



# Assessment of Out of pocket expenditure among beneficiaries of Janani Shishu Suraksha Karyakram in rural areas of Jabalpur district, India

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## ABSTRACT

### Introduction

Income disparity is a huge issue in a country, majority of the poor people in our country is at the base of pyramid, richest being on the top. Government of India launched Janani Shishu Suraksha Karyakram (JSSK) scheme throughout country to further enhance the institutional delivery and reduce the out of pocket expenses.

### Objective

To determine Out of Pocket Expenditure among the beneficiaries of Janani Shishu Suraksha Karyakram living in rural area of Jabalpur and analysing different component of it with respect to Out of Pocket Expenditure incurred.

### Material and methods

A total of 400 beneficiaries was enrolled in the study. Multistage random sampling was used for selection of study participants. Out of the 7 blocks in Jabalpur district 2 blocks were selected. House to house visit was conducted to collect data regarding Monetary expenditure incurred by the household on delivery.

### Results

Majority of the them had incurred expenditure during antenatal and Intranatal care and median expenditure was INR 350 (4.63 USD) and INR 400(5.3 USD) respectively. About 30 % mothers incurred expenditure on medicine during hospitalization and the median cost for that was INR 350 (4.63 USD). Almost 80 % mothers had Direct Cost Out of Pocket Expenditure for one or more components like travel, food, medicine during hospitalization and the median cost was INR 400 (5.30 USD). **Conclusion** -Though the Out of Pocket Expenditure has been reduced comparing it from the data of NFHS-4 but poorest of the society is still suffering from the load of unexpected expenditure of maternal health care.

**Key-words:** Out of Pocket, Expenditure, JSSK, Delivery, Antenatal, Intranatal.

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## INTRODUCTION

In developing country like India the cost of healthcare is a major determinant of maternal care utilization and satisfaction with institutional delivery care. Public sector health delivery system in India is still been sporadic in providing adequate health care especially for the poor. The low economic conditions and their limited reach has cornered the poorest from the private sector facilities. The public health facilities are the last resort for these poorest population in our country. Income disparity is a huge issue in a country, majority of the poor people in our country is at the base of pyramid, richest being on the top.

India has one of the highest Out-Of-Pocket Expenditure (OOPE) in the world and even higher than many developing countries in Africa and Asia which have lower economy size and economic growth [1]. WHO reports that "almost 86% of total healthcare expenditure in India involves OOPE incurred by households. The estimates from the Ministry of Health and Family Welfare (MoHFW), Government of India, also suggest that this figure could be around 71%" [2].

To overcome this problem, Government of India launched Janani Shishu Suraksha Karyakram (JSSK) scheme throughout country to further enhance the institutional delivery and reduce the out of pocket expenses for families of all pregnant women in the public sector facilities. JSSK provides free and cashless delivery in the public sector institutions [3-4]. Even after so many intervention regarding the Maternal health care many report suggests high OOPE in public health facilities. As per NSSO 71st round report, in India, mothers are paying money for institutional delivery at public health sectors at an average of INR 1587 in rural areas and INR 2171 in urban areas [5]. As per NFHS-4 Out of pocket expenditure per delivery in public health facility in India, Madhya Pradesh and Jabalpur district was 3198, 1387 and 1336 INR in 2015-16 respectively [6-7]

### Objectives

1. To Estimate Out of Pocket Expenditure among the beneficiaries of JSSK living in rural area of Jabalpur.
2. To analyse different components of JSSK with respect to Out of Pocket Expenditure incurred.

## Material and methods

### Study design

It was a descriptive Cross sectional study done in the rural areas of Jabalpur district.

### Study duration

Study started from March 2019 to Feb 2020.

### Sample size

A sample of 385 was acquired using the formula  $z^2pq/l^2$ . Where p was 50 %, it was assumed percentage of out of expenditure done by the beneficiaries during childbirth in public hospitals in rural area. 5 % was considered as allowable error. A total of 400 sample was taken to avoid the drop outs.

