

Effectiveness of Government Schemes & Digital Healthcare for Progressive Maternal Care in West Bengal: A Systematic Review

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Received: 09 Sept., 2022

Revised: 20 Nov., 2022

Accepted: 01 Dec., 2022

ABSTRACT

Like all developing countries, India is also facing high maternal mortality rate. To reduce this rate of mortality Indian Government implemented different types of schemes from time to time. Among those schemes few are funding schemes which provide cash incentives to pregnant woman. In this paper we are going to discuss two such schemes namely Janani Suraksha Yojana (JSY), and Pradhan Mantri Matru Vandana Yojana (PMMVY). In JSY, some amount of cash is provided to mother if the delivery was taken place in government hospital. It has been seen that this scheme seems to be very beneficial reducing 77% reduction in rate of maternal mortality while world's average is only 43%. In PMMVY, a cash incentive of ₹ 5000 is directly given to the mother. On the other hand new technological development in health-care is also emerging like IoT, big data analytics, artificial intelligence, genomics, telemedicine etc., which is being used as e-Health and m-Health i.e., Digital health. So, in this paper we are going to study effectiveness of JSY and PMMVY in maternal health care and also will analyse the role of digital health in that. For doing the study we have used secondary data by using different types of quantitative data collection methods. We conducted study in all the 23 districts of West Bengal. The data is being taken from all the round of sample registration system to understand the pattern of maternal mortality in India. After that we have used all four National Family Health Survey [1998-99, 2005-06, 2015-16, 2020-21] to analyze the data. We have also used different electronic search sources like Google scholar, pub medicine etc., to analyze our data. The scheme seems to be very beneficial in increasing institutional birth and antenatal and postnatal visit as 20.5 %, 3.8%, and 6% growth respectively. But JSY able to cover only 26% of cost of maternal care in urban area and near about 16% in rural area so increases some out of pocket expenses for mother. Rate of maternal and child mortality decreases gradually that could be result of those schemes along with growing technologies in healthcare. The combination of JSY and PMMVY substantially helps mother in needful expenses. As a result of that mortality rate decreases and more awareness about maternal health rights and entitlement of quality of care.

Keywords: SRS, NFHS, Maternity care, Digital Health, JSY, PMMVY

How to cite this article: Shaw, S.K. and Dey, J.L. (2022). Effectiveness of Government Schemes & Digital Healthcare for Progressive Maternal Care in West Bengal: A Systematic Review. *IJISC.*, 09(02): 97-110.

Source of Support: None; **Conflict of Interest:** None



India is the largest democracy in the world and sustains 17.7 percent of the world's population. Woefully, India has an excessive number of maternal mortality in the world. India is one among the six countries that contribute to 50% of the world's maternal mortality. In India, healthcare is a state affair, and a State's population, size, socioeconomic development, demographic condition are the factors that affect its healthcare system^{[1],[18]}. For example, states like Uttar Pradesh, Madhya Pradesh, Bihar have higher numbers of maternal death in comparison to states like Kerala which have very low maternal mortality rates^{[17],[18]}. In India, maternal mortality reduction is a very slow process but between 1992-2006 much faster reduction has been seen. In that period India's Ministry of Health and Family Welfare was working on enhancing the Infrastructure of the healthcare system, particularly in the public sector. The main goal of that is to improve Emergency maternal care services (EmOC). They work on Community health centers' upgradation, quality of skilled birth care, and empowering non –specialist qualified doctors. Community health centers were used for 24-7 services, delivery, and training. Unfortunately, it has been found by national surveys that despite all those efforts and investments institutional delivery increased only insignificantly from 26% to 39%^{[1],[17],[18]}.

The government invests in different policies to upgrade EmOC facilities but more important is to make different strategies so that poor people could able to utilize those facilities b as the rate of maternal deaths was highest among them^{[3],[16]}. As upgradation of EmOC facilities helps to reduce the death rate. But poor women were facing different types of barriers mainly economic to access the facilities of EmOC, so they remained at the highest risk^{[3],[16]}. So there was the highest need to prioritize poor and low-income people's maternal health and to help rural poor people National Rural Health Mission (NRHM) was established. In 2005 Janani Suraksha Yojana (JSY) a conditional cash incentive scheme to help poor and low-income people to access facilities was launched under NRHM. The main goal of this scheme was to increase institutional delivery so beneficiaries were the mother who had done delivery in public sector institutions. After implementing JSY there was a gradual decrease in maternal death from 557 in thousand live births in 1992 to 115 in thousand live birth in 2016. JSY helps to reduce the mortality rate by nearly 68-72% while the global average was 42%. India Is being appreciated by WHO for achieving this extreme success in reducing the mortality rate where JSY plays a vital role^{[1],[4]}. The question may arise about the reason behind the success of the gradual decrease in mortality rate and increase in quality maternal healthcare. To explore the reason in this Research we analyze data from various sources to look into the trend of maternal mortality (1992-2022) in West Bengal the eastern State of India. And look into various types of factors like social status, education, place of living, household environment, policy, and economic status factors to analyze the reason behind the gradual fall in mortality rate and quality of healthcare outcomes^{[2],[3]}.

