ORIGINAL ARTICLE

Out-Of-Pocket Expenditure on Institutional Delivery in Rural Lucknow

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Abstract

Introduction: Promotion of reproductive health through institutional delivery has been adopted by government as a strategy for reducing maternal mortality rate but still about half of the deliveries have been conducted at home. Cost barrier is one of the major cause for preferring home delivery instead of institutional delivery. Not only the direct costs responsible for low institutional delivery but also indirect costs too accountable for less number of institutional births in the country. **Aims & Objectives:** To estimate the out of pocket expenditure incurred by households during delivery and its determinants. **Materials and methods:** A community based cross sectional study was conducted during which a total 272 households having women who had recently delivered in government institutions were interviewed. **Result**: The mean out of pocket expenditure was found to be Rs. 1406.04 ± 103.27 including spending's on drugs, travel, pathological tests and unofficial payments. Low socioeconomic class, residence outside the catchment area of delivery point, tertiary and secondary health care facilities as place of delivery and low literacy status of head of the family below high school were found to be significantly associated with out of pocket expenditure bivariate analysis ($p<0.05$). On multivariate analysis low socioeconomic (OR 22.40; 95% CI 9.44-53.15; $p = 0.01$) and residence (OR 13.07; 95% CI (1.58-116.55); $p = 0.03$) outside the catchment area of delivery point were found to be independent predictors of catastrophic out of pocket expenditure during delivery. **Conclusions**: Although government has been running lot of schemes for availing free of cost health services but still one has to pay from their pocket as medical expenses. In order to bear these expenses, they have to borrow money, sell their assets and securities due to which households suffer a lot. In the present study, unofficial payment was found prevalent in public institutions and these informal payments make the health service unaffordable for households.

Key Words

Out of pocket expenditure; catastrophic expenditure

Introduction

Increasing skilled attendance at birth is widely recognized as a priority strategy for reducing maternal mortality, and skilled attendance is being used as the target indicator to measure progress toward the fifth Millennium Development Goal of improving maternal health (MDG 5). Despite significant decrease in the incidence of maternal mortality (from 409,053 in 1990 to 273,645 maternal deaths in 2011), safe mother-hood still remains a distant dream for many around the world, especially in developing countries (1). As far as India is

considered, it contributed around 20% of all maternal deaths occurred worldwide in 2005 (2) and this leads many to cast serious doubts about meeting the MDG-5 within time for the country. Most of the maternal deaths are preventable if mothers have access to professional care before, during and after pregnancy (3, 4). Since the level of maternal health care utilization is still very low in India (5), it is imperative to substantially increase the use of maternal health care especially among poor in order to reduce maternal mortality and improve maternal health. In India studies show a very high out of pocket expenditure on delivery care, and, although the private sector is more expensive, the cost of public sector inpatient care services has increased since the 1990s (6). Recent analysis of the third National Family Health Survey (2005/6) shows 13% of women in the lowest wealth quintile accessing institutional delivery care compared with 84% in the highest (7). Majority studies have explored the issue of the cost of maternal health care in the past (6,8,9). However, these studies have calculated maternal health care expenditure without any reference to total household income or expenditure. A huge expenditure on health care does not always necessarily mean that it reduces the standard of living of the household. In paradox to that sometimes, even a small expenditure could push the house-hold into difficulties, if the household is unable bear for health care. So, the question here is how large the maternal health expenditure needs to be to force a household to a state where they decide either to forgo maternal health care or sacrifice consumption of other goods (including basic needs sometimes). Such levels of health care expenditure are generally referred to as “catastrophic”. Rural areas are quite different from urban in respect with income level accessibility to health facilities and health seeking behaviour. A major part of income is even lost during the time of child delivery (i.e. expenses incurred from starting of parturition to coming back to home after child birth) as compared to expenses during ante natal period.

Aims & Objectives

1. To estimate the out of pocket expenditure incurred during institutional delivery.
2. To determine various factors determining out of pocket expenditure for institutional delivery in rural areas of Lucknow district.

Material and Methods

Study design and sampling - A community based cross sectional study was conducted in rural areas Sarojini Nagar block within the catchment area of Rural Health and Training Centre, during which a total 272 households having women who had recently delivered within last three months through normal vaginal delivery in government health institutions were interviewed. Women with low birth weight born babies, still birth and dead born babies were excluded as these factors may increase the duration of stay in hospital, thereby altering the expenditure. A list of all the deliveries within the catchment area was availed with the help of ASHA. Then the study participants fulfilling the exclusion and inclusion criteria were directly contacted with the help of ASHA and were interviewed after obtaining verbal consent.