### Study participants

The women who were permanent resident, had delivered live child in public health facility in the past 1 year or who had registered in Anganwadi centre as well as sub health centres of that area were included in the study. Women who did not found at home or house was found locked on two repeated visits were excluded from the study.

### Study setting

Multistage random sampling was used for selection of study participants. Out of the 7 blocks in Jabalpur district 2 blocks were purposively selected based on the past year performance, in terms of Institutional deliveries in public health facilities to total deliveries. One was best performing block- Sihora and other was low performing block – Panagar. Then from each block 2 sub health centre was selected, from each sub health centre 2 village were selected randomly. After the selection of village 20 eligible participants were selected using lottery method after getting the list from anganwadi worker of the village.

### Data sources

House to house visit was conducted to collect data using predesigned, pretested semi-structured questionnaire regarding Monetary expenditure incurred by the household for accessing and receiving institutional care for child birth at government facility under JSSK were collected.



Relevant records and money receipt whichever available were reviewed during data collection. All the costs were expressed in Indian National rupee (INR). Data obtained was coded and entered using Microsoft office excel 2016. Collected data was checked for its completeness and correctness before analysis.

### Statistical analysis

Data was finally tabulated, analysed and interpreted by using IBM Statistical software for Social sciences (SPSS 20). Median, Range, Interquartile range was used to determine the out of pocket expenditure in beneficiaries. All the costs were measured in Indian Rupee (INR) for the year 2020 (Conversion rate 1\$ =75.47 INR for July 1, 2020).

### Ethical Permission

Ethical Permission was taken from the ethical committee of Institution. Purpose of the study was clearly explained to the study participants before commencing interview and Informed Verbal Consent was obtained from study participants.

### Operational definition

**I. Direct cost** - Cost of transport, food, drugs and consumables, charges for admission, stay and investigations, informal payment and as well as charges for blood transfusion were included as direct costs/out-of-pocket expenditure (OOPE)<sup>[3]</sup>.

**II. Indirect cost** - Charges paid for staying, food and loss of wages of the accompanying person

were considered in the present study as indirect costs<sup>[3]</sup>.

**III. Out of pocket expenditure** - OOPE was defined as the costs incurred by a family towards childbirth and post-natal care (up to 3 days for normal delivery and 7 days for caesarean section) under various heads including user charges, diagnostics, drugs and consumables including provision for blood transfusion, normal and operative deliveries, diet, and transport<sup>[3]</sup>.

OOPE due to neonatal sicknesses was defined as the costs incurred by a family towards neonatal sicknesses under various heads including user charges, diagnostics, drugs and consumables including provision for blood transfusion, and transport while availing the government facilities.

### RESULT

A total of 400 beneficiaries were enrolled in the study, the mean (SD) age of the mothers was 23.95(±2.52) years. The minimum age among the mothers was 18 years and the maximum was 32 years. Most of the mothers were of Young age group. Regarding educational level of the beneficiary's illiteracy was low, most of them had education upto primary school. So far the occupation was concerned, majority were housewives. The Caste wise distribution shows that Other Backward Classes, scheduled caste, Schedule tribe constitute almost 97.5 % of sample size. Religion wise most of the mothers were Hindu. Majority of them were in lower middle class and lower class as per BG Prasad Classification. [Table.no.1.]

**Table 1: Socio demographic variables wise distribution of beneficiaries.**

Demographic variables		Frequency (%)
Age (in years)	Mean age (SD)	23.95(±2.52)
	18-25	288 (72)
	>25	112 (28)
Education of Study participant	Illiterate	18 (4.5)
	Primary school	145 (36.25)
	Middle school	162 (40.5)
	High school and Above high school	75 (18.75)
Occupation	Housewife	340(85)



	Unskilled worker	60(15)
Husband's occupation	Unemployed	3(0.75)
	Unskilled worker	201(50.25)
	Semiskilled	63(15.75)
	Skilled	19(4.75)
	Others*	114(28.5)
Caste	General	10(2.5)
	Other backward class	206(51.5)
	Scheduled caste	87(21.75)
	Scheduled tribe	97(24.25)
Type of family	Nuclear	195(48.75)
	Joint	205(51.25)
Socioeconomic status	Upper middle Class (II)	24(6)
	Middle Class (III)	57(14.25)
	Lower middle Class (IV)	189(47.25)
	Lower Class (V)	130(32.5)