Afterward, in 2011 JSSK (Janani Sishu Suraksha Karyakarm) a centrally sponsored scheme was launched which also helps with the needful expenses of poor people. The utilization of public health facilities increased remarkably over the years after JSY & JSSK. In 2017 Pradhan Mantri Matra Vandana Yojana which was earlier known as Indira Gandhi Matra Vandana Yojana (2012) was launched that provides cash incentives of INR 5000 to lactating mothers for their first live child. Along with centrally sponsored schemes, some states also launched their incentive schemes to improve the quality of maternal care and reduce maternal death^{[9],[10]}.

An overview of Janani Suraksha Yojana (JSY) and Pradhan Mantri Matru Vandana Yojana (PMMVY)

Janani Suraksha Yojana (JSY) is a centrally sponsored conditional cash incentive scheme launched in 2005 for safe motherhood. The main goal of JSY is to reduce the maternal and child death rate in India by promoting institutional delivery. In this scheme, an incentive is provided to the mother as a form of cheque only after institutional delivery. Mothers get motivated to receive free public care for prenatal and antenatal, but they do not get any financial support for that. The amount of incentive varies from low-performing state to high-performing state^{[8],[9]}.

In 2010 Indira Gandhi Matritva Sahyog Yojana was launched by the Government of India and was further renamed in 2017 as Pradhan Mantri Matru Vandana Yojana (PMMVY). This maternity benefits program was executed by the Ministry of Woman & Child Development which provides cash benefits to mother. The pregnant or lactating mother should have a minimum age of 19 years. The main goal of this scheme is to help in reducing wages for safe childbirth and child care. It helps to ensure proper prenatal and postnatal care and the right amount of nutrition as shown in table 1^{[8],[10]}.

Table 1: Features of two cash incentive schemes for maternal care in India

	Area	Target Group	Type of Program	Incentive for	Payment mechanism	Expected Outcomes
JSY	Nationwide (studied here West Bengal)	All mothers	Conditional cash transfer (CCT) by State to mother	Institutional delivery	In low performing state mother will get INR 1400 for rural area and 1000 for urban area. In high performing state mother will get INR 700 for rural area and INR 600 for urban areas	Reducing mother and infant mortality rate by promoting institutional delivery among poor women
PMMVY	Nationwide (studied here West Bengal)	All mothers (Pregnant / Lactating)	Direct benefit transfer (DBT) By Central Gov	To improve health care behavior in pregnant or lactating mother by providing compensation in wage loss	INR 5000 is given in 3 installment 1. INR 1000 after registering pregnancy 2. INR 2000 after 6 month of pregnancy & ANC visit 3. INR 2000 after child registration and doing some essential vaccination	Reducing wage loss in pregnant and lactating (PM/LM) Mother and support in receiving medical facilities during and after pregnancy.

Objectives

- ❑ The main objective of this study is to analyze the pattern of the mortality ratio of mothers (1998–2022) using multiple data sources.
- ❑ Study the effectiveness of two government schemes (JSY and PMMVY) on the maternal health care status of West Bengal.
- ❑ Study the advancement of technology and analyze its effect on maternal health care and reducing child mortality.

Data & Methodology

For doing this study we have taken all 23 districts of West Bengal (Fig. 1). both cash incentive schemes JSY & PMMVY is running in all these districts. The demographic and indicators related to health are shown below (Table 2).

