently, a policy report of an expert group on universal health coverage.[10-12] World Health Report 2000 identified financial protection against the costs of ill health as a fundamental objective of health systems, on the premise that a fair health system ensures households make health care payments according to their ability to pay rather than the risk of illness.[13] Janani Suraksha Yojana, Janani Sishu Suraksha Karyakram and operationalization of "102 ambulances" for transport of mothers and infants to health centres are functional all over the country to reduce the burden of expenditure. In order to achieve target of reducing infant mortality rate to 25, not only direct causes, but also social and behavioural aspects of neonatal illness need to be explored.[14] Although, there are few works which have dealt with different behavioural aspects related to care-seeking for sick newborns, quantitative information is lacking on the inequities that exist in developing countries in terms of health care utilization especially for newborns. This study was undertaken to find out socio-demographic profile, care seeking behaviour and out of pocket expenditure of the care-givers according to morbidity pattern of newborns in Burdwan municipality of West Bengal, India.

Materials and Methods

It is a community based cross sectional study carried out at Burdwan Municipal area of West Bengal. The study period is December 2016 to March 2017. Study population includes all newborns in the month of December 2016 in the area of Burdwan Municipality. As per inclusion criteria, the parents must be resident of Burdwan municipality for at least 6 months. Study tools include interview and record review. Interview of the care givers of the newborns were done at their residence or at mutually convenient place. Record Review of hospital records, prescriptions, receipts were done.

Age was taken in completed months. Monthly income was taken to be total monthly income of the family from all sources. Illness is defined as complaint about health for which care was sought. Socio-economic status in modified BG Prasad Scale updated on December 2016 was considered as study variable. Care seeking behaviour includes visit to Government Hospital, Private facilities or quack. Out of pocket Expenditure includes total expenditure incurred in transport, consultation, laboratory, medicines from prescription, hospitalisation charges. Integrated Management of Neonatal and

childhood illness (IMNCI) used for classifying patients as having possible Serious bacterial infection, local bacterial Infection like umbilical discharge, pustules in the body, severe jaundice, and diarrhoea with or without dehydration.[15] Non-IMNCI classified illness were defined and classified as per the guidelines of National Neonatology forum of India.[16] Type of morbidity is broadly classified as IMNCI classified Illness/Non-IMNCI classified Illness. Sample Size was calculated by taking prevalence of illness as 50.3% as described in a study by Neeraj M Srivastava, ShallyAwasthi and Girdhar G Agarwal titled in Lucknow where care-seeking behaviour and out-of-pocket expenditure for sick newborns among urban poor was assessed.[17] As multi-stage sampling is used as sampling technique, design effect was taken as 2. Ten per cent absolute error was considered. After considering the design effect, the sample size was 200. However, two study subjects refused to give information at the time of interviewing. So, finally 198 newborns were included in the study. Sampling technique was multi stage sampling. There are 35 wards in Burdwan municipality. 20% of the wards (7) were chosen by simple random sampling (SRS). In these 7 wards, number of newborns included was decided by the population proportionate to size. In every ward, the newborns were chosen by simple random sampling. The sample frame was taken from Anganwadi workers of the respective Anganwadi Kendras. Data were collected from the care givers of the newborns by pre structured pre tested questionnaire. Diagnosis was inferred from the response of the care givers if supportive record is not available. Any person, not possessing a degree in modern medicine recognized by MCI was termed as quack.

After collection, data were entered in a spread sheet. It was analysed using statistical software. Chi-square Test was used to find association between variables. Yates' correction was done for cell with expected values less than 5. P value less than 0.05 was considered to be statistically significant. Ethical clearance for this study was taken from institutional Ethics Committee of Burdwan Medical College.

Results

After interviewing of the parents of new-born it was found that, 117 (59.1%) of them had attended health care facilities. Two of them had two episodes of seeking health care. The nature of illness and type of healthcare facilities are tabulated in Table 1. As per Table 1, there were 119 episodes of care seeking in some facilities out of which, majority (48.58%) were Government facilities.

