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Original Research Article

Community & Facility-based Study on Estimation of Out-of-Pocket Expenditure (OOPE): A Cross-sectional Analytical Study from Western India

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ABSTRACT

Introduction: Janani Shishu Suraksha Karyakram (JSSK) is a key program for increasing the institutional delivery. This program is a boon for pregnant women who still deliver at home as well as for sick neonates who die on account of poor access to health facilities. Thus, current cross sectional analytical study was conducted to assess any Out-of-pocket expenditure (OOPE) by beneficiaries of JSSK.

Methodology: 400 rural & urban beneficiaries of JSSK were enrolled from western part of India. Informed consent was sought & data about demographic profile, JSSK utilization & OOPE was collected in pre tested semi structured proforma.

Results: Mean age of the beneficiaries was 24.87 years. 29.25% had to pay money availing the services. Most of the OOPE was for drugs & consumables. Age, age at marriage, religion, place of delivery, family size, having RSBY card, type of delivery, parity were predictors of OOPE among JSSK beneficiaries.

Conclusions: Approximately 70% of beneficiaries received support through JSSK, yet around 30% still incurred expenses for healthcare services, highlighting the financial challenges faced.

Key words: JSSK, OOPE, Beneficiaries

INTRODUCTION

Janani Shishu Suraksha Karyakram (JSSK) is a significant government program aimed at promoting institutional delivery and improving access to healthcare for pregnant women and sick neonates in India.[1] While the program has led to a notable increase in institutional deliveries, out-of-pocket expenses incurred by pregnant women and their families remain a major barrier to accessing healthcare services. Several factors contribute to out-of-pocket expenses, including user charges for OPD visits, admissions, diagnostic tests, and purchasing medicines and consumables from the market. The cost of a caesarean operation can be particularly burdensome, and the non-availability of dietary provisions in many healthcare institutions further compounds the financial challenges.[2]
The implications of these out-of-pocket payments are substantial, as they prevent pregnant women and children from accessing institutional healthcare services, leading to an increased risk of delivering at home and inadequate care for sick neonates. Out-of-pocket spending in government

healthcare institutions is common and significant, partly due to weaknesses in supply chain management and malpractices.[3] Even in government settings, prescriptions can be expensive, including not just medicines but also consumables such as surgical gloves, syringes, intravenous sets, and cannula.[4] These financial barriers undermine the goals of the National Rural Health Mission (NRHM) to provide affordable, equitable, and accessible healthcare services.[5]

To address these challenges, the Indian government launched the JSSK program on June 1, 2011, to ensure free and cashless services for pregnant women and sick neonates accessing public health institutions. The program encompasses entitlements such as free drugs, consumables, diagnostics, blood transfusions, and diet during the woman's stay, with similar provisions for sick newborns for up to 30 days after birth. Additionally, free transport is provided for referrals between facilities.[2]

Given the importance of understanding the out-of-pocket expenditure and utilization of services after the implementation of the JSSK program, a cross-sectional analytical study was conducted to evaluate these components. The study aimed to assess the impact of the program and shed light on the financial burden faced by pregnant women and their families in terms of OOPE.

MATERIALS AND METHODS

The present assessment study employed quantitative & qualitative research methodology in order to collect data from the beneficiaries regarding Janani Shishu Suraksha Karyakram. It was a community and facility based analytical cross-sectional study for the period of one year i.e., 2016 in urban & rural areas of the district. Ethics approval was taken before the commencement of the study from the ethics committee of the concerned institution. The ethics clearance letter no. is IEC/05/2015, IEC, dated 11/12/2015. Firstly, the participants of the study were explained in detail about the purpose of the study and then their written informed consent was taken before noting their response for study. They were assured of the confidentiality of their responses by the investigator. Sample size was 400 as calculated using a formula of $n=4pq/l^2$.[6,7] A study was carried out by identifying beneficiaries from different health care functionary levels who were enquired about the utilization of various benefits provided under JSSK. Out of total 400 study participants, 200 participants were selected from tertiary health care level attending well baby clinic and remaining 200 cases were selected from primary and secondary health care level (PHC, CHC). Among them, 100 participants were selected randomly from four CHCs and remaining 100 study participants were selected from total 8 PHCs randomly (two PHC per block). The register for beneficiaries is maintained at the peripheral health facilities. From which computer-generated numbers were taken to choose patients randomly. Data was collected in predesigned and pretested Performa which was tested prior through pilot testing on about 20 women. The data of pilot study was not included for further analysis. The study was carried out by undertaking house to house visits of the selected area in rural area. Women who delivered in last one year were included in the study. Social classification was done on the basis of modified Prasad's classification which was modified according to AICPI-IW (All India Consumer Price Index-Industrial Workers) of the year May 2016 using CPI-IW 19. Categorical values were expressed in percentage with 95% CI when appropriate. Continuous variables were expressed as mean with standard deviation (SD) or median with interquartile range (IQR) after checking for the normality. Univariate analysis was performed with chi-square test to find association between OOPE and predictor variables and expressed as odds ratio (OR). Variables with p value < 0.05 were considered as statistically significant.

