

Original Article

Assessment of the impact of JSY on maternal health services in rural areas of Agra District.Kumar V¹, Kaushal SK², Misra SK³, Gupta SC⁴.¹Junior Resident, ²Lecturer, ³Professor, ⁴Ex Professor and Head, Department of SPM, S.N. Medical College, Agra.**Abstract**

Background: Janani Suraksha Yojana (JSY) was launched in April 2005 to promote institutional deliveries among the poor population, through provision of referral, transport, and escort services. JSY integrates cash assistance with delivery and post delivery care for women to have healthy outcomes of pregnancy and childbirth. This is a mile stone scheme aimed for improving women's health.

Objectives: The study was conducted to assess antenatal, postnatal and delivery care services before and after implementation of Janani Suraksha Yojana.

Methodology: This was an observational Cross Sectional study conducted in a block of Agra District selected randomly. Study subjects were married women of reproductive age group having at least two children, one born before and another born after implementation of Janani Suraksha Yojana. Pretested, predesigned, structured, close ended schedule was used for interviewing the study group women who were asked the same set of questions regarding antenatal care, delivery and postnatal care in both pregnancies, latest as well as previous.

Results: Antenatal registrations were found to be increased from 61.60% (Pre-JSY period) to 95.60% in JSY period. Early antenatal registrations (<12 weeks) have been increased from 26.62% to 72.80%. Complete ANC i.e. >3 ANC visits, 2 doses of TT/booster and received of 100 IFA tablets, was almost nonexistent in Pre-JSY period (3.25%), has increased to 25.52% during JSY period. Deliveries at govt. health facility has almost doubled from Pre-JSY period (25.60%) to JSY period (53.20%). The overall coverage of Postnatal Check-up i.e. at least one, in present study has increased in JSY period (69.20%) than Pre-JSY period (46.00%).

Conclusion: JSY has shown a positive impact on maternal health services by improvement in antenatal, postnatal and delivery care. But we are still lagging behind in providing complete antenatal as well as postnatal care.

Key Words: Janani Suraksha Yojana, antenatal care, postnatal care, institutional delivery.

Introduction:

Towards achieving the objectives of the National Rural Health Mission (NRHM), Janani Suraksha Yojana was launched in April 2005 to promote institutional deliveries among the poor population, through provision of referral, transport, and escort services. JSY integrates cash assistance with delivery and post delivery care for women to have healthy outcomes of pregnancy and childbirth. The NRHM aims to have a village-based female Accredited Social Health Activist (ASHA) to act as the interface between the community and the public health system and negotiate health care for poor women and children¹. Each beneficiary registered under the scheme receives cash assistance for institutional delivery irrespective of parity and socioeconomic status. The ASHA also gets cash assistance for accompanying the pregnant women to the institution (referral transport) and cash incentive after postnatal visit and BCG immunization of the child. The NRHM has shown significant gains since its inception. Reports from the states indicate noteworthy increase in in-

stitutional deliveries. From 6 lakh JSY cases in 2006², the number reached 3.19 crore in 2011. More than 8.09 lakh ASHAs have been selected under the NRHM who are mobilising people to avail of the services from PHCs/CHCs/district hospitals to improve institutional deliveries³.

The magnitude of the continued investment and emphasis on JSY, draw attention to the contribution of the scheme to improvements in maternal health in India. JSY which is a mile stone scheme aimed for improving women's health, must have affected these factors after 5 years of implementation. With this perspective, this study was conducted in rural areas of district Agra to assess the impact of JSY on maternal health services in district Agra.

Objectives:

1. To assess the status of antenatal care services in Pre-JSY and JSY period among married women of reproductive age group
2. To assess the status of delivery services in Pre-JSY and JSY period among study group.

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3. To assess the status of postnatal services in Pre-JSY and JSY period among study group.

Material and Methods:

This observational cross sectional study was conducted in Block Saiyan, during July 2010 to June 2011. Sample size was calculated by using the following formula⁴:

$$\text{Sample size (n)} = \frac{4pq}{L^2}$$

Where,

n = required sample size

p = prevalence

q = 100 – p

L = permissible error in the estimate of “p”.

