

Research Article

Factors influencing the utilization of free delivery care under Janani Shishu Suraksha Karyakram in Kamrup district, Assam, India

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ABSTRACT

Background: Janani Shishu Suraksha Karyakram (JSSK) was initiated in 2011 to reduce the out of pocket expenditure incurred by pregnant women and sick neonates accessing public health facilities in India. Aim of the study was to assess the factors influencing utilization of free delivery care under JSSK among beneficiaries in rural areas of kamrup district in Assam, India.

Methods: A cross-sectional study with multistage random sampling design was conducted in rural Kamrup from August 2013 to July 2014 among 387 mothers with infants. They were interviewed using a pre-designed and pre-tested semi-structured interview schedule. Statistical analysis used: Chi-square, Odds ratio (OR) and logistic regression.

Results: Utilization of free delivery care under JSSK was 83.2% among the beneficiaries. Factors significantly associated with utilization of free delivery, after bivariate logistic regression, were education, age, socioeconomic status, early registration and parity. On multivariate logistic regression, considering all variables, age group below 25 years (OR=2.3; Confidence Interval= 1.33-3.99), Socio-economic class III and below (OR=2.27; CI= 1.32-3.88), early registration (OR=4.3; CI= 2.47-7.56) and single parity (OR=2.08; CI=1.19-3.63) were found to be predictors for utilization of the services.

Conclusions: The majority of beneficiary mothers in the rural areas had received 'free delivery' care under JSSK available in the public health facilities. However utilization of the benefit was not achieved universally among all the mothers. There should be focussed action at grass-root level to motivate the multipara and older pregnant women in the rural areas to utilize the services to enhance pregnancy outcome.

Keywords: Healthcare services, Delivery care, Pregnancy

INTRODUCTION

India has witnessed remarkable success in terms of reducing both maternal and child mortality over the last few decades. However, the levels are still high compared to that of any developed nation. United Nations (UN) estimates suggest that in 2013, India contributed to 17% (5000) of the world's maternal deaths.¹ Current estimates in Maternal Mortality Ratio (MMR), (2011-2013) point

out that MMR of India is 167 with Assam having the dubious honour of having the highest MMR in the country at 300.²

Approximately 80 per cent of all maternal deaths can be averted if women have access to essential maternity and basic health care services.³ Government of India initiated several programmes to promote institutional deliveries with the goal of reducing maternal mortality. Among

them Janani Suraksha Yojana (JSY) a conditional cash transfer scheme launched in 2005 under National Rural Health Mission (NRHM) led to 8% increase in institutional deliveries between 2004 and 2008.⁴ Janani shishu suraksha karyakram (JSSK) was initiated in India on 1st June 2011 to further enhance institutional deliveries and reduce the out of pocket expenditure incurred by pregnant women and sick neonates accessing public health institutions.⁵

Currently JSSK provides cashless benefits (including free delivery) to pregnant women and sick infants in public health facilities across the country.⁶

Institutional deliveries in Assam increased from 57.7% in 2010-11 to 60.8% in 2011-12 and 65.9% in 2012-13 after implementation of JSSK.⁷⁻⁹ Despite the significance of institutional deliveries in enhancing pregnancy outcome, however, data in 2011-12 reflects that institutional deliveries were only 60.8% in the rural as against 81.5% in the urban areas of Assam.⁸

Therefore, we conducted a study among beneficiaries in rural areas of Kamrup district in Assam regarding their awareness about free delivery care under JSSK in public health facilities and also factors influencing its utilization.

METHODS

Study type, study area and study population

There are 12 health blocks in Kamrup district of western Assam. A community-based cross sectional study was undertaken in rural areas of three health blocks of Kamrup from August 2013 to July 2014 among 387 mothers with infants.

Eligibility criteria: mothers who had delivered within the past one year prior to the study and were residents of the study area. Subjects were selected after obtaining verbal and written informed consent.

Sample size and sampling design

As per Annual Health Survey (2010-11) in Assam, utilization of delivery care in rural areas of Kamrup district was 68.8%.⁷ Assuming an expected utilization of delivery care of 68.8% ($P=68.8\%$) and with 95% confidence interval and 7% permissible error (E) of P and applying the formula $4 Pq/E^2$, the minimum sample requirement was 373. A multistage sampling design was adopted.