Table 2: West Bengal's Health and Demographic Index

Population	97,694,960(97.69 Millions)
Administrative districts	23
BPL	14.88%
Literacy rate	80.5%
Institutional Delivery	75.2%
IMR	20
MMR	5

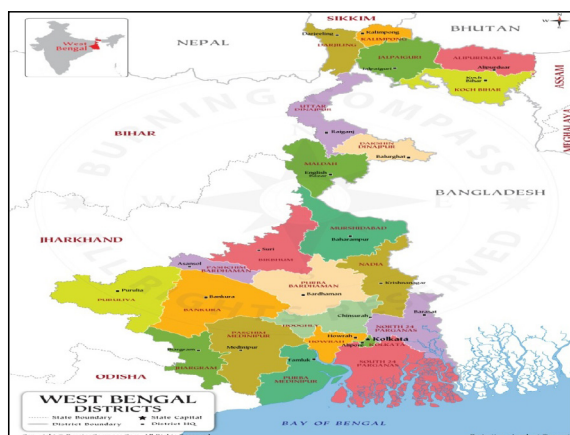
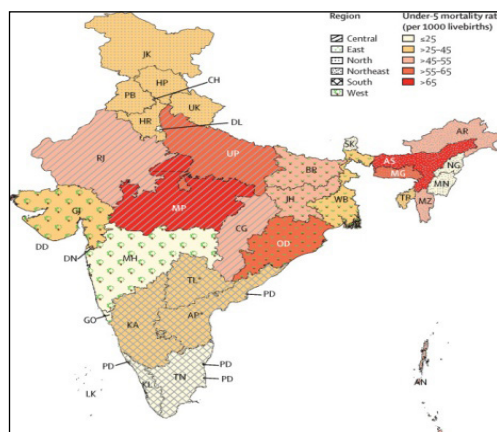


Fig. 1: Study Area

Secondary data is used for the study using different quantitative methods. All sample registration systems are used for data collection that is further analyzed by four rounds of the National Family Health Survey which were done in the year 1998-99 (NFHS-2), 2005-06 (NFHS-3), 2015-16 (NFHS-4), 2020-21 (NFHS-5). The first national family health survey was done in 1990-92 called NFHS-1, from that period

it has become a very resourceful media for data related to health, nutrition, population, etc of all states of India^{[11],[12]}. The study was also conducted by a systematic review of the literature. In this study, we considered only those studies which were published after the 2005, implementation of JSY. We mainly used Google Scholar, PubMed & Research Gate for collecting related information.

We established two probit equations. One equation is used for finding the place of delivery of the mother. It might be a public sector institution or private. The second equation used to find the mortality ratio of the child who died below five years of the concerned mother. So as an outcome variable, we are getting two variables, place of delivery (DH), & mortality of child (MC). So these two equations are being estimated.

$$DH = \alpha_0 + \alpha_c X_c + u_c + \epsilon_c \quad \dots(1)$$

$$MC = \beta_0 + \beta_h X_h + u_h + \epsilon_h \quad \dots(2)$$

Here delivery in hospital and mortality of child is denoted by subscript c , h respectively, and constant terms interpretations for these equations are shown as α_0 , β_0 . Coefficient of different describing variable are denoted by α_1 , β_1 . X_c , X_h act for possible regressors that may significant effects on the requirement of maternal health input and child mortality. Therefore, the binary outcome variables are represented as

$$DH = 1 \text{ if delivery taken place in the hospital} \quad \dots(3)$$

$$0 \text{ if delivery is not in hospital} \quad \dots(4)$$

$$MC = 1 \text{ if the child below 5 years is dead} \quad \dots(4)$$

$$0 \text{ if no child below 5 years is dead}$$

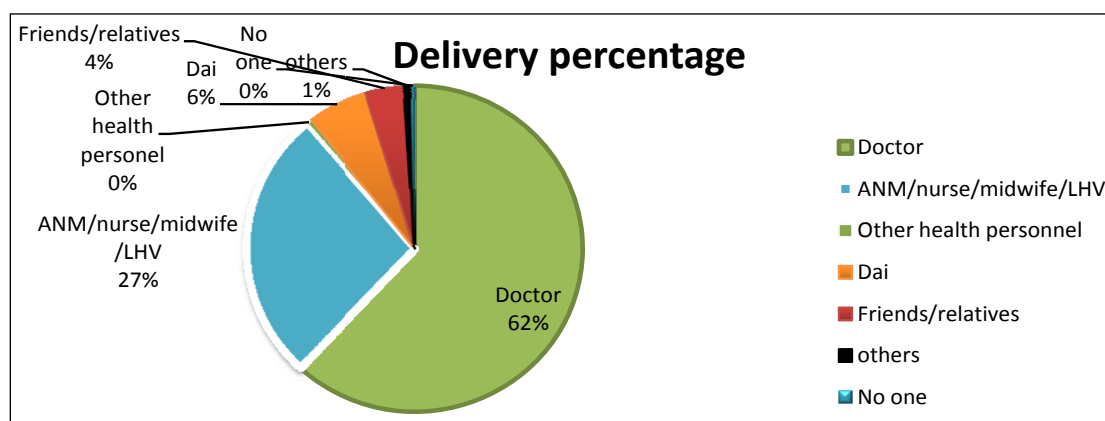
Here u_n ($n = c, h$) is denoting an error term which handles overlooked diverseness generated by mother. So, $u_n \sim N(0, \mu_1^2)$; μ_1^2 is negligible factors variance and ϵ is used for all other remaining variation.