As our main focus in Janani Suraksha Yojana is on increasing institutional deliveries. So we have used percentage of institutional deliveries for calculating sample size. Percentage of institutional deliveries in Uttar Pradesh was taken as 47 percent⁵ and permissible error 15%. The minimum sample size came out as 203 which is increased to round figure 250. Out of 15 blocks in Agra district Saiyan block was selected randomly. The list of villages of Saiyan Block was taken from block PHC Saiyan which caters the study block. Ten villages required to complete sample size, were selected randomly by using random number table. A house to house survey was done till the sample size was completed. A total of 250 women having at least 2 children, one child in the age group 0-5 yrs (delivered in JSY period) and another child of more than 5 years old (delivered in pre JSY period), were included in study and interviewed for antenatal, delivery and postnatal care received when these two children were born. If women had more than 1 child in each age group then younger child in that age group was taken for study. These women were asked the same set of questions regarding antenatal care, delivery and postnatal care in both pregnancies, latest as well as previous. Pretested, predesigned, structured, close ended schedule which was transformed accordingly was used for interviewing. Data was collected by first author himself.

Results:

In Pre-JSY period, 61.60% women were registered (table-1) compared to marked increase of registration in JSY period wherein most of the same group of women (95.60%) got registered during their subsequent pregnancy during JSY period. In the present study a major shift on the period of gestation during first antenatal visit was observed in the JSY period. During Pre-JSY period almost three fourth of the

women got themselves registered at > 12 week of gestational period (73.38%) whereas in JSY period three fourth (72.80%) were registered at ≤12 weeks. In Pre-JSY period nearly half of the women (54.55%) were registered during 12 -20 weeks of gestation while another 18.83 % registered after 20 weeks of gestational period. In JSY period, however only 5.02% women were registered after 20 weeks gestation, another 22.18% were registered during 12 - 20 weeks and majority of them (72.80%) were registered by 12 weeks of gestation. Among Pre-JSY registered women, only 7.79% while among JSY period registered women nearly 8 times more (63.18%) got 3 or more ANC. Among 154 Pre-JSY registered women, mostly 146 (94.81%) got ANC at govt. health facility, 4 (2.60%) at private hospital and 4 (2.60%) at home. Choice of place remained same in JSY period. Almost similar proportion was found i.e. 95.40% at govt. health facility, 2.93% at private hospital & 1.67% at home out of 239 registered women. Similarly antenatal care providers remained almost same as it was in Pre-JSY period. During Pre-JSY period most of the ANCs (97.40%) were conducted by ANM followed by private doctor i.e. 2.60% and none of the ANC was conducted by govt. doctor. Similarly (97.07%) were conducted by ANM, 7 (2.93%) by private doctor and none by govt. doctor in JSY period. A significant rise was observed in JSY period as compared to Pre-JSY period in fully immunized for Tetanus Toxoid (93.31% vs. 83.77%), weight taken (20.92% vs. 5.19%), per abdominal examination (94.14% vs. 87.66%) and briefing of at least one danger sign (85.77% vs. 77.92%). Weight taking which was almost nonexistent in Pre-JSY (5.19%) raised to 20.92% in JSY period. However insignificant impact of JSY was observed on practice of taking B.P. (4.18% vs. 3.90%).

Analysis of status of IFA tabs received and consumed among registered women shows that IFA tablets were received by 63.64% in Pre-JSY period whereas 70.29% women received IFA tablets in JSY period. However difference was not found significant. Study group women were sub grouped on the basis of number of IFA tablets consumed during pregnancy. It showed that 21.43% and 17.26% women respectively in Pre JSY and JSY period consumed less than 50 tablets while 28.57% and 23.81% respectively consumed more than 50 but less than 100 tablets. Though, among who received, the difference in overall rate of consumption of IFA tablets, was found to be insignificant in Pre JSY (66.33%) & JSY period (71.43%). A substantial increase was observed in number of women consuming ≥100 tablets { $\chi^2(1)=3.87$, $p<0.05$ } during JSY period (30.36%) as compared to Pre-JSY period