A total of twelve health blocks in Kamrup was the first stage unit out of which 3 were randomly selected. List of villages in the blocks were obtained as second stage units. From the list, 43 villages were selected by simple random sampling. To get desired sample of 373 mothers, nine sample units were required from every village finally giving a sample size of 387. List of mothers (who

delivered in the past one year) in a village was obtained from the Accredited Social Health Activist (ASHA); from the list, sample units were selected by simple random sampling.

Ethical clearance and data collection

The study proposal was approved by the Institutional Ethics Committee. Data collection was done through house to house visits and interview of mothers using a pre-designed and pre-tested semi-structured interview schedule.

For calculating socio-economic status, B.G.Prasad's classification (modified for October 2013) was used.¹⁰ The dependent variable was utilization of free and cashless delivery (including caesarean section) under JSSK.

Among different independent socio demographic variables were

Maternal age, religion, education, socioeconomic status, caste, parity status and timing of ante-natal registration.

Statistical analysis

Data entry and analysis were done using SPSS for Windows software (Version 20.0; SPSS Inc, IL, Chicago, US). P value < 0.05 was considered statistically significant.

Proportions were calculated, Chi-square test was used to test significance of difference between proportions. Bivariate and Multivariate logistic regression was applied to find out the predictors of utilization of free delivery services. Results were expressed in terms of percentages, Odds ratio (OR) and Confidence Interval (CI).

RESULTS

Study subjects

Out of the 387 respondents, majority (36.7%) were in the age group 20-24 years. More than half of the mothers i.e. (51.2%) were Hindus and (51.4%) had two/more children.

Majority i.e. (31.8%) belonged to Scheduled Tribe (ST) and (32.8%) were educated up to primary school. Majority i.e. 39.3% belonged to socioeconomic class IV (Table 1).

Awareness and utilization of free delivery services under JSSK

88.1% of the respondents were aware of Free Delivery, the flagship entitlement under JSSK. In those aware, majority i.e. 89.4% reported initial source of their information as the Accredited Social Health Activist

(ASHA) or the Auxiliary Nurse and Midwife (ANM). Print media/ wall paintings at health facility played a minimal role in generating awareness in 1.5% of the cases. Place where majority (47%) initially heard about

the services was the health centre. Free Delivery services were utilized by 83.2% beneficiary mothers as shown in (Table 2).

Table 1: Distribution of the respondents (n=387) as per the socio demographic variables.

Particulars	Total Respondents (n=387)		
	Number	Percentage (%)	
Maternal age(years)	<20	27	7
	20-24	142	36.7
	25-29	136	35.1
	30-34	66	17.1
	>=35	16	4.1
Religion	Hindu	198	51.2
	Muslim	141	36.4
	Christian	48	12.4
Caste	Scheduled Caste	97	25.1
	Scheduled Tribe	123	31.8
	OBC	87	22.5
	General	80	20.7
Education	Illiterate	89	23
	Up to Primary	127	32.8
	Middle to High	109	28.2
	Above High School	62	16
Socioeconomic Status*	Class I	30	7.8
	Class II	38	9.8
	Class III	143	37
	Class IV	152	39.3
	Class V	24	6.2
Parity	Single	188	48.6
	Two/more children	199	51.4
	Total	387	100

*According to BG Prasad's Classification updated for October 2013.¹⁰

Table 2: Awareness and utilization of free delivery services by respondents (n=387).

Particulars	Number	Percentage
Awareness about free delivery services (n=387) Yes	341	88.1
(i) Initial source of information (n=341)		
ASHA/ANM	305	89.4
Print media/TV/Radio/Wall paintings at health facility	5	1.5
Relatives/neighbour	31	9.1
(ii) Place where initially heard (n=341)		
VHND* session-site	142	41.6
Health centre	160	47.0
Own health/other	39	11.4
Utilized 'free delivery' (n=387)Yes	322	83.2

*Village Health and Nutrition Day.

Socio demographic factors influencing utilization of free delivery services under JSSK

Majority of the mothers who utilized free delivery were aged between 20-24 years (40.37%), had single parity (51.55%), early registration (80.74%); education up to

primary standard (36.95%) and were in socio-economic Class III (44.41%).