\* =Farmer (97), Shopkeeper (17)

Majority of the them had incurred expenditure during antenatal and Intranatal care and median expenditure was INR 350 (4.63 USD) and INR 400(5.3 USD) respectively. Over all more than three fourth of the mothers (76.75 %) had out of pocket expenditure during ANC check-ups while 80% had during delivery. During ANC the minimum amount spent was 20 INR (0.26 USD)

and the maximum was 2000 INR (26.50 USD). Whereas during Intranatal period the minimum amount spent was 20 INR (0.26 USD) and maximum amount was 4000 INR (53 USD). The mean OOPE among JSSK beneficiaries during antenatal period was INR 450 (5.96 USD). [Table.no.2]

**Table2:Out of pocket expenditure incurred during antenatal and intranatal period by beneficiaries.**

Parameter	During ANC period n=307	During intranatal period n=320
Mean OOPE In INR(USD)	450.39 (5.96)	528.10 (6.99)
Median In INR (USD)	350 (4.63)	400 (5.30)
IQR In INR (USD)	200 (2.65)	160 (2.12)
Range In INR (USD)	20– 2000 (0.26-26.50)	20 – 4000 (0.26-53)

Spending on diagnostic was highest followed by medicine among JSSK beneficiaries during antenatal period. This might be due to lack of basic laboratory services and equipment and lack of

proper infrastructure at public health care facilities. Only very small proportion was constituted by transport. [Table.no.3].



**Table 3: Component wise distribution of Out-of-Pocket Expenditure (OOPE) incurred by beneficiaries during antenatal period (n=307)**

S.No	Items on which cost incurred	Median in INR (USD)	IQR in INR (USD)	Range in INR (USD)
1.	Transport	50 (0.66)	60 (0.79)	20-450 (0.26-5.96)
2.	Drugs	600 (7.95)	420 (5.56)	100-900 (1.32-11.92)
3.	Diagnostics	770 (10.20)	680 (9.01)	200-1100 (2.65-14.57)
	Total	350 (4.63)	200 (2.65)	20-2000 (0.26-26.50)

Nearly one third mothers incurred expenditure for admission and stay at the time of delivery in government facilities. mothers incurred expenditure on medicine during hospitalization and on diagnostic. Though there has been expenditure on informal payments too. Spending

on food other than JSSK available food was done by 70% of the mothers during hospitalization and the median cost for this was low i.e. INR 60 (0.79 USD). Only 5 (1.25%) mothers said that they had paid for blood transfusion at the time of delivery. [Table.no.4]

**Table 4: Component wise distribution of Out-of-Pocket Expenditure (OOPE) incurred by beneficiaries at the time of delivery.**

Sno	Component of JSSK on which cost incurred	N (%)	Median in INR (USD)	IQR in INR (USD)	Range in INR (USD)
1.	Transport (To and Fro)	60(15)	200 (2.65)	150-300 (1.98-3.97)	50-1300 (0.66-17.22)
2.	Diet	280(70)	60 (0.79)	40-170 (0.53-2.25)	25-700 (0.33- 9.27)
3.	Drugs and Consumables	117(29.25)	350 (4.63)	250-800 (3.31-10.60)	150-1400 (1.98-18.55)
4.	Diagnostics	47(11.75)	350 (4.63)	200-900(2.65-11.92)	100-1500 (1.32-19.87)
5.	Blood	5(1.25)	1050(13.91)	0 (0)	1050 (13.91)
6.	Informal payments*	35(8.75)	300 (3.97)	200-600 (2.65-7.95)	100-1000 (1.32-13.25)
7.	During admission, stay, discharge	119(29.75)	200 (2.65)	150-250 (1.98-3.31)	50-400 (0.66-5.3)