RESULTS AND DISCUSSION

Jsy could able to increase use of maternal healthcare facilities by providing cash incentives. Since it promotes institutional birth so skilled birth attendance increase remarkably after implementing JSY. As there is no financial support for ANC, PNC, it provides partial financial support and total maternal care was still in risk. The reason behind that is in JSY the whole incentives is given for institutional delivery, so mother are not getting support for prenatal and postnatal care. The coordination between demand and supply side could be enriched by intermediatry health officer, The ASHA is also playing a very important role between mother and maternal care facilities provided by institution. They motivate mother for taking free health care facilities and also outsourcing facilities that were inaccessible during delivery^{[6],[7]}.

During the pregnancy period the nutritional requirement of woman increases to deliver a healthy child, that increases their out of pocket expenses. PMMVY Yojana helps pregnant and lactating mother by providing a cash incentives of 5000/- in three installments to fulfill their daily nutritional need^{[9],[10]}.

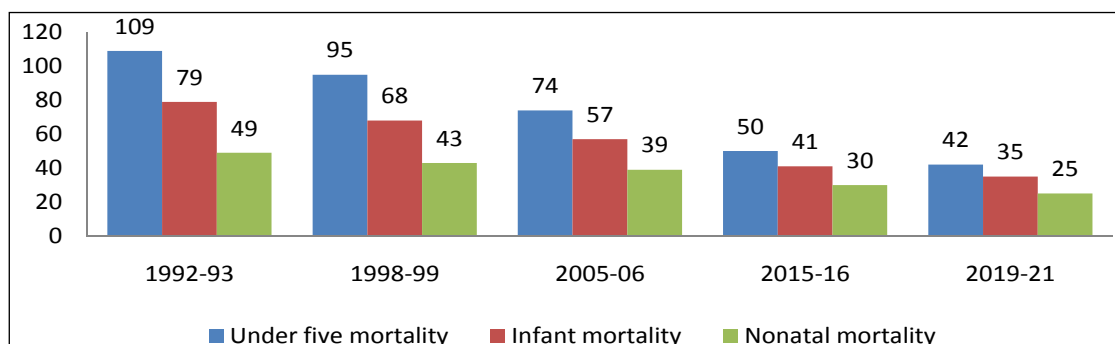
In West Bengal near about 33% of population is living in urban area and remaining 77% are still in rural area. The average 4.5 members are there in every household. Near about 77% population is Hindu, 24% are Muslims and remaining 3% are from other religion. 7% of population is of age 65 or more and only 26 % are under the age of 15. Among children who are below age of 18 ,4 % use to experience death of one or both parents. Fig. shows the percentage of West Bengal delivery according to the person like Doctor, Dai, ANM etc who performed the delivery.



Source: NFHS5 1919-21.

Fig. 2: Percentage of Delivery Personnel of West Bengal

In West Bengal infant mortality rate is estimated at 79 in NFHS1, 68 in NFHS2, 57 in NFHS3, 41 in NFHS4, and 35 in NFHS5 in 1000 live births. Boys had a slightly higher mortality rate than girls in the neonatal period while girls had a slightly higher mortality rate than boys in the post-neonatal period. The Infancy mortality rate is higher in children whose mother age is below 20 than children whose mother age is between 20 to 29 years. The infant mortality rate is near about 32 for mothers of age below 20 years and about 27 for mothers of age between 20 to 29 years, per 1000 live births. The gap between two children is also a vital cause of children's deaths. It has been found that if the gap between two children is 2-3 years are more likely to die than those who have a gap of 4 years or more.