Table-1: Antenatal Care Services

Antenatal Care Services			Pre- JSY period		JSY period		Test of Significance
			N=250	%	N=250	%	
Antenatal Registration	Yes		154	61.60	239	95.60	$\chi^2(1)=88.7$ p < 0.001
	No		96	38.40	11	4.40	
Antenatal Care Services among Registered Women			N=154	%	N=239	%	
Gestational Period at First ANC	=12 weeks		41	26.62	174	72.80	$\chi^2(1)=83.3$ p < 0.001
	>12 - =20 weeks		84	54.55	53	22.18	
	>20 weeks		29	18.83	12	5.02	
No. of ANC's	<3		142	92.21	88	36.82	$\chi^2(1)=39.6$ p < 0.001
	=3		12	7.79	151	63.18	
Place of ANC	Home		4	2.60	4	1.67	$\chi^2(2)=0.235$ p > 0.05
	Govt. health facility		146	94.81	228	95.40	
	Pvt. hospital		4	2.60	7	2.93	
ANC by	ANM		150	97.40	232	97.07	$\chi^2(1)=0.349$ p > 0.05
	Govt. Dr		0	0.00	0	0.00	
	Pvt. Dr		4	2.60	7	2.93	
No of T.T. doses given	Yes	1	21	13.64	8	3.35	$\chi^2(2)=18.8$ p < 0.001
		2/Booster	129	83.77	223	93.31	
		No	4	2.60	8	3.35	
Wt. taken	Yes		8	5.19	50	20.92	$\chi^2(1)=20.6$ p < 0.001
	No		146	94.81	189	79.08	
B.P. taken	Yes		6	3.90	10	4.18	$\chi^2(1)=0.171$ p > 0.05
	No		148	96.10	229	95.82	
Per abdomen examination done	Yes		135	87.66	225	94.14	$\chi^2(1)=5.18$ p < 0.05
	No		19	12.34	14	5.86	
Advice on rest & diet given	Yes		144	93.51	229	95.82	$\chi^2(1)=1.06$ p > 0.05
	No		10	6.49	10	4.18	
At least one danger sign explained	Yes		120	77.92	205	85.77	$\chi^2(1)=4.13$ p < 0.05
	No		34	22.08	34	14.23	
IFA received	Yes		98	63.64	168	70.29	$\chi^2(1)=2.00$ p > 0.05
	No		56	36.36	71	29.71	
IFA consumption among who received			N=98	%	N=168	%	$\chi^2(3)=0.849$ p > 0.05
	Yes		65	66.33	120	71.43	
	<50		21	21.43	29	17.26	
	=50 - <100		28	28.57	40	23.81	
	=100		16	16.33	51	30.36	
	No		33	33.67	48	28.57	
	Total		98	100.00	168	100.00	
Complete ANC			N=154	%	N=239	%	$\chi^2(1)=36.3$ p < 0.001
	Yes		5	3.25	61	25.52	
	No		149	96.75	178	74.48	

(16.33%). Complete ANC considering the women who availed ≥ 3 ANC visits, 2 doses of TT/booster and received of 100 IFA tablets⁶, was almost nonexistent in Pre-JSY period (3.25%), has increased to 25.52% during JSY period.

Analysis of place of delivery (Table-2) reveals that delivery at home has decreased from 54.80% in Pre-JSY to 30.80% in JSY period; and delivery at govt. health facility has almost doubled from Pre-JSY period (25.60%) to JSY period (53.20%). It is worth mentioning that though there has been a significant increase in the deliveries conducted at govt. health facilities, however nearly one third (30.80%) of the deliveries are still being conducted at home.

