

IMPACT OF JANANI SURAKSHA YOJANA ON INSTITUTIONAL DELIVERY AND PERINATAL DEATH

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ABSTRACT: CONTEXT: In 2005 the National Rural Health Mission (NRHM) introduced the Janani Suraksha Yojana with the objective of reducing maternal and neonatal mortality by promoting institutional delivery among poor women. **AIMS:** Present study was carried out to assess the impact of Janani Suraksha Yojana (JSY) immediately after launch and five years after its implementation, on number of institutional deliveries and perinatal death. **SETTINGS AND DESIGN:** It was an observational study conducted at tertiary care hospital. **METHODS AND MATERIAL:** Records were collected with details of number of institutional deliveries, referred cases, booked case, rural cases, total births, live births, still births, for the year of 2003, 2004, 2006, 2007, 2010 and 2011. The perinatal deaths were calculated per thousand total births. Details regarding admission in Special Care Newborn Units (SCNU) were also noted. **RESULTS:** It has been observed that number of institutional deliveries has increased by 31.76% in two years, which remained high to 26.78 % even after 5 years; percentage of live births has increased from 95.2% to 96.8% and 97.48 % respectively. Percentage of Still births has decreased from 4.76 to 2.99%, 2.22%. Perinatal Mortality was 64.86 in 2003-04 and has declined to 51.54 in 2006-07 and 31.97 the year 2010-11. Percent of booked cases, referred cases and women belonged to rural areas increased significantly. **CONCLUSIONS:** It was seen that institutional deliveries, antenatal check-up, and referral of the women were influenced by JSY. It was also found to have a positive effect on decreasing perinatal deaths.

KEYWORDS: JSY, Institutional deliveries, Perinatal Death.

MESH TERMS: JSY, Institutional deliveries, Perinatal Death.

KEY MESSAGES: Implementation of JSY has resulted not only in significant increase in number of institutional deliveries but also improvement in neonatal survival.

INTRODUCTION: As per World Health Organization (WHO) Report, Neonatal deaths account for 40% of all child deaths before the age of five. India carries the highest single share of neonatal deaths in the world – around 30% of the worldwide. The neonatal deaths continue to remain unacceptably high due to minimal reduction in neonatal deaths compared to achievements in post neonatal mortality.^[1] As per the SRS the foremost challenge of preventing the deaths occur within the first seven days of life which account for 53.9% of infant deaths.^[2] In addition to above, as per The National Family Health Survey (NFHS)- 3 only 40.7% of births occur in institutions and post natal care is provided to only 36.4% of live births.^[3]

The Janani Suraksha Yojana (JSY), launched in April 2005, by Government of India, with the objective of reducing maternal and neonatal mortality by promoting institutional delivery by providing a financial package to pregnant women and to a frontline health worker called Accredited Social Health Activist (ASHA), whose job is to identify pregnant women, facilitate at

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least three antenatal checkups, motivate for institutional delivery, visit the mother and newborn for a post natal checkup within seven days of delivery and counsel them on early breastfeeding.^[4]

Since it has been in operation for over seven years it was felt to review and assess its impact in terms of institutional deliveries and perinatal mortality.

SUBJECTS AND METHODS: This retrospective hospital based, observational comparative study was carried out in the tertiary care hospital, associated with medical college in M.P. with the objective to assess the immediate and sustained impact of Janani Surksha Yojana (JSY) on the indicators of healthcare utilization like institutional deliveries and perinatal death. Data were compared before the launch (2003–2004), immediately after implementation (2006– 2007) and five years after implementation to see the long term impact (2010-2011).

The data was collected from computerized record. Data collected includes total number of deliveries, number of rural and urban deliveries, number of booked antenatal cases, number of referred cases, total number of still birth, total live births, admission in Special Care Newborn Unit and early neonatal deaths. Perinatal deaths were calculated as, the number of stillbirths with birth weight of above 500 grams and deaths in the first week of life per 1,000 total births. Primary outcomes were total number of deliveries, Stillbirths, early neonatal deaths and perinatal deaths and secondary outcomes were number of referred cases, booked cases, Special Care Newborn Units (SCNU) admissions.

RESULTS: After reviewing records of studies years, it was found that total number of deliveries was 7972 in 2003-04, 10504 in 2006-07 and 10107 in 2010-2011. The total number of deliveries has increased to 31.76% ($p < 0.0001$) immediately after the launch which remained high 26.78% ($p < 0.0001$) even after five years of its implementation. Percentage of live births in the institute was 95.2% in 2003-04 & 96.8% in 2006-07 ($p < 0.0001$) and 97.48% in 2010-2011 ($p < 0.0001$). Stillbirths have decreased from 4.8% in 2003-04 of 3.0% in 2006-07 ($p < 0.210$) and 2.5% in 2010-2011 ($p < 0.005$). Although the number of neonates receiving Special Care Newborn Units (SCNU) care has increased by 962 in 2 years ($p < 0.0001$), 1718 in 5 years ($p < 0.0001$) after launch of JSY the early neonatal deaths came down from 67 to 111 ($p < 0.001$) and 40.5 ($p < 0.0001$) respectively. Perinatal deaths have decreased from 64.86 in 2003-04 to 51.54 in 2006-07 ($p < 0.05$) and 31.97 in 2010-2011 ($p < 0.001$). The present study found a rapid and significant increase in number of cases coming from rural area 12.2% in 2003-04 to 23.8% in 2006-07 ($p < 0.0001$) and 26 % in 2010-2011 ($p < 0.001$) along with increase in percentage of booked cases from 5.5% in 2003-04 to 8.4% in 2006-07 ($p < 0.0001$) and 9.13% in 2010-2011 ($p < 0.001$). Percentage of referred cases increased from 7.96 in 2003-04 to 9.13 in 2006-07 ($p < 0.002$) and 10.41 in 2010-2011 ($p < 0.0001$) (Table 1).