*\*Informal payment comprised of Cash or gift given to hospital staff*

As far as direct expenditure at the time of delivery was concerned, among those who delivered in public/government facility, almost 80 % mothers

had OOPE for one or more components like travel, food, medicine during hospitalization and the median cost was INR 400(5.30 USD). While indirect



cost of expenditure was INR 250(3.31 USD). Above table depicts burden of out-of-pocket expenditure incurred by mothers in public facilities according to type of delivery i.e., normal or C-section

delivery. The median cost of expenditure for C-section delivery was almost two and half times more than normal delivery [Table.no.5]

**Table 5: Type of cost and mode of delivery wise distribution of Out of Pocket Expenditure (OOPE) incurred by beneficiaries at the time of delivery.**

Sno	Cost type	N (%)	Median in INR (USD)	IQR in INR (USD)	Range in INR (USD)
1.	Total Direct cost	320(80)	400 (5.3)	300-460 (3.97-6.09)	20-4000 (0.26-53)
2.	Indirect cost	280(70)	250 (3.31)	150-1200 (1.98-15.90)	100-1400 (1.32-18.55)
	Type of Delivery		Median in INR (USD)	IQR in INR (USD)	Range in INR (USD)
1.	Normal Delivery	280 (70)	400 (5.3)	100 (1.32)	20-2200 (0.26-29.15)
2.	Caesarean section	40 (10)	1000 (13.25)	300 (3.97)	100-4000 (1.32-53)
	<b>Total</b>		400 (5.3)	160 (2.12)	20-4000 (0.26-53)

Out of all beneficiaries 80 % mothers spent money during their stay at the time of delivery who went to various health facility whereas mothers who opted medical college and district hospital for institutional delivery, almost 100 % of them incurred expenditure in one or other components

of JSSK during hospitalization. The median cost was also highest in medical college followed by district hospital. Median cost of expenditure in PHC, CHC and Civil hospital was same. [Table.no.6]

**Table 6: Out of pocket expenditure incurred by beneficiaries according to place of delivery**

Sno	Place of Delivery	N (%)	Median in INR (USD)	IQR in INR (USD)	Range in INR (USD)	Mean in INR (USD)
1	SHC	11(2.75)	200 (2.65)	150 (1.98)	100-500 (1.32-6.62)	235.71 (3.12)
2	PHC	27(6.75)	400 (5.3)	75 (0.99)	50-1000 (0.66-13.25)	414.06 (5.48)
3	CHC	43(10.75)	400 (5.3)	300 (3.97)	100-800 (1.32-10.60)	486.58 (6.44)
4	Civil hospital	116(29)	400 (5.3)	50 (0.66)	150-1100 (1.98-14.57)	420.92 (5.57)
5	District hospital	42(10.5)	500 (6.62)	150 (1.98)	100-1700 (1.32-22.52)	597.28 (7.91)
6	Medical college hospital	81(20.25)	600 (7.95)	300 (3.97)	100-4000 (1.32-53)	816.21 (10.81)
	<b>Total</b>		400 (5.3)	160 (2.12)	20-4000 (0.26-53)	528.10 (6.99)



## DISCUSSION

The present study was carried out in the rural areas of Jabalpur district to determine out of pocket expenditure (OOPE) for the beneficiaries of JSSK scheme. In the present study almost 80 % of mothers had OOPE during the Intranatal period with a median of 400 INR (5.3 USD) and 76 % of mothers had OOPE with a median of 350 INR (4.63 USD) during the antenatal period.

Our study had determined a comparatively low OOPE in comparison to **NFHS-4** data of Madhya Pradesh where Average out of pocket expenditure per delivery in public health facility was 1481 INR (19.62 USD) [7]. While study done by **Issac A et al**, who had reported The OOPE varying from INR 680 to 970 (9.01 to 12.85 USD) [8]. While **Modugu HR et.al** and **Govil D et al** had reported much higher OOPE among mothers during delivery in public institutions [9-10]. **Tyagi et al** in Sirmaur Himachal Pradesh observed 68 % mothers had OOPE during ANC with median cost of 550 INR (7.28 USD) while 40 % of mother had OOPE during delivery with median cost of 210 INR (2.78 USD) in public institution [11].