The overall coverage of Postnatal Check-up (single) (Table-

3) in present study has increased in JSY period (69.20%) than Pre-JSY period (46.00%). The study reveals that postnatal checkup remains a matter of major concern as of the 137 deliveries conducted at home during Pre-JSY period postnatal checkup (single) was done only in two cases (1.48%). During JSY period as well not even a single postnatal checkup was done in any of the 77 deliveries conducted at home. However single postnatal checkup was done in all institutional deliveries (100%) during Pre-JSY & JSY period (The first postnatal checkup refers to checkup done before discharge from institution). During both Pre-JSY & JSY period further Post natal checkups were not done at home in none of the deliveries.

Table- 2: Place of delivery

Place of delivery		Pre- JSY		JSY period		Test of Significance
		N=250	%	N=250	%	
Home		137	54.80	77	30.80	$\chi^2(2)= 42.7$ $p < 0.001$
Health facility	Government	64	25.60	133	53.20	
	Private	49	19.60	40	16.00	

Table- 3: Status of Post Natal Checkup

Particulars	Pre- JSY		JSY period		Test of Significance
Postnatal Checkup	N=250	%	N=250	%	$\chi^2(1)= 28.0$ $p < 0.001$
Yes	115	46.00	173	69.20	
No	135	54.00	77	30.80	
Total	250	100.00	250	100.00	
If yes, place of delivery	N=115	%	N=173	%	$\chi^2(1)= 3.05$ $p > 0.05$
Institutional delivery	113	98.26	173	100.00	
Home delivery	2	1.74	0	0.00	
Total	115	100.00	173	100.00	

Discussion:

In the present study, in Pre-JSY period, 61.60% women were registered in antenatal period compared to a marked increase

of registration wherein most (95.60%) of the same group of women got registered during their subsequent pregnancy in JSY period. In the present study, in JSY period, 95.60%

women registered themselves during antenatal period. Almost similar level of registration has also been reported by UNFPA (2008)⁵ study in U.P. (95%) and Uttekar et al (2008)¹ (88%). Singh D (2002)⁷ in a study in rural Ghaziabad reported a lower level of antenatal registration (52%) than the present study; it is in consonance with the Pre-JSY period level of antenatal registration in the present study (61.60% before 2006).

In the present study, during Pre-JSY period almost three fourth of the women got themselves registered at > 12 week of gestational period (73.38%) whereas in JSY period three fourth (72.80%) of them were registered at 12 weeks. In the present study, in JSY period, 72.80% women had their first antenatal visit by 12 weeks of gestation. Uttekar et al¹ has reported higher percentage of women (82.8%) than present study having first antenatal visit by 12 weeks. The difference may be due to the fact that the present study was limited to rural area whereas Uttekar et al¹ included rural as well as urban population. Malini et al² in study in Orissa has reported <30% women at their first antenatal visit by < 12 weeks which is much less than the present study, which may be due to lower literacy status and poor accessibility to health care facilities in their study area.

In the present study among Pre-JSY registered women, only 7.79% had ≥ 3 antenatal check-ups (ANC) while same group of women in their pregnancy in JSY period got nearly 8 times more (63.18%) ≥ 3 antenatal check-ups. Uttekar et al¹ also reported almost similar findings (72.8% women having ≥ 3 ANC). Slightly higher percentage of women (82.4%) was reported having ≥ 3 antenatal check-ups by UNFPA⁵ study. Agarwal et al⁸ in their study in Indore (M.P.) have reported comparatively less number of women having ≥ 3 antenatal check-ups (40.1% and 51% respectively). This may be because of the fact that the study was done more than five years ago in a different milieu.

In the present study, choice of place remained almost same in Pre-JSY & JSY period. Most of the ANC (95.40%) in JSY period, in the present study were in govt. health facility. Ray et al⁹ in a study in West Bengal has reported 71% ANC done at govt. health facility which is less than the present study. This may be because of difference in availability and quality of government health services, and also availability of private health facilities. In the present study, antenatal care providers remained almost same in Pre-JSY & JSY period. In JSY period, most of the (97.07%) ANC was done by ANM and the remaining 2.93% by private doctors. Pathi et al¹⁰ have also reported most (81.4%) check-up done by ANM.