As shown in the 2d scatter diagram showing the trend of deaths, perinatal deaths, referred cases and total deliveries before, during and after yojnathere has been drastic decrease in the perinatal deaths and tremendous increase in the referred cases after the introduction of Janani Surksha Yojana (JSY). (Figure 1)

The 3d Line Diagram Showing the Percentage increase in birth and intrauterine death and decrease in deaths in nursery due to the introduction of Janani Surksha Yojana (JSY). (Figure 2)

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DISCUSSION: The Janani Suraksha Yojana is a safe motherhood intervention by utilizing Accredited Social Health Activist (ASHA), for the pregnant women. Cash incentives are offered to the delivering women as well as to the health worker if the woman delivers in a hospital.

It has been reported that share of institutional deliveries at public facility increased from 37% to 63% due to Janani Surksha Yojana (JSY) incentives.^[5] One evaluation study by United Nations population fund - India (UNFPA) also impresses the fact that in Madhya Pradesh out of total 72.8% institutional deliveries, 67.8% took place in government facility and it showed increasing trend comparing the data from National Family Health Survey (NFHS) I, III, District Level Household & Facility Survey (DLHS) 15.9%, 26.2%, 47.1% respectively.^[6] Gopalan S S, Durairaj V showed significant impact of Janani Surksha Yojana (JSY) before and after launch, in terms of number of institutional deliveries and number of pregnant women receiving Absolute neutrophil count (ANC) and prenatal care (PNC)^[7] Significant increase in institutional delivery shows that Janani Surksha Yojana (JSY) has been able to reach out to the community. In this study also total number of deliveries has increased significantly, immediately after the launch which remained high even after five years of its implementation. Although the initial increase in number of deliveries was higher in comparison to after five years. This could be due to the fact that it is a hospital based study, initially after launch of yojana most of the cases were referred to medical college hospital. In due course of time the awareness about this beneficial scheme existing in accredited private hospitals increased, facilities improved at Community Health Centres (CHC) and Primary Health Centre (PHC's), and Sick Newborn Units established in district hospitals in 2010. This would have encouraged more deliveries at periphery and less referral to medical college.

Perinatal death is a useful indicator to find out that the system is able to deal with increased number of deliveries and able to provide a quality obstetric care and a comprehensive neonatal care. Lim S.S. et al reported a reduction of 3.7 (95% CI 2.2-5.2) perinatal deaths per 1000 pregnancies and 2.3 (0.9-3.7) neonatal deaths per 1000 live births.^[8] We have also observed sustained decrease in Perinatal deaths.

Stillbirths account for over half of all perinatal deaths. One third of stillbirths takes place during delivery, and is largely avoidable. These Intrapartum deaths are closely linked to place of, and care at, delivery. Programme evaluation of Janani Surksha Yojana (JSY) by National Health System Resource Center (NHSRC) showed that rate of still birth at institutional deliveries was 11/1000 total live birth as opposed to 13/1000 live birth in home deliveries.^[9] We also observed a significant decrease in Stillbirths in this study.

Early Neonatal deaths stem from poor maternal health, inadequate care during pregnancy, inappropriate management of complications during pregnancy and delivery, poor hygiene during delivery and the first critical hours after birth, and lack of essential newborn care. It is stated that deliveries that took place at home had a 2.17 fold increased risk of neonatal mortality as compared to those deliveries, which took place in a hospital (95% CL: 1.21 – 3.7).^[10] JSY has provided an opportunity for safe childbirth leading not only to decreased neonatal mortality but also increased number of neonates getting the essential newborn care. This study also showed substantially decrease in early neonatal death despite increase in number of neonates receiving intensive care in Special Care Newborn Units (SCNU).

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In addition to increase in total number of deliveries, the present study found that Percentage of rural pregnant women receiving care at institute increased. Sharma P reported a significant increase in number of antenatal referred cases after Janani Surksha Yojana (JSY).^[11]

Present study shows that Number of booked cases has increased. A report from United Nations Population Fund (UNFPA) stated that 91.3% woman registered for Absolute neutrophil count (ANC) in MP and 64.3% received at least 3 Absolute neutrophil count (ANC) checkups during last pregnancy.^[6] Others have also found increased number of pregnant women receiving Absolute neutrophil count (ANC) and Prenatal Care (PNC).^[7]

On analysis of all the above variables shows that there was favorable impact created by JSY in terms of significant increase in number of institutional deliveries as well as improvement in newborn survival. Thus, Janani Surksha Yojana (JSY) has a positive contribution to institutional deliveries, reduction in neonatal and perinatal mortality.