Data collection methods - A questionnaire was used to collect data through face-to-face interviews. Data on socio-demographic characteristics and various expenditure during delivery including direct health expenditure (including medicines, diagnostics, hospital charges), indirect health expenditure (transportation, diets, hiring of care providers, unofficial tips), direct non-medical expenditure (wages lost during hospital stay) were collected from all participants. Health expenditure during delivery has been defined “catastrophic” if twenty percent of total household income is spent on health care (10).

Data analysis - Descriptive summary using frequencies, proportions and cross tabs were used to present study results. Probability (p) was calculated to test for statistical significance at the 5% level of significance. Association between various factors and catastrophic health expenditure during delivery was determined using bivariate analysis followed by multivariate logistic regression. All predictors with significant p-value and below from bivariate analysis were entered into the full multi-variable logistic regression model. Adjusted odds ratio and 95% confidence intervals are presented. Significance level was set at 0.05 and all of the analyses were two tailed.

Results

About one-third of the women belonged to lower socioeconomic status. Majority (81.6) were living in nuclear family [Table 1]. The mean total expenditure was found Rs 1406.04±103.2 [Table 2]. Of all the 272 household majority (81.2%) suffered from

catastrophic healthcare expenditure during delivery. Among all religions same proportions of household suffered from catastrophic expenditure. More women belonging to poorer households (from lower quintiles i.e. upper lower and below) were found to be disproportionately burdened by catastrophic expenditure. The expenditure of the households belonging to Scheduled Castes (SC) and Other Backward Castes (OBC), although was proportionately higher as compared to General, but the association between catastrophic expenditure and social class was found to be statistically insignificant. With increasing educational attainments of head of family, catastrophic payments on child delivery decreased substantially. Low socioeconomic class, residence outside the catchment area of delivery point, tertiary and secondary health care facilities as place of delivery and low literacy status of head of the family below high school were found to be significantly associated with out of pocket expenditure bivariate analysis ($p<0.05$). On multivariate analysis low socioeconomic (OR 22.40; 95% CI 9.44-53.15; $p = 0.01$) and residence (OR 13.07; 95% CI (1.58-116.55); $p = 0.03$) outside the catchment area of delivery point were found to be independent predictors of catastrophic out of pocket expenditure during delivery [Table 3].

Practice of unofficial tips was found to be four times more at tertiary/secondary health care facilities as compared to primary one.

Discussion

The present study is an attempt to explore the various determinants of catastrophic out of pocket expenditure incurred during the child birth. Though the time frame of expenses incurred from the starting of parturition period to returning back to home after discharge from health care facility included in study, is only a small part of the whole pregnancy period but the expenses during this crucial period contribute a major part of total maternal expenses. The mean out of pocket expenditure was found to be 1406.04±103.27 which is quite less compared to other studies in India (11, 12) .This difference may be attributed due to difference in the time frame of the estimated expenses in the two studies. In paradox to that about 81% of household suffered from catastrophic expenditure which is much greater as compared to other studies (11). In present study place of delivery, outside the catchment area of nearest delivery point was found to be one of the predictor of catastrophic expenditure. This may be attributed to the fact that proximity to health services has dual influence on health care utilization. Rural population are particularly disadvantaged as they often lack the reliable means of transportation at the delinquent time of parturition and often they have to pay more which may have additive effect on expenditure. Expansion of services may not be sufficient to promote utilization, it's the quality that matters, therefore the faith of the people must be built up to utilize the most proximate health centre by better provision of best quality services. Households belonging lower socioeconomic group (lower income quintiles) This may be attributed to the fact that poor house-holds generally have very little to spend on health care because most of the household resources are absorbed by items related to basic needs, such as food. This catastrophic expenditure has been shown to have effects on poverty levels in many other countries (13-16).

Conclusion

The mean out of pocket health expenditure incurred during delivery was quite high. Majority (81.2%) of the households suffered from catastrophic healthcare expenditure during delivery. Low socioeconomic and residence outside the catchment area of chosen delivery point were found to be independent predictors of catastrophic out of pocket expenditure during delivery.

Recommendation

Better quality health services including both infrastructure and manpower required at delivery points with the comprehensive approach must be provided, for promoting the delivery at most proximate health facility from the home. The practice of unofficial tips must be discouraged. IEC activities must be given more emphasis, so that the underserved population may also make the use of currently running health schemes, which may reduce the burden of expenditure. Apart from that the incentives provided to the beneficiaries' mothers must be revised from time to time based on inflation and growth rate.