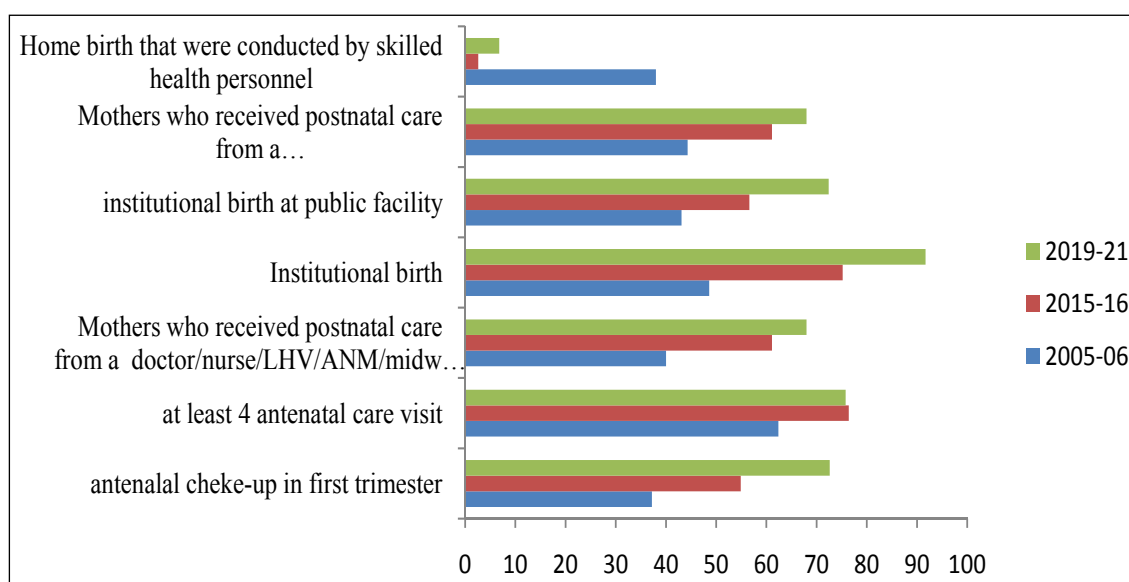


Source: NFHS2, NFHS3, NFHS4, NFHS5

Fig 3: Child Mortality Rate (1992-2021)

Antenatal care

All the woman who given birth to their child five years prior to the survey, their data is being taken and analyzed by all rounds of NFHS. It is found that only 93% of mother registered their pregnancies and among them only 96% received mother child healthcare card (MCP). According to survey 89% of mother went through antenatal care by a health professional (78% from doctor and 11% from other health professional like ANM, midwife nurse etc). Only 56% of registered pregnancies received antenatal care visit in their first trimester of pregnancy. All the four prenatal care visit is received by only 78% of mother. It has been seen that urban woman had slightly higher rate of 4 antenatal care visit percentage than rural woman^[12]. From NFHS3 (2005–06) the antennal care visit in first trimester and all four prenatal care visit during pregnancy period was gradually increasing. It can be seen as an result of implementation of JSY (2005). Iron and folic acid consumption was quite satisfactory 92 %, but only 30% of mother consume it for 100 days. Neonatal tetanus protection percentage is increased by vaccinated mother by tetanus toxoid.



Source: NFHS3, NFHS4, NFHS5

Fig. 4: Facility utilized by mother

Postnatal Care

Postpartum healthcare is very much crucial for reducing mother mortality and protecting their health. It is recommended that the mother should have a postnatal check-up within 2 days of delivery. It has been found that only 71 percent of the mother had a postnatal check-up and only 63% of them had a postnatal check-up within two days of delivery. 70% of mothers give birth in a public health facility and 80% in a private health facility and 22% of home birth. Only 18 % of home birth went through a postnatal checkup within two days after the delivery as recommended as shown in Fig. 4.

Digitization of Healthcare (2000 – 2020), between those periods two Government schemes were operational in West Bengal

ICT has been widely used in the healthcare industry for the last two decades and played a major role in the healthcare sector. In healthcare different types of ICT technologies are being used as hospital management and information system, keeping huge amounts of health-related data electronically. PAX is used for the archival and retrieval of all digital imaging systems and barcoding^[14]. There are two very beneficial perspectives of ICT in healthcare telemedicine and telehealth which are developing rapidly. Webel(West Bengal Electronics Industry Development Corporation Limited) started working rapidly on the project of telemedicine and telehealth. In West Bengal, WEBEL is going to implement National Optic Fibre Network(NOFN), which would provide huge bandwidth up to rural areas, and then an enormous amount of telemedicine could be possible. In West Bengal about 16,000 telemedicine centers are going to be set up within a few years^[15].