The present study was limited in its scope as it included only one institute. The utility of this approach can be in all institutional settings where deliveries are conducted.

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Variables	Before implementation of yojana			Immediately after implementation of yojana			After 5 years of yojana		
	2003	2004	Mean	2005	2006	Mean	2010	2011	Mean
Total Deliveries	3821	4152	3986.5	4130	6374	5252	4974	5137	5055.5
Total Live Births	3647	3945	3796	3987	6202	5094.5	4864	5005	4933.5
Still Births	174	207	190.5	143	172	157.5	111	132	121.5
Early neonatal Deaths	99	35	67	78	144	111	27	54	40.5
Perinatal Deaths	71.44	58.29	64.86	53.51	49.57	51.54	27.74	36.20	31.97
Admission in SNCU	534	718	626	854	1360	1107	1410	1560	1485
Rural	392	581	486.5	805	1690	1247.5	1158	1472	1315
Booked Cases	155	284	219.5	314	572	443	407	516	461.5
Referred Cases	309	326	317.5	405	555	480	483	570	526.5

Table 1: Characteristics of study Population before and after implementation

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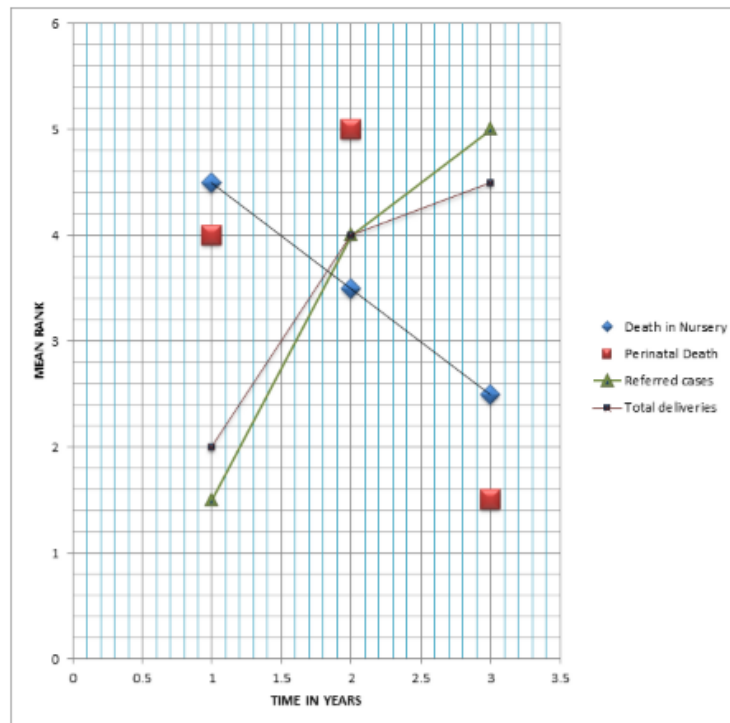


Figure 1

- 2 D Scatter Diagram showing the trend of Deaths, Perinatal Deaths, referred Cases and total deliveries before, during and after Yojna.

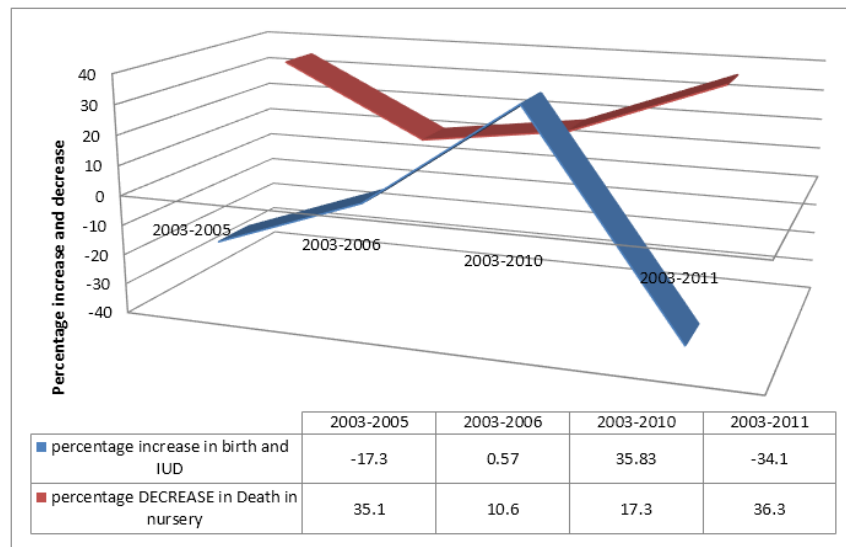


Figure 2

- 3d Line Diagram Showing the Percentage increase in birth and intrauterine death and decrease in deaths in nursery.

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