Limitation of the study

Since the study was conducted only in one ward of Lucknow district, results may not be generalizable for the whole district. Expenditure met during

pregnancy with complications were not addressed in the study which may add more financial burden over the households

Relevance of the study

The study finding reveals that there is a need for periodic review of the incentives given to the beneficiary mothers under government health schemes based on inflation rates. Apart from that a more extensive and elaborative study is needed to better understand the situation .

Authors Contribution

Conceived and designed the experiments: MS AK MA. Performed the experiments: MS MA JVS. Analyzed the data: MS MA AG. Contributed reagents /materials /analysis tools: MS AK MA. Wrote the paper: MS MA. Revised the manuscript substantially with critical inputs and approved the final submission: MS MA JVS AG

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17.

Tables

TABLE 1 SOCIO-DEMOGRAPHIC CHARACTERISTICS OF RECENTLY DELIVERED WOMEN (RDW)

Variable	Number	Percentage
Current Age(years)		
18-30	142	58.6
31-35	88	32.3
35-40	42	15.4
Religion		

Hindu	203	74.6
Non-Hindu	69	25.4
Category		
General	107	39.3
OBC	132	48.5
SC/ST	33	12.1
Type of family		
Nuclear	222	81.6
Joint	50	18.3
Family size		
≤5	202	74.2
6-10	50	18.3
≥10	20	7.3
Educational status of head of family		
Illiterate	78	28.7
Primary	27	9.9
Middle	50	18.4
High school	60	22.1
Intermediate	28	10.3
Graduate and above	29	10.7
Current Employment Status of RDW		
Employed	81	29.8
Unemployed	191	70.2
Socioeconomic class*		
I(Upper)	34	12.5
II(Middle)	31	11.4
III(Lower middle)	36	13.2
IV(Upper lower)	69	25.4
V(Lower)	102	37.5
JSY Beneficiaries		
Yes	132	48.5
No	140	51.5

*** Modified BG Prasad socioeconomic scale 2013

TABLE 2 DISTRIBUTION OF TOTAL OUT-OF-POCKET HEALTH EXPENDITURE ON VARIOUS ITEMS DURING RECENT DELIVERY

Incurred Health Expenditure Category	Mean ± SD (in Rs)
Direct Health Expenditure (Medicines, Diagnostics, Hospital Charges)	623.71± 63.9
Indirect Health Expenditure (Transportation, diets, hiring of care providers, unofficial tips)	974.82 ± 88.3
Direct Non-Medical Expenditure (Wages lost during hospital stay)	508.11 ± 73.45
Total out of pocket expenditure (adjusted for JSY beneficiaries)	1406.04 ± 103.27

TABLE 3 UNI-VARIATE AND MULTIVARIATE ANALYSIS OF FACTORS ASSOCIATED WITH CATASTROPHIC OUT-OF-POCKET HEALTH EXPENDITURE DURING DELIVERY

Variables		Out-of-pocket health expenditure		Unadjusted OR (95% CI)	Adjusted OR (95% CI)
		Non-catastrophic (n=222)	Catastrophic (n=50)		
Religion	Hindu	37(18.2)	166(81.8)	1.04(0.51-2.09)	-
	Non-Hindu	13(1.8)	56(81.2)	REFERENCE	
Social Class	OBC	25(18.9)	107(81.1)	1.17(0.62-2.21)	-

	SC/ST	2(6.1)	31(93.9)	4.24(0.94-19.06)	-
	General	23(21.5)	84(78.5)	REFERENCE	
Employment Status of RDW	Employed	14(17.3)	67(82.7)	1.11(0.56-2.19)	-
	Unemployed	36(18.8)	155(81.2)	REFERENCE	
Educational status of head of family	Up to high school	27(12.6)	188(87.4)	4.71(2.42-9.16)	1.3(0.56-3.44)
	More than high school	23(40.4)	34(59.6)	REFERENCE	
Socioeconomic Status**	Upper lower & below	10(4.8)	197(95.2)	31.52(14.04-70.73)	22.40(9.44-53.15)
	Middle and above	40(61.5)	25(38.5)	REFERENCE	
Place of delivery	Tertiary hospitals/secondary health care facility	6(5.3)	108(94.7)	6.94(2.84-16.93)	1.96(0.25-14.55)
	Primary health care facility	44(27.8)	114(72.2)	REFERENCE	
Residence	Outside catchment area of delivery point	4(3.3)	119(96.7)	13.28(4.62-38.16)	13.07(1.58-116.55)
	Within the catchment area of delivery point	46(30.9)	103(69.1)	REFERENCE	