Associations between the utilization and age, parity, early registration for antenatal check-up (ANC), education and socioeconomic status were found statistically significant.

Caste and religion had no statistically significant associations with utilization (Table 3).

On bivariate logistic regression, significant relation was found between utilization of the services and age (OR=2.51; CI=1.342-4.701), parity (OR=2.38; CI=1.263-4.505), early registration of pregnancy (OR=2.27; CI=1.139-4.509), education (OR=1.98; CI=1.065-3.688) and socioeconomic class (OR=2.48; CI=1.348-4.571).

The influence of caste and religion was not significant. At multivariate level, age (OR=2.307; CI=1.331-3.999), parity (OR=2.08; CI=1.19-3.635), early registration (OR=4.325; CI=2.471-7.568) and socioeconomic class (OR=2.267; CI=1.321 - 3.888) continued to be significant variables indicating that younger age, single parity, early registration of pregnancy and belonging to lower socio economic class could positively influence the utilization of the services (Table 4).

Table 3: Select socio demographic variables of the respondents with and without utilization of free delivery services under JSSK.

Variables	Utilization of free delivery		Chi square; P value
	Yes N=322 Number (%)	No N=65 Number (%)	
Age in years less than 20	27(8.38)	0(0)	$\chi^2 = 30.2$; P<0.001*
20-24	130 (40.37)	12 (18.46)	
25-29	95 (29.50)	41 (63.0)	
30-34	56 (17.39)	10(15.38)	
>=35	14 (4.34)	2 (3.07)	
Caste			$\chi^2 = 2.5$; P>0.05
SC	82 (25.46)	15 (23.07)	
ST	97 (30.12)	26 (40.0)	
OBC	74 (22.98)	13 (20.0)	
General	69 (21.42)	11 (16.92)	
Religion			$\chi^2 = 1.5$; P>0.05
Hindu	167 (51.86)	31 (47.69)	
Muslim	118 (36.64)	23 (35.38)	
Christian	37 (11.49)	11 (16.92)	
Parity			$\chi^2 = 6.8$; P<0.05*
Single	166 (51.55)	22 (33.84)	
Two/More	156 (48.44)	43 (66.15)	
Education			$\chi^2 = 69.57$; P<0.001*
Illiterate	73 (22.67)	16 (24.61)	
Up to Primary School	119(36.95)	8(12.31)	
Middle to High	100 (31.05)	9 (13.84)	
Above High School	30 (9.32)	32 (49.23)	
Socio-economic class (Modified B.G.Prasad's Socioeconomic Scale)¹⁰			$\chi^2 = 214.99$; P<0.001*
Class I	0(0)	30(46.15)	
Class II	30(9.31)	8(12.3)	
Class III	143(44.41)	0(0)	
Class IV	139(43.16)	13(20.0)	
Class V	10(3.10)	14(21.54)	
ANC Registration (Weeks)			$\chi^2 = 29.00$; P<0.001*
<12 (Early)	260(80.74)	32(49.23)	
>12	62(19.25)	33(50.76)	

Values within () parenthesis represent column percentage * Significant.

Table 4: Bivariate and Multivariate logistic regression analysis of predictors influencing utilization of free delivery services by respondents (n=387).

Predictors	Crude Odds Ratio (OR)	Adjusted Odds Ratio (AOR)
Age (years)		
Below 25	2.51 (CI=1.342-4.701)	2.307 (CI=1.331-3.999)
25 and above		1
Caste		
Non-general	0.45 (CI=0.189-1.049)	0.655 (CI=0.317-1.350)
General		1
Religion		
Hindu	1.17 (CI=0.610-2.245)	1.097 (CI=0.644-1.870)
Non-Hindu		1
Parity		
Single	2.38 (CI=1.263-4.505)	2.08 (CI=1.190-3.635)
Two or more		1
Education		
Up to Primary	1.98 (CI=1.065-3.688)	1.575 (CI=0.922-2.691)
Above Primary		1
Socio economic class		
III and below	2.48 (CI=1.348-4.571)	2.267 (CI=1.321-3.888)
I,II		1
ANC Registration (Weeks)		
<12	2.267 (CI=1.139-4.509)	4.325 (CI=2.471-7.568)
>12		1