Table 3: Advancement of Telemedicine in India

Year	Telemedicine
2001	ISRO launched Satcom based telemedicine collaborating with Apollo hospital, Chennai.
2000-01	AIIMS-New Delhi, PGI-Chandigarh & SGPGI-Lucknow is created, India's first telemedicine network after Telemedicine Society of India started after that.
2003-04	Integrated Disease Surveillance Project (IDSP) was launched with World Bank assistance by Ministry of Health & Family Welfare, connecting 776 sites in States/District HQs and Premier institutes.
2004-05	Indian Task Force for Telemedicine made by MoHFW
2009 – 11	National Rural Telemedicine Network, National Medical College Network etc Government initiatives started
2011-12	In Lucknow National Resource Centre for Telemedicine established at SGPGI
2012-13	In Pune National Resource Centre for EHR standards established at CDAC
2016 – 17	Notificated changes in Revised Electronics Health Record (EHR) Standards (initially in 2013) and Health Metadata & Data Standards (MDDS).
2018 – 19	To digitize healthcare in India national level healthcare policy and working of Niti Aayog in health stack and a report is submitted to health ministry.
2018-19	CORS (CollabDDS Online Radiology Services) is launched for 79 Primary Healthcare Centres for Tele-Radiology consultation
2019-20	52 Government medical colleges got interconnected by NMCN. Helps in remote learning and tele education.
2020-21	National Digital Health Mission modified e-Sanjeevani Telemedicine Platform for providing Online consultation to patients.

Government had seen its benefit at the time of COVID-19 when such type of units were working taking 130 doctors. The National Digital Health Mission is also supporting to collaborate. But on the other hand West Bengal healthcare is suffering from skilled manpower, infrastructure, quality medical training institute, shortage of fund etc in facilitating ICT and emerging new technologies properly. Government is taking some good policy measures to solve this problem.

Findings

After comparing and analyzing data from different sources viz. all NFHS, and other sources as mentioned

in the data collection methodology we concludes different types of result in table forms as given below^[11]^[12]. Based on the place of living of West Bengal percentage of mother getting all types of antenatal and delivery care for their recent most live birth in the 5 years prior to the survey.

Table 4: Indicators of antenatal & delivery care according to NFHS

Indicators	NFHS5 (2019-20) NFHS4 (2015-16)			
	Rural	Urban	Total	Total
Antenatal Care (For early birth in the 5 years prior to the survey)				
1. In the first trimester mother who went through an antenatal checkup (%)	74.8	71.9	72.4	54.6
2. Mother who went through at least 4 antenatal check-up (%)	81.4	73.6	75.6	76.2
3. Mother whose last new born was given tetanus (%)	96.4	94.1	94.5	95.2
4. Mother who took iron and folic acid at least for 100 days (%)	64.2	61.9	62.6	28.2
5. Mother who took iron and folic acid at 180 days or more (%)	33.4	29.8	30.6	6.2
6. Mother who had MCP card after getting registered (%)	96.8	99.2	98.6	97.3
7. Mother who received postnatal care within 2 days by any health professional viz. (Doctor/Nurse/Anm/Midwife etc.) (%)	74.2	65.6	68.2	61.2
8. For public sector delivery average out of pocket expenditure in INR	2,678	2,684	2,686	7,918
9. Children took to public health facility within 24 hours after home birth (%)	1.7	10.6	8.6	4.7
10. Postnatal care received by children within 2 days of birth by any health professional viz. (Doctor/Nurse/Anm/Midwife etc.) (%)	79.2	75.8	76.6	Na
Care after delivery (For early birth in the 5 years prior to the survey)				
11. Birth took place in Institution (%)	92.4	91.7	91.8	75.4
12. Birth took place in public institution (%)	62.6	75.6	72.5	56.4
13. Skilled professional managed home birth (%)	2.8	2.4	2.7	6.6
14. Skilled professional managed birth (%)	95.4	93.6	94.2	81.7
15. Caesarean section birth (%)	43.6	28.4	32.9	23.6
16. Caesarean section birth took place in private health facility	80.4	84.2	82.6	70.8
17. Caesarean section birth took place in public health facility	31.8	20.2	22.8	18.6

Based on the background characteristics of West Bengal percentage of mother getting all types of antenatal and delivery care for their recent most live birth in the 5 years prior to the survey.

