



IMPACT OF GOVERNMENT SCHEMES ON MATERNAL HEALTH: AN OBSERVATIONAL STUDY IN A TERTIARY CARE HOSPITAL IN NORTH INDIA

Neena Gupta

Professor, Dept of Obstetrics & Gynecology, GSVM Medical College, Kanpur.

Uruj Jahan

Assistant Professor, Dept of Obstetrics & Gynecology, GSVM Medical College, Kanpur.

Subhashini Singh*

Senior Resident, Dept of Obstetrics & Gynecology, GSVM Medical College, Kanpur.
*Corresponding Author

ABSTRACT **BACKGROUND:** Maternal health is an important aspect for the development of any country in terms of increasing equity and reducing poverty. For reduction of maternal mortality and morbidity Government of India launched National health mission (NHM). Some of the major initiatives under NHM are—ASHA (Accredited Social Health Activist), JSY/JSSK (Janani Suraksha Yojana / Janani Shishu Suraksha Karyakaram), National mobile medical units, National ambulance services.

METHODS: A retrospective observational study was performed in department of Obstetrics and Gynaecology, G.S.V.M Medical College, Kanpur, Uttar Pradesh which is a low performing state, during the period of 2018 to 2019. A total of 5134 obstetric patients including 1032 low general condition patients were included over duration of 20 months since January 2018 to August 2019. This observational study collected information regarding number of deliveries in different years in this tertiary care hospital, effect on availability of health facilities and antenatal care to the antenatal women after introduction of JSY, ASHA and ambulance services.

CONCLUSIONS: After JSY there is major difference in OPD admission and institutional delivery rate. Ambulance services had major contributory role in reducing maternal mortality and morbidity. There is need to improve performance of ASHA by proper supervision and monitoring.

KEYWORDS : NHM, JSY, JSSK, ASHA

INTRODUCTION

Maternal health continues to be an important indicator of the wellbeing in a country. Provisionally the maternal health issue continues to be at the forefront of global and national health policies in the last few years¹. Millennium Development Goal-5 (MDG-5) calls for a three fourth reduction in the maternal mortality ratio by 2015 compared to 1990 levels¹⁻⁴.

Though medical care in our country is grossly improved, there is slow decline in maternal mortality ratio (MMR). The recent world bank data puts the MMR for India reported in 2017 at 145 per 1,00,000 live births, a significant decline from the 210 reported in 2010.⁵

The national MMR in India conceals wide regional variations. States viz. Kerala, Tamilnadu and Maharashtra have low MMR and achieved MDG 5 target,⁶ however in nine other states, MMR estimate still range between 258 and 390. These nine states account for 62% of maternal death in India and 12% of the global burden of national mortality and Uttar Pradesh (UP) being one of them⁷.

The government of India has been implementing various programs from time to time to tackle these issues, a well-known scheme JSY was launched in April 2005 under the umbrella of NRHM (National Rural Health Mission) of India. JSY is one of the world's largest conditional cash transfer scheme.

JSY is 100 percent sponsored by the central government and it integrates cash assistance with delivery and post-delivery care. ASHA (Accredited Social Health Activist) plays an important role in JSY⁸.

Table 1: The Cash Entitlement For Institutional Deliveries Under Jsy⁸:

CATEG ORY	RURAL AREA		TOTAL	URBAN AREA		TOTAL
	Mother's package	ASHA package	Amount in rupees	Mother's package	ASHA package	Amount in rupees
LPS ¹	1400	600*	2000	1000	400**	1400
HPS ²	700	200	900	600	200	800

ASHA package of Rs. 200 for HPS rural and urban area is effective from April 2009

1. LPS- Low performing states
2. HPS- High performing states

*ASHA package of Rs. 600 in rural areas include Rs. 300 for ANC component and Rs. 300 for facilitating institutional delivery.

**ASHA package of Rs. 400 in urban areas include Rs. 200 for ANC component and Rs. 200 for facilitating institutional delivery.

With the objective of reducing maternal and neonatal mortality by promoting institutional delivery among poor women the JSY introduces frontline health workers called ASHA as a link between government and pregnant women in the community. Role of ASHA aims at bridging gap between the provider and the client, thereby motivating women and their families to seek delivery care at a health facility. An analysis of the causes of maternal death in India found that nearly half of maternal deaths occurred when institutional care had not been availed at the time of delivery. Among the reasons for not delivering health facilities, inadequate transport facilities (10.4%) and lack of adequate money (17.9%) featured as important reasons. But evidence from NFHS-3 indicates that utilization of health services is not always a function of financial accessibility of a person but also physical accessibility. For improving physical access nearly 20 models of ambulance service delivery have been implemented across the country.

In addition, the National Ambulance Service (NAS) was launched in 2014 by the UP government (TOI JAN, 2014). This provides emergency transport services for pregnant women to further promote institutional deliveries. It is free of cost for beneficiaries of the JSY and JSSK schemes. Pregnant women and infants up to one year are provided pickup and drop-back facilities, available by dialling a toll-free number 102 from a mobile or landline.