RESULTS

63.75% beneficiaries were found to be in age group of 18-25 years with mean age of 24.87 (±3.934) years and range 19-39 years. Seven percentage of beneficiaries were married under the age of 18 years and 93% of beneficiaries were married above the age of 18 years with mean age of marriage as 19.13 (±1.523) years. 72.75% beneficiaries were Hindus. 52.25% beneficiaries had education up to primary education (Table-1). 64% of the participants belonged to OBC category, 22% were SC category and 12.25% belonged to general category. 97.75% beneficiaries were housewives while 2.25% were employees. 52% husbands of beneficiaries had taken education up to primary education while 25.25% were illiterate. In this study, 87.75 % of husbands of beneficiaries were unskilled workers. 58.25% women had a family size of 1 to 5. 54.75% study participants belonged to joint family while 3.25% belonged to nuclear family.

As per modified B J PRASAD'S classification May 2016, 53 % of study participants were found in class III (lower middle); while 36.25% were found in class IV (upper lower); followed by 5.5% and 5.25% in class V (lower) and class II (upper middle) respectively. 15.75% were BPL card holders whereas 16.5 % were RSBY card holders. 100% study participants utilized various antenatal services i.e., ANC visit, Injection Tetanus Toxoids and Tablet Iron and Folic Acid. 82.75% of deliveries was conducted at district/sub district hospitals followed by 13.5% at CHCs and 3.75% at PHC level. Out of 400 deliveries, 78.25% deliveries were normal deliveries and remaining 21.75% deliveries were Caesarean section. In the present study, 59.5% mothers were multi-gravid while 40.5% mothers were primi-gravid.

Table 1: Socio-demographic and ante-natal profile the beneficiaries (n=400)

Variable	Frequency (%)	Variable	Frequency (%)
Age group		**Age at marriage**	
18 to 25 years	255 (63.75%)	Less than 18 years	28 (7%)
More than 25 years	145 (36.25%)	More than 18 years	372 (93%)
Caste		**Socioeconomic Class**	
General	49 (12.25%)	Class II (3139-6276) Upper Middle	21 (5.25%)
Other Backward Classes	256 (64%)	Class III (1883-3138) Lower Middle	212 (53%)
Scheduled Castes	88 (22%)	Class IV (942-1882) Upper Lower	145 (36.25%)
Scheduled Tribes	7 (1.75%)	Class V (< 942) Lower	22 (5.5%)
Religion		**Occupation**	
Hindu	291 (72.75%)	Housewife	391 (97.75)
Muslim	109 (27.25%)	Employee	9 (2.25)
Education		**Occupation of husband**	
Graduate and above	7 (1.75%)	Clerical job/shop	15 (3.75%)
Secondary & Intermediate	37 (9.25%)	Owner/farmer	18 (4.5%)
Middle school	26 (6.5%)	Semi-professional	6 (1.5%)
Primary	209 (52.25%)	Skilled worker	10 (2.5%)
Illiterate	121 (30.5%)	Unskilled worker	351 (87.75%)
Place of delivery		**Type of family**	
PHC	15 (3.75%)	Joint family	219 (54.75%)
CHC	54 (13.5%)	Nuclear family	125 (31.25%)
District /sub district hospital	331 (82.75%)	Three generation family	56 (14%)
Family size		**Any card**	
1-5	233 (58.25%)	BPL card	63 (15.75%)
More than 5	167 (41.75%)	RSBY card	66 (16.5%)
Type of delivery		**Parity**	
Normal delivery	313 (78.25%)	Primipara	162 (40.5%)
Caesarean section	87 (21.75%)	Multipara	238 (59.5%)

Table-2 presents the distribution of beneficiaries (n=117) based on their expenditure and reimbursement status for various healthcare components. For outpatient department (OPD) visits and admissions, 17.9% of beneficiaries reported spending on these services, and none were reimbursed. In terms of drugs and consumables, 83.76% of beneficiaries incurred expenses, with no reimbursements, reflecting 100% unreimbursed cases. Similarly, for diagnostic tests, 33.33% of beneficiaries paid for the tests without any reimbursements. Interestingly, for blood-related expenses, such as blood tests or transfusions, 10.2% of beneficiaries incurred costs, all of whom were fully reimbursed. 4.27% of beneficiaries spent on diet-related needs, and all these expenses were reimbursed. Transport costs also played a role, with 29.05% of beneficiaries spending on transportation, among which only 23.52% were reimbursed, resulting in a significant proportion (76.47%) of transportation expenses going unreimbursed.