Table 5: Indicators of antenatal & delivery care State Wise

Name of district	4 antenatal visit by mother (%)	First trimester antenatal visit by mother (%)	Iron & Folic acid consumption for 100 days by mother (%)	Two or more tetanus (TT) injection taken by mother (%)	Mother Received all type of antenatal care (%)	Mother Having MCP card (%)	Total number of pregnant woman	Registered pregnancies
Bankura	89.4	65.6	46.2	93.6	40.7	97.2	163	158
Bardhaman	83.4	67.1	35.8	82.4	28.9	96.9	359	350
Birbhum	77.9	51.2	22.5	92.9	17.1	99.6	164	155

Cooch Bihar	74.6	57.9	20.1	87.9	18.0	96.9	132	118
Dakshin Dinajpur	68.9	53.2	39.2	56.2	25.4	99.2	69	66
Darjiling	66.2	80.9	42.6	96.7	32.9	93.4	67	62
Howrah	87.1	73.8	38.5	60.1	32.2	94.3	218	202
Hooghly	77.1	52.6	32.9	93.8	24.8	97.9	240	233
Jalpaiguri	80.8	56.9	24.3	86.9	20.1	96.8	161	148
Kolkata	84.6	76.0	41.9	91.3	33.1	91.9	145	123
Malda	53.0	43.1	18.9	87.9	11.8	95.8	232	199
Murshidabad	71.9	48.9	22.8	96.9	16.8	99.0	454	426
Nadia	92.0	67.9	35.9	95.6	34.1	98.5	278	273
North 24 Pargana	80.2	51.9	22.1	95.8	17.1	96.5	454	426
Paschim Mednipur	83.9	50.2	25.9	95.1	21.3	97.8	278	273
Purba Mednipur	79.1	42.0	30.2	95.3	22.8	98.1	275	255
Purulia	69.0	51.9	35.2	78.8	23.6	99.9	161	158
South 24 Pargana	76.2	50.2	23.8	92.1	15.9	98.0	499	484
Uttar Dinajpur	42.9	37.2	5.8	84.4	4.5	96.6	183	156
West Bengal	76.4	55.2	27.9	90.8	22.0	97.5	4,462	4,212

Based on the background characteristics of West Bengal percentage of mother getting all types of antenatal and delivery care for their recent most live birth in the 5 years prior to the survey.

Table 6: Indicators of antenatal & delivery care based on Background Characteristics

Characteristics referring background	4 antenatal visit by mother (%)	First trimester antenatal visit by mother(%)	Two or more tetanus (TT) injection taken by mother (%)	Protected newborn from neonatal tetanus (%)	Iron & Folic acid brought or provides to mother (%)	Iron & Folic acid consumption for 100 days by mother (%)	Mother Received all type of antenatal care (%)	Intestinal Parasite drug taken by mother (%)	Total Number of Woman
Mother's age									
At the time of delivery									
<20	79.2	56.2	93.0	96.3	91.2	25.2	21.1	16.4	1,142
20-35	76.5	54.6	92.8	95.8	92.3	30.2	23.5	20.3	3,327
36-50	61.3	46.7	91.6	94.6	88.8	34.6	25.4	19.2	102
Number of children									
1	83.7	61.2	93.4	96.2	93.5	32.4	26.3	19	2,116
2-3	75.0	52.3	91.5	94.9	90.6	27.6	20.4	20	2,029
4+	52.2	40.6	88.6	92.8	82.4	22.4	14.5	14	319
Place of living									
Urban	77.9	59.2	91.4	94.9	90.9	32.2	26.4	21.2	1,284
Rural	76.2	52.8	82.2	96.1	90.5	27.0	21.6	19.3	3,177

Education									
No education	61.2	46.2	89.0	94.3	87.1	27.1	17.2	18.0	725
<5 years of schooling	73.2	52.5	94.1	96.4	90.2	27.3	20.5	19.2	602
5-10 years of schooling	80.1	54.5	93.5	96.9	92.7	26.4	21.3	20.4	1,960
11-12 years of schooling	81.5	57.4	90.2	97.0	94.6	33.4	28.2	19.8	587
>12 years	87.6	73.2	93.7	96.2	95.2	37.6	31.5	18.6	591
Religion									
Hindu	78.8	54.6	90.8	94.6	92.7	29.9	23.6	17.2	2,906
Muslim	66.5	54.3	89.7	94.1	85.9	22.7	16.7	16.8	1,382
Christian	81.6	79.4	94.6	94.0	94.2	26.8	13.9	2.8	17
Other	97.4	32.9	92.4	93.7	91.5	15.9	15.7	45.6	163
Caste/ Tribe									
General	86.4	64.3	94.1	95.2	93.9	32.2	26.7	24.9	2,320
OBC	82.6	62.2	92.3	94.8	93.1	30.7	25.4	23.7	2,282
SC/ST	78.6	54.9	90.0	93.9	94.5	28.6	22.6	20.4	1,486
Other	75.2	54.2	92.4	94.2	89.7	26.8	21.5	18.3	123
Total	77.2	55.8	92.6	96.7	90.4	27.8	22.4	19.2	4,458