In the present study, a significant rise was observed in JSY period as compared to Pre-JSY period in fully immunized for Tetanus Toxoid (93.31% vs. 83.77%), weight taken (20.92% vs. 5.19%), per abdominal examination (94.14% vs. 87.66%) and briefing of at least one danger sign (85.77% vs. 77.92%). Malini et al² and Agarwal et al⁸ have reported comparatively lower T.T. coverage (88% and 82% respectively) than the coverage of JSY period of present study. As cited earlier this may be because of difference in literacy status and regional variations related to availability and accessibility of health services.

In the present study, an increase was observed in women receiving IFA tablets in JSY period (70.29%) as compared to Pre-JSY period (63.64%). In JSY period, 71.43% of those receiving have consumed IFA tablets compared to 66.33% of Pre-JSY period. A substantial increase was also found in number of women consuming ≥ 100 tablets during JSY period (30.36%) as compared to Pre-JSY period (16.33%). Malini S et al² in study in Orissa has reported relatively low consumption of IFA tablets (38.3%). Agarwal et al⁸ in their study in Indore (M.P.) have though reported higher number of women (86.2%) receiving IFA tablets but lower consumption rate (28.5%) than the present study. Number of women consuming 100 tablets was also less than the present study. The variation again may be due to the difference of level of literacy, availability and accessibility of health services in study areas.

In the present study, Complete ANC considering the women who availed who availed ≥ 3 ANC visits, 2 doses of TT/ booster and received of 100 IFA tablets, was almost nonexistent in Pre-JSY period (3.25%), has increased to 25.52% during JSY period. Singh D⁷ have reported a higher number of women (53%) having complete ANC whereas comparatively very low complete ANC coverage was reported by Ray SK et al⁹ (3.8%) and Gupta PK¹¹ (18%, 27% & 17% in Jharkhand, Chattisgarh & Uttarakhand respectively). The difference might be because of difference in criteria for defining complete ANC, and besides this availability and accessibility of health services in the respective study areas.

In the present study, analysis of place of delivery reveals that delivery at home has decreased from 54.80% in Pre-JSY period to 30.80% in JSY period; and delivery at govt. health facility has correspondingly almost doubled from Pre-JSY period (25.60%) to JSY period (53.20%). Malini S et al² in study in Orissa have reported comparatively higher number of institutional deliveries (65%) which may be because the institutional deliveries reported by them includes

government and private health facilities both. And also to the fact that the study was undertaken in a different region. Comparatively lower rate of institutional deliveries were reported by Iyengar SD et al¹² in a study in Rajasthan (34%) and UNFPA study⁵ in U.P. (47%) than present study. The difference can only be explained by difference in sociocultural background of the study area and time gap since a gradual rise in institutional deliveries has been observed since the inception of JSY.

The overall coverage of Postnatal Check-up (single) in present study has increased in JSY period (69.20%) than Pre-JSY period (46.00%). In the present study, in JSY period, place of delivery wise distribution shows that postnatal Check-up (PNC) was 100.00% in institutional deliveries, whereas it was nonexistent (0.00%) in home deliveries. Lower PNC coverage than the present study has been reported by Jain M¹³ in their study in Agra (22.6%) and Kaushal SK¹⁴ in Rural Kanpur (34.6%). The difference is perhaps the quoted studies were conducted in Pre-JSY period when the institutional deliveries coverage was relatively low, the first PNC at day zero being an inevitable part of institutional deliveries. Relatively low PNC coverage has also been reported by Malini S et al² in study in Orissa (28.3%) and Varma DS et al¹⁵ in U.P. (16%). The reason might be regional variation as well as difference in criteria of defining postnatal check-up; in the present study a single PNC during hospital stay was considered as PNC.

Conclusion:

Since the implementation of JSY situation was found to be improving in all components related to maternal health services. The proportion of antenatal registration along with early registration (≤ 12 weeks) and subsequent antenatal visits of pregnant women were increased however; proportion of complete antenatal care did not increase proportionately. The percentage of home deliveries decreased but the postnatal check-ups at the home were still lacking.

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