The '108' call-centre based ambulance system is a free of cost emergency response system, known to be one of the largest public private partnership (PPP) initiatives across India functioning in 20 states and two union territories. Although it is designed primarily to attend to patients who are critically ill and, victims of trauma and accidents, state governments consider '108' ambulance services to be the mainstay of transport for pregnant women in both normal labour and emergency.

Ambulance services (108/102) play an important role to reduce second delay i.e. delay in reaching care in time. Dial 102 services essentially consist of basic patient transport aimed to provide the needs of pregnant women and children, though other patients are also taking benefit and are not excluded. JSSK entitlements e.g. free transfer from home to facility, inter facility transfer in case of referral and drop back for mother and children are the key focus of 102 service. 102 Ambulance service is meant for pregnant women and sick infants under JSSK and 108 ambulance service are only for medical

emergency cases.

Objectives

1. To study effects of JSY on increment of institutional deliveries.
2. To study role of ASHA in antenatal care
3. To study utilization of ambulance services in reducing MMR

Material And Methods

A retrospective observational study was performed at Department of obstetrics and Gynaecology, G.S.V.M Medical College, Kanpur in state of Uttar Pradesh which is a low performing state, during the period of 2018 to 2019. A total of 5134 obstetric patients including 1032 low general condition patients were included over duration of 20 months since January 2018 to august 2019. This observational study collected information regarding number of deliveries in different years in this tertiary care hospital, effect on availability of health facilities and antenatal care to the antenatal women after introduction of JSY, ASHA and ambulance services.

RESULTS

Table 2: Hospital Admission And Total Deliveries After Jsy

YEAR	OPD REGISTRATION	TOTAL ADMISSION	TOTAL DELIVERY
2007	15710	3781	1741
2008	25214	5632	2672
2009	30999	6454	3097
2010	33153	6882	3353
2011	35222	6912	3468
2012	41859	7075	3543
2013	50113	6603	3645
2014	51413	6705	3662
2015	54613	6852	6670
2016	54920	7131	4601
2017	62716	7836	4126
2018	63716	7947	4225
2019	58634	8946	5292

The table including data of OPD registration, total number of admissions and total number of deliveries in our hospital after implementation of JSY scheme, showing 136.6% increase in hospital admission rate and 203.9% increase in hospital delivery rates.

Table 3: Role Of Asha In Access Of Health Care Facility

Patients brought for ANC checkups	Normal general condition patients (n=787)		Low general condition patients (n=246)	
	No.	%	No.	%
Antenatal period	49	6.22	00	-
At the time of labour	621	78.9	200	81.3
Postnatal period	117	14.86	46	18.69

ASHA is bringing majority of low general condition (GC) patients (81%) at the time of labour, while only 6.22% patient during their uncomplicated normal antenatal period.

Table 4- Role Of Asha In Providing Antenatal Care

	Normal general condition patients (n=787)		Low general condition patients (n=246)	
	No.	%	No.	%
IRON FOLIC ACID SUPPLEMENTATION GIVEN	494	62.77	102	41.46
Patient compliant	312	39.66	42	17.07
Patient not compliant	182	23.12	60	24.39
IFA not given	293	37.22	144	58.53
BP recording	452	57.43	204	82.92

Many of the patients were not given antenatal iron and folic acid supplementation. Around 37% of normal GC patients and 59% of low GC patients were not given IFA supplementation during their antenatal period. Among those who were given 17% of low GC patients and 40% of normal GC patients were not compliant to this.

To diagnose preeclampsia and eclampsia one of the high- risk factors for Obstetric emergencies BP recording on at least two occasions 6 hours apart is required. Only 57.43% patients BP were recorded and even in low GC patients, in some of them BP was not recorded even on a single time.

Table 5: Comparative Evaluation Of Contribution Of Ambulance Services And Asha In Reducing Second Delay

	Normal general condition patients		Low general condition patients	
	No. (n=4102)	%	No. (n=1032)	%
102 & 108 ambulance services	1244	30.32	390	37.79
ASHA	787	19.18	246	23.83
Self	2071	50.48	396	38.37

ASHA is bringing only 20% of normal GC and 24% of low GC patients to tertiary care center, while ambulance services are bringing 30% of normal GC and 38% of low GC patients.

We divided low general condition patients in three groups –

- Group A-** low GC patients, managed in hospital
- Group B-** low GC patients, managed in hospital but needed ICU
- Group C-** low GC patients, received ICU care

Table 6: Comparative Evaluation Of Contribution Of Ambulance Services And Asha In Reducing Second Delay In Low GC

Government health services	Group A		Group B		Group C	
	No.	%	No.	%	No.	%
102 & 108 ambulance	215	34.56	43	39.8	132	43.7
ASHA	146	23.47	33	30.55	67	22.18
Self	261	41.96	32	29.69	103	34.10

Among low GC patients 102 & 108 ambulance transported 34% of group A, 40% of group B and 43% of group C. This is showing little value of ASHA in bringing patients to tertiary care centers.