Table 1: Distribution of neonatal illness and care seeking behavior for illness

Neonatal Illness	Healthcare seeking site (no. of episodes = 119) (n ₁ = 119)			Hospitalization (n ₂ = 33)	
	Government	Private	Quack	Government	Private
IMNCI classified illness					
PSBI	10	3	0	10	3
PSBI & Birth Asphyxia	6	0	0	6	0
Local Bacterial Infection	2	0	0	0	0
Umbilical discharge	0	4	0	0	0
Severe Jaundice	10	4	0	10	4
Jaundice	10	3	0	0	0
Non-IMNCI classified illness					
Perianal excoriation	5	4	4	0	0
Conjunctivitis	4	9	4	0	0
URTI	10	18	4	0	0
Inconsolable cry	2	3	0	0	0
Total	59 (48.58%)	48 (40.34%)	12 (10.08%)	26 (78.79%)	7 (21.21%)

PSBI: Possible Severe Bacterial Infection; URTI: Upper Respiratory Tract Infection

Figures in parentheses indicate column percentages

There were 33 episodes of hospitalizations for neonates, out of which 26 episodes were in Government hospitals and rest were private (Table 2). These were due to Possible Severe Bacterial Infection (PSBI) or severe jaundice. Expenditure in Government hospitals due to consultation and medicines was zero. Combined expenditure ranged from 0 to 8500 INR and 0 to 4000 INR respectively for cases of PSBI and severe jaundice.

Table2: Out of pocket expenditure of hospitalized neonate transport. Consultation and medicine for different illnesses*(n₃=33)

Illness	Transport Mean(SD)	Consultation Mean(SD)	Medicine Mean(SD)	Combined Mean(SD)
PSBI	246.2 (260.2)	407.7 (800.5)	386.1 (745.6)	2003.1 (3517.3)
Severe jaundice	178.6 (204.5)	100.4 (184)	157.1 (358.9)	928.0 (1502.5)

*Figures are in Indian National Rupee (INR) PSBI: Possible Severe Bacterial Infection

There were 84 episodes of out-patient consultations for neonates. These were mainly due to Upper Respiratory Tract Infection (URTI), jaundice and umbilical discharge. Expenditure in Government hospitals due to consultation and medicines was zero. Combined expenditure ranged from 0 to 1200 INR, 0 to 800 INR and 0 to 800 INR respectively for cases of jaundice, URTI and umbilical discharge respectively.

Table 3: Out of pocket expenditure of non- hospitalized cases for transport, consultation and medicine for different illnesses (n₄=84)

Illness	Transport Mean(SD)	Consultation Mean(SD)	Medicine Mean(SD)	Combined Mean(SD)
Jaundice	230(131.6)	153.9(87.7)	250(214.1)	634.6(395.5)
URTI	126.7(98)	146.7(116.7)	148.2(105.6)	416.7(304.1)
Umbilical discharge	240 (219.1)	120 (130.4)	60 (54.8)	420 (389.9)

*Figures are in Indian National Rupee (INR)

URTI: Upper Respiratory Tract Infection

Socio-economic status of the family of the neonate was classified according to modified B.G. Prasad's scale. It was also noted that more illness were reported in higher socio-economic classes. Care seeking behaviour was significantly associated with education of the primary care-giver and socio-economic status of the family.

Discussion

In this study, 59.1% (117) of the newborns developed any kind of illness for that care is sought. This is slightly higher than (50.3%) the study done in Lucknow in northern India by Srivastava NM et al. [17] Out of 117 babies 33 (16.7%) needed hospitalization. In spite of assurance of free service in all government establishments, 39.6% of newborns who needed hospitalization were admitted in private health care. It can be also noted that people preferred private practitioners more for treatment on outpatient basis but for hospital admission, they preferred government establishments probably because of financial reasons. Out of the total illness 50.6% of illnesses were covered in IMNCI group of illness which is much higher than study in Lucknow (20.3%) [17]. Mean out of pocket expenditure per neonate in this study was 418 INR (n=198). In a study in Nigeria showed, average, medical expenditure for the management of neonatal illness in Enugu was higher (USD 223), about twice the average wage in Nigeria and that 100% of this expenditure was OOP private health expenditure. [17] Out of pocket expenditure varied as per care provider. In government health facilities, though it was free under Janani Sishu Suraksha Karyakram (JSSK) scheme, some had to spend money for transport, as they did not have necessary voucher for transport. In this study, people of better knowledge and resources sought care more than others. Financial condition may have a role in care seeking behaviour.

Conclusion

It may be concluded that, more than half of the babies suffered from morbidity during neonatal period. The cost of management was high, especially in private health care. So there is urgent need to take private institutions under JSSK scheme. As people preferred private health care more than the government in outpatient service, dedicated clinic for neonates may be suggested in government institutions.

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