In our study mothers had received many free benefits under the JSSK scheme but components like diagnostic and drugs during antenatal period and components like admission/stay, drugs and consumables, diets and informal payment during intranatal period had majorly affected the purse of beneficiaries. Similarly, **Tyagi U et al** in Sirmaur Himachal Pradesh and **Chandrakar A et al** had reported that the majority of beneficiaries had OOPE in Consumables, Diet, Drugs in range from 60- 300 INR (0.79- 3.97 USD) [11-12]. But the components like Drugs and diagnostics had comparatively more impact on the purse of beneficiaries in the range of 254- 550 INR (3.36 - 7.28 USD). Both the studies had not reported any expenditure in hospital stay/ admission which was present in our study; this might be due to the more overburden of public hospitals in this part of the state Madhya Pradesh. Studies done by **Sharma S et al** and **Shukla M et al** reported huge OOPE occurring in components like drugs, diagnostics and informal payments [13-14].

In this study majority of the mothers got the transport benefits from home to hospital but

however OOPE had incurred among those beneficiaries who had not called for 108 services or those who called but not got any response from call centre or those beneficiaries for whom 108 ambulance reached late after calling. In the present study, the median expenditure incurred for transport was INR 200. The coverage evaluation survey (**CES 2009**) report 192 INR (2.54 USD) estimated mean expenditure for transporting a pregnant woman to facility in India which is similar to the present study [15]. **Issac A et al** also found OOPE of 130 INR (1.72 USD) incurred during transportation in public health facilities [8]. While **Tyagi U et al** reported higher median cost for transport either to or from the facility, this might be due to hilly terrain and poor accessibility of health facilities in Sirmaur district Himachal Pradesh [11]. The possible reason for low OOPE on transport in the present study might be due to the facility of a tertiary care centre near the study area. In present study OOPE incurred in public health facilities was more as direct cost as compared to indirect cost similar findings were noted in **Chandrakar A et al** and **Tyagi et al** [11-12]. The median cost of expenditure for caesarean-section delivery was almost two and half times more than normal delivery in present delivery, Similar to this **Chandrakar A et al** found that significant difference of four times was observed in out of pocket expenditure incurred by mothers in public facilities according to type of delivery i.e. normal or C-section delivery [12]. A study done **Modugu et al** in the year 2012 reported the large interstate variations of mean OOP expenditure of normal delivery in a public health institution with ranges from 381- 3984 INR (5.04 - 52.78 USD) with a national average of 1624 INR (21.51 USD) while Mean OOPE for C-section in a public institution was 5935 INR (78.64 USD), ranging from 678 - 13165 INR (8.98 -174.44 USD) [9]. This finding is in contrast to the present finding, the possible reason could be due to proper implementation of JSSK in public facilities which reduces the OOPE during C section delivery.

Findings of **previous studies** suggest higher median cost of OOPE in higher centre similar to the present study which reported that the highest median cost of expenditure in medical college this may be due to usually more complicated cases





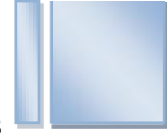
admitted and undergone LSCS which gave rise to increase duration of stay in hospital which in turn increases out of pocket expenditure [9,13,14,16]. While in rural health care facility, normal deliveries rate was high so for them duration of stay was less which ultimately gave rise to low median cost of expenditure.

### CONCLUSION

Though the OOPE has been reduced compared to the data of NFHS-4 but poorest of the society is still suffering from the load of unexpected expenditure of maternal health care. Components

like drugs, Consumable and diagnostic are still causing major OOPE among the beneficiaries. Transportation, admission/stay and Diet facilities need to be strengthened, as this would considerably reduce beneficiary expenditure. Illegal activity in the form of informal payment should be monitored and notified to hospital administration. A special audit regarding the performance of JSSK should be performed by the third party or neutral organisation to bring new amendments from time to time in order to reduce OOPE





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