Table-2: Distribution of beneficiaries according to expenditure on various consumables (n=117)

Expenditure	Yes (%)	Reimbursed (%)	Not reimbursed (%)
OPD & Admission	21 (17.9%)	0	21 (100%)
Drugs & Consumables	98 (83.76%)	0	98 (100%)
Diagnostic tests	39 (33.33%)	0	39 (100%)
Blood	12 (10.2%)	12 (100%)	0
Diet	5 (4.27%)	5 (100%)	0
Transport	34 (29.05%)	8 (23.52%)	26 (76.47%)

Table-3 shows univariate analysis of JSSK utilization by the beneficiaries & OOPE incurred. Age group 18-25 had 2 times higher expenses than > 25 years. The reason might be younger age group women would be primipara & utilizing services for the first time whereas elder age group women would have been already enrolled to JSSK & have had better awareness. The age at marriage was also significant predictor for OOPE in JSSK utilization. In comparison to Schedule Tribe, there was less OOPE among schedule caste, OBC, & general caste; but the difference was not statistically significant. In comparison to social class II, classes III, IV & V incurred more amount as an OOPE while utilizing JSSK, but it was not statistically significant. Hindu patients spent 3.38 times higher money than Muslim religion. There was no significant association between OOPE & education of the beneficiaries, and occupation of the husband. Place of the delivery was an important predictor of OOPE. 3.68 times higher OOPE was seen in patients who delivered at CHC & 5.52 times higher OOPE was seen in patients who delivered at sub district hospital & district hospital including medical college. The possible reason could be that distance of CHC, sub district hospital, district hospital would be more than the PHC. Small family size beneficiaries had to pay 3.71 times more OOPE as compared to family who had 5 or more family members.

Those who had RSBY card had less OOPE than the BPL card; it might be due to all inclusions in RSBY card. There was less expenditure among beneficiaries who had normal delivery than who underwent caesarian section. Thus, age, age at marriage, religion, place of delivery, family size, having RSBY card, type of delivery, parity were predictors of OOPE among JSSK beneficiaries.

Table: 3 Distribution of study participants as per JSSK Utilization & OOPE incurred

Variable	OOPE		OR (95% CI)
	Yes	No	
Age group			
18 to 25 years	88	167	2.082 (1.287-3.372)
More than 25 years	29	116	P value = 0.0014
Age at marriage			
Less than 18 years	17	11	4.20 (1.9-9.3)
18 or more than 18 years	100	272	P value = 0.0001
Caste			
General	10	39	0.04 (0.01-0.33)
Other Backward Classes	60	196	0.04 (0.01-0.36)
Scheduled Castes	40	48	0.12 (0.01-1.01)
Scheduled Tribes	7	0	1 (P value > 0.01)
Socioeconomic Class			
Class II (3139-6276) Upper Middle	5	16	1, P value > 0.01
Class III (1883-3138) Lower Middle	67	185	1.16 (0.41- 3.29)
Class IV (942-1882) Upper Lower	63	82	2.46 (0.85-7.07)
Class V (< 942) Lower	9	22	1.31(0.37-4.66)
Religion			
Hindu	102	189	3.38 (1.86- 6.14)
Muslim	15	94	P value < 0.001
Occupation			
Housewife	115	276	1.46 (0.3- 7.13)
Employee	2	7	P value > 0.001
Education			
Graduate and above	1	6	1, P value > 0.001
Secondary & Intermediate	11	26	0.39 (0.04-3.67)
Middle school	13	196	2.51 (0.28-22.46)
Primary	55	154	0.47 (0.05-3.96)
Illiterate	37	158	0.71 (0.08-6.09)
Occupation of husband			
Clerical job/shop	2	13	1, P value > 0.05
Owner/farmer	4	14	0.54 (0.08-3.45)
Semi-professional	5	1	0.03 (0.01-0.42)
Skilled worker	13	47	0.56 (0.11-2.78)
Unskilled worker	93	258	0.43 (0.09-1.93)
Place of delivery			
PHC	10	5	1, P value < 0.001
CHC	19	35	3.68 (1.1-12.36)
District /sub district hospital	88	243	5.52 (1.84-16.61)
Type of family			
Joint family	82	137	1, P value < 0.001
Nuclear family	15	115	4.59 (2.51-8.39)
Three generation family	20	36	1.08 (0.58-1.99)
Family size			
1-5	92	141	3.71 (2.25-6.11)
More than 5	25	142	P value < 0.001
Any card			
BPL card	52	11	4.19 (1.86-9.42)
RSBY card	35	31	P value < 0.001
Type of delivery			
Normal delivery	73	240	0.3 (0.18-0.49)
Caesarean section	44	43	P value < 0.001
Parity			
Primipara	28	134	0.35 (0.22-0.57)
Multipara	89	149	P value < 0.001