DISCUSSION

The Government of India launched JSSK in 2011 to ensure cashless services (including free delivery care) to all pregnant women and sick infants at public health institutions across the country. The scheme was meant to improve access to health facilities and help reduce both maternal and infant mortality and morbidity.⁶ Institutional deliveries were lesser in rural areas of the state as shown by data in 2011-12.⁸

We therefore assessed awareness among beneficiaries in rural areas of Kamrup district in Assam about free delivery care under JSSK available in the public health facilities and the factors influencing its utilization. The socio demographic profile of the respondents in our study revealed that majority (36.7%) of the beneficiaries was in the age group 20-24 years. Similar observations were made by R.C. Goyal who found in their study in Wardha (Maharashtra) that majority of the beneficiary mothers were in the age group 20-24 years.¹¹ Similarly, U.Tyagi in a study conducted in Sirmour district of Himachal Pradesh found majority of the beneficiaries below 25 years of age.¹² Present study found majority of the beneficiaries i.e. 77%, literate. In the Annual Health Survey conducted in Assam, 76.7% women in rural Kamrup were found literate.⁹ Also, majority of the beneficiaries were found to be literate in the study conducted by U.Tyagi.¹² Female literacy is crucial for the empowerment of women to utilize antenatal and delivery care.

In our study 88.1% of the mothers were aware about the principal entitlement under JSSK i.e. free delivery (including caesarean section) available in public health facilities. Interpersonal communication through ASHA/ANM played a prominent role in generating awareness about the same in the majority (89.4%). The beneficiaries mostly initially heard about the scheme at the health center followed by VHND session-site while print media/wall paintings played a minimal role in generating awareness. Concurrent assessment of the impact of JSSK in Rajasthan, Tripura, Kerala, Maharashtra and Himachal Pradesh by National Health Systems Resource Centre (NHSRC) in 2013-14 found higher awareness levels (ranging from 90-100%) about free delivery component of JSSK among beneficiaries in Tripura, Kerala, Maharashtra, Rajasthan and Himachal Pradesh. Beneficiaries mentioned the source of information to be mostly through ASHA, ANM and Anganwadi Worker.¹³ Findings of the present study more or less corroborate with the above.

The present study found 83.2% of the beneficiary mothers to have received free delivery service (including caesarean section) under JSSK. The study revealed that younger women and women with low parity had higher odds of utilization of the services. Literature search for JSSK in India did not show any community based studies on socio demographic factors influencing utilization of the above services. However, earlier studies on utilization of maternal health care (antenatal care and delivery care) in rural India found that older women in the reproductive

age group and women with higher birth order used comparatively less care. This can be partly attributed to greater concern and receptive behavior among younger pregnant women.^{14,15}

Previous studies have found religion and caste to be predictors for maternal health care utilization.^{14,15} In this study, religion and caste had no significant associations with utilization of the services.

In the present study, mothers who had early registration for ANC had high odds for utilization of the Free Delivery services. This may indicate that availing early registration for ANC could in turn bring the mothers for more frequent contacts with the healthcare providers who could motivate the beneficiaries to use the services available under JSSK. Hence, improving early registration and ANC coverage could have some positive influence on utilization of JSSK services.

Education is found to positively affect utilization of maternal health care.^{11,12} In our study, at bivariate level, it was found that women who utilized the free delivery services were less likely to be highly educated. This may indicate that the higher educated women preferred to avail paid delivery services in private health facilities. At multivariate level, however, education was not found to have impact on the utilization.

Present study found rural mothers belonging to socioeconomic class III and below to have higher odds for utilization of the delivery care (in the public health facilities). The utilization of JSSK was found higher in them mostly due to the weaker economic condition of these groups to seek paid delivery services in private health facilities.

CONCLUSION

The majority of beneficiary mothers in the rural areas were aware about free delivery care under JSSK which was available in the public health facilities and had received it. However utilization of the benefit was not achieved universally among all the mothers. There should be focused action at grass-root level to motivate the multipara and older pregnant women in the rural areas to utilize the services to enhance pregnancy outcome. Interpersonal communication through frontline health workers played a prominent role in generating awareness among the mothers. Strategically designed publicity of entitlements and promotion of early registration and antenatal care among beneficiaries can be useful to enhance service utilization under JSSK.

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