We have calculated two probit equations with two output variable HD, MC as given below:

Table 7: Delivery in Hospital (DH)

	Effect on the Hospital Delivery	Marginal Effects of the respective covariate
Prenatal Care	0.417 (0.39)	—
Place of residence	1.053*** (9.85)	0.2441
Age of the mother	0.000496** (2.60)	0.0001
Religion (ref. group Hindu)		
Muslim	-0.581*** (-6.54)	-0.1344
Living Standard (ref. group economical)		
Good	0.758*** (4.93)	0.1768
Very good	0.508** (2.83)	0.1178
Access to Information	0.00627** (3.22)	0.0013
Mother's education (ref. group Illiterate)		
Primary level	0.304** (2.80)	0.070
Secondary level	0.603*** (5.12)	0.1398
Birth order of the child	-0.191*** (-4.26)	-0.0442
Constant	-1.576 (- 1.72)	
t statistics in parentheses. *p < 0.05, **p < 0.01, ***p < 0.001.		

Delivery in Hospital (DH): As in all other developing countries process of delivery is not fully institutionalized in India (West Bengal) also. Socio-economic factor is determining factor on choosing the place of birth^[20]. Mother's age had no remarkable effect in that but mother's education had great effect. Primary education has (8%) and secondary education has (15%) in choosing place of delivery as hospital (Table 7)^[19].

Table 8: Mortality of Child (MC)

	Result on Child Mortality	Insignificant Effects of respective covariate
Place of delivery	-0.693* (-2.08)	-0.1293
Age of the mother	-0.000400* (-1.97)	-0.0001
Religion (ref. group Hindu)		
Muslims	-0.256* (-2.48)	-0.0477
Christian	-1.036* (-2.19)	-0.1933
Mother's occupation (ref. group unemployed)		
Manual	0.320** (2.63)	0.0596
Say in household decision-making	0.0129* (2.56)	0.0024
Birth order of the child	0.376*** (7.12)	0.0704
Constant	-1.103 (-1.33)	
t statistics in parentheses. *p < 0.05, **p < 0.01, ***p < 0.001.		

Mortality of Child (MC): ICT and Digitization of healthcare along with Scientific and technological innovations can positively save the lives of the millions of children who are prone to die in the developing countries due to various factors. Inventions of various vaccines and improvement in diagnostic methods are playing the role of angel in this context. According to regression analysis hospital delivery remarkably reduces child mortality. So mother who delivered their child in hospitals were 12% less risk of child mortality (Table 8)^[19].

CONCLUSION

In this paper, we study to find the effectiveness of two large-scale cash incentive schemes for maternal care. The main reason behind doing the study is to analyze the outcome after implementing financial schemes. This evaluation helps policymakers in our country and outside of India where these types of financing programs are currently working or planning to launch a relevant program. The study also helps to find the area that needs improvement that helps to suggest some better plans after strengthens the current working schemes. In West Bengal these cash incentive schemes help in better maternal care, lowering the mortality rate, the rise of institutional birth in the public sector, and reducing the out-of-pocket expenses of the mother. Despite these benefits, mothers are getting only partial financial support from JSY because it supports mainly institutional delivery, and antenatal and postnatal care provisions are very less. So there was a need for some more flexible financial support for the mother. So the integration of JSY and PMMVY schemes together helps to support overall maternity care and the sustainability of maternal care could be ensured. Secondary data is used for the evaluation of the schemes and it found a remarkable growth in institutional delivery, antenatal and postnatal care. It has been also seen that

technological development and advancement of ICT were playing a significant role in this positive result.

ACKNOWLEDGEMENTS

We would like to express our deepest appreciation to Dr. P.K. Paul and other faculty members of Dept of CIS, Raiganj University, WB, India for all their guidance and support.

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