DISCUSSION

The maternal mortality ratio in developing countries in 2013 was 230 per 1,00,000 live births versus 16 per 1,00,000 live births in developed countries

Maternal Mortality Ratio (MMR) in India was exceptionally high in 1990 with 556 women dying during child birth per hundred thousand live births. Approximately, 1.38 lakh women were dying every year on account of complications related to pregnancy and child birth. The country has been witnessing a progressive reduction in MMR from 167 in 2011-2013, 130 in 2014-2016, 122 in 2015-17, and to 113 in 2016-18.⁹ With this persistent decline, India is on track to achieving the Sustainable Development Goals (SDG-3)¹⁰ of 70/ lakh live births by 2030 and National Health Policy (NHP) target of 100/ live births by 2020.⁹

Institutional deliveries in India have risen sharply from 47% in 2007-08 to over 78.9% in 2015-16 (NFHS-4)⁷.

In our hospital, after the implementation of JSY scheme a 136.6% increase in hospital admission rate and 203.9% increase in hospital delivery rate was found in a duration of 13 years (from 2007 to 2019)

In NFHS-3, 2005-2006 only four out of every 10 pregnant women in India had institutional deliveries. This number almost doubled to 78.7% by 2013-14. The JSY scheme has brought a surge in institutional deliveries and huge financial uptake in most states.

Anemia, preeclampsia and eclampsia are the most common underlying causes of maternal morbidity and mortality. The high number of these cases indicate poor antenatal care and poor untimely referral¹, in our study although a large number of patients were brought to hospital by ASHA, but among them majority of the patients were of low general condition and that were brought to hospital very late either at the time of delivery or during postpartum complications, that shows a delay in timely referral and inadequate antenatal care.

In our study, many of the patients were not given antenatal iron and folic acid supplementation. Around 37% of normal GC patients and

59% of low GC patients were not given IFA supplementation during their antenatal period. Among those who were given, 17% of low GC patients and 40% of normal GC patients were not compliant to this. Only 57.43% patients BP were recorded and even in low GC patients, in 17.08 % patients BP was not recorded even on a single time, so the antenatal care provided by ASHA worker was inadequate.

Ande et al.¹¹ observed knowledge and attitudes of antenatal and postnatal mothers towards JSY. The study highlighted that more than half of the respondents were not aware about JSY. Only thirty percent respondents had knowledge regarding JSY. Majority of the respondents got knowledge about JSY through television and newspaper instead of ASHA workers.

Priya et al.¹² assessed the knowledge of recently delivered women in rural areas and urban slums. Study found that majority of the respondents have knowledge regarding the scheme but the name of the scheme did not know to all the respondents. The knowledge of the respondents limited to cash incentives for institutional delivery. Knowledge regarding free transport, antenatal check-ups, TT injections, IFA tablets and postnatal care was very low, only few females knew about it. Source of information regarding JSY was ASHA.

The proportion of institutional deliveries in India was around 40% in 2005-2006, which continued to increase up to 72% in 2009.¹³

Mohapatra et al.¹⁴ conducted a cross sectional study to examine the awareness about JSY among post-partum women and different components of utilization among them. Results depicted that ninety-one percent women delivered babies in government hospitals and most of the respondents arranged their own transport facility. Majority of the respondents received ANC check-ups and consumed IFA. About 85% respondents accompanied by ASHAs during delivery but ignorance was found in postnatal care.

A report of press information bureau Government of India 2015 showed the functionality of ASHAs in terms of promoting institutional delivery and counselling during ANC was 70% in Uttarakhand, 56% in UP and 48% in MP. ASHAs in all three states are more functional and effective on tasks related to promotion of institutional delivery and immunization which are also the most commonly incentivized tasks for ASHAs. The effectiveness of ASHAs in other areas such as ensuring three or more ANCs, providing appropriate advice in case maternal and new-born complication and community mobilization was found to be low in UP and MP.¹⁵

In our study, among low GC patients 102 & 108 ambulance transported 34% of group A– (low GC patents, managed in hospital), 40% of group B (managed in hospital but needed ICU) and 43% of group C (received ICU care). ASHA is bringing only 20% of normal GC and 24% of low GC patients to tertiary care center, while ambulance services are bringing 30% of normal GC and 38% of low GC patients. 50.48% of normal GC and 38.37% of low GC patients are coming to the hospital via their own transport.

Samiksha et al.¹⁶ concluded that between 9.0 % and 20.5 % of pregnant women in the population in 2013–2014 were transported by '108'. This suggests that '108' was the choice of transport for less than one-tenth to one-fifth of pregnant women. However, pregnant '108' users were more likely to be from below the poverty line and scheduled caste and tribes compared to the general population, signifying that relatively more needy women were utilizing '108' when pregnant, compared to the more well off in most states.

CONCLUSION

The JSY has increased the proportion of institutional delivery in India, especially among vulnerable populations the scheme appeared to increase institutional delivery, as well as in our institution. JSY has the potential to reduce maternal morbidity and mortality and improve maternal health care in India. This study showed that ambulance services have a major role in reducing maternal mortality and morbidity. There is a need to improve performance of ASHA by proper supervision and monitoring. The goal of 100% institutional deliveries is still far.

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