DISCUSSION

In this present study, out of 400 participants, 17 (29.25%) had to pay money availing the services. In a study conducted by Janmenjoy Mondal et al,[8] they found that in government health facilities, the major expenditure was incurred for drugs and consumables, followed by transport and food. However, in a private facility the major expenditure was incurred for admission, stay, and investigations, followed by drugs and consumables. Indirect costs, such as costs for the stay of accompanying persons and loss of wages, were the highest in case of a medical college followed by a private health facility. In the study conducted by Kabita Barua et al,[9] they found that free delivery services were utilized by 83.2% beneficiary mothers. In the study conducted by Uvi Tyagi et al,[10] they found that among 156 mothers surveyed 93 (60%) mothers received all JSSK benefits during hospitalization and 29 (19%) received full benefit for transport while only 23 (15%) mothers were fully benefitted during stay and transport; the proportion of mothers who received diagnostics, drugs and consumables was 96%, 86% and 64% respectively. All mothers received user fee exemption, blood transfusion but however majority of the mothers did incur out of pocket expenditure on consumable, drugs, diagnostics and transport. Overall, 63 (40%) mothers had OOP expenditure for one or more components during hospitalization i.e., diagnostics, drugs and consumables. In the present study we observed that 98.75% were provided free diet during their hospital stay.

In the present study, out of 400 study participants, 150 (37.5%) demanded for transport services, among which 26 (17.33%) demanded for home to health care facility; 93 (62%) demanded for drop back to home and 31 (20.67%) demanded both for home to health care facility & drop back to home. Out of 93 study participants who demanded for drop back to home service, 13 study participants paid for transport and of them only 2 were reimbursed. Out of 31 (20.67%) study participants who demanded for both home to health care facility & drop back to home service, 4 had

paid for transport and of them 2 were reimbursed. In the study conducted by Rifat Jan et al,[11] they found that that out of 203 study participants, 51.7% of women were provided free ambulance services from home to facility while 48.3% had to use either their own vehicle. Free ambulance service from facility to home was provided to 68.2% of women. In the study conducted by R. C. Goyal et al,[12] they found that among the mothers who were aware, 84.21% demanded for the free referral transport services from PHC Nachangaon in Deoli block and 100.00% in PHC Talegaon in Wardha block.

In a study by Manikanta et.al,[13] factors like homemaker mothers (OR:1.6; 95% CI:0.4, 5.6), Hindu religion (OR:1.6; 95% CI:0.8, 3.5), adequate antenatal checkups (OR:1.4; 95% CI:0.6, 3.0), only private antenatal checkups (OR:1.1, 95% CI:0.5, 2.6), multiparity (OR:1.2; 95% CI:0.7, 2.0), high-risk pregnancy (OR:1.7, 95% CI:0.7, 4.1), unaware about JSSK (OR:1.5; 95% CI:0.7, 3.3) did not have any association in univariate analysis.

CONCLUSIONS

About 30% of patients availing benefits under JSSK program had to pay for one or more services. Out-of-pocket expenditure for drugs, consumables, diagnostics, and transport was significant, with limited reimbursements. Variations in expenses based on factors like age, religion, and facility type were observed. Program evaluation is needed to reduce financial burden and enhance affordability of healthcare services under the JSSK program.

Limitations of the study

Sample size, self-reported data, cross-sectional design, and lack of comparison group could be limitations of the study. The study focused on a specific region in western India, which may limit the generalizability of the findings to other geographical areas. Acknowledging these limitations is crucial to interpreting and contextualizing the study findings accurately. Future research should aim to address these limitations to enhance the validity and generalizability of the results.

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