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An Evaluation of National Rural Health Mission (NRHM) in Odisha

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Abstract: *The Government of Odisha launched the National Rural Health Mission (NRHM) programme through the state on 17th June 2005. NRHM has completed its six years of journey in Odisha. It becomes necessary to assess the impact of NRHM on the health indicators, to know how the schemes under NRHM are working in Odisha and to assess the transition in the health status of Odisha. Both the primary and secondary data are used for the analysis of data. Multiple Regression Analysis is used to know how the SGCE and SGRE on health and family welfare have influenced the health indicators.*

Keywords: *NRHM, Multiple Regression, SGCE & SGRE*

INTRODUCTION

National Rural Health Mission[1] was launched by the Hon'ble Prime Minister Dr Manmohan Singh on 12th April 2005 in the country, with a special focus on 18 states including Odisha. It is the biggest ever health project in the health sector in the last 50 years. It recognizes the importance 0f health care in the process of economic and social development and improving the quality of lives of our citizens. It provides effective health care to rural population throughout the country with focus on 18 states which have weak public health indicators and weak infrastructures, NRHM initiative as a whole with its wide approach is a national movement than just a national health project. It "seeks to provide universal access to equitable, affordable and quality health care which is accountable and responsive to the need of the people, reduction of child and maternal deaths as well as population stabilization, gender and demographic balance[2]." It would also help to achieve the goals set under the NRH policy and Millennium Development Goals.

NRHM in Odisha entered into the third year in June 2007. The broad programme of NRHM in its ambit include the NRHM New Initiative, the ongoing Reproductive and child Health Phase-II program, National Immunization Programme (NIP), National Disease Control Programme and inter-sectoral convergence efforts.

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PROBLEM SETTING

Odisha, the poorest states of the country is vulnerable to repeated natural calamities like droughts, floods and cyclones. The recurring natural calamities further exacerbate distress of the people, particularly small and marginal farmers and landless laborers. The agrarian structure predominated by small and marginal farmers whose capacity to invest is limited. The poor agricultural productivity resulted in virtually stagnant agricultural growth and employment generation. That, further, has an adverse effect on the health status of the people. Deficient in infrastructure- railways, paved roads, ports and telecommunication-limits the optimal exploitation of its vast natural resources and the followed industrial growth. On the other hand poor infrastructural development in hilly terrains of western and southern Odisha, many rural communities are physically excluded from the rest of the state and denied access to essential socio-economic amenities like schools and hospitals. As a result of which birth rate, death rate, infant mortality rate, life expectancy rate, maternal mortality ratio, total fertility ratio etc. lags behind the national average.To improve the prevailing situation, the Government of Odisha launched the National Rural Health Mission (NRHM) programme through the state on 17th June 2005.

NRHM has completed its six years of journey in Odisha. It becomes necessary to assess the impact of NRHM on the health indicators, to know how the schemes under NRHM are working in Odisha and to assess the transition in the health status of Odisha. This is an attempt in this broad direction of evaluation of NRHM.

OBJECTIVES OF THE STUDY

In the light of the above problem setting, the main objectives for the present study are (1) to know how NRHM working in Odisha, (2) to know how the state government capital expenditure and revenue expenditure influence the birth rate, death rate and infant mortality rate over 30 years.

METHODOLOGY

Both the primary and secondary data are used for the analysis of data. Primary data is collected through personal interview method. Multiple Regression Analysis is used to know how the state government capital and revenue expenditure on health and family welfare have influenced the health indicators like infant mortality rate, birth rate, death rate. The model used is of the following form.

$$Y = \alpha_0 + \beta_1, X_1 + \beta_2 X_2 + \varepsilon_i$$

Where, Y = Birth Rate/ Death Rate/Infant Mortality Rate, α_0 = Intercept, β_1, β_2 = Coefficients, ε_i = Disturbance Term, X_1 = State Government Revenue Expenditure (SGRE) on medical, health & sanitation, X_2 = State Government Capital Expenditure (SGCE) on medical, health & sanitation

SCOPE OF THE STUDY

This study is mainly confined to Odisha, particularly, to CHC Gop, PHC (N) Konark, Simili Sub centre and only to Kharagaon village. Other states and other districts are ignored except Puri.

LIMITATIONS OF THE STUDY

The study only takes into account the significant effect of SGCE and SGRE on birth rate, death rate and infant mortality rate. Except the SGCE and SGRE, there are also other factors that affect birth rate, death rate and infant mortality rate.

REVIEW OF LITERATURE

Some of the literatures studied on the light of the above objectives are discussed below.

S. P. Jain (1981)[3] studied the level and differentials of infant and child mortality in India and demographic impact. He discussed the factors affecting the levels and differentials of infant and child mortality. He stressed the importance of socio-economic factors, nutrition and control of communicable diseases for infant and child mortality.

Ramani KV, and Dileep Mavalankar (2005)[4] explained the status of the health system of India from a different view. His study found that non-availability of staff; poor service delivery, financial shortfalls, weak referral system and lack of qualitative health care are the main problems in the Indian health care system.

Jalandhar Pradhan and P.Arokiasamy[5] (2006) in their paper revealed that the major contributors to the high infant and child mortality rates are the extremely low levels of health sector investments and the associated quality of care. They assessed the macro and micro-level determinants of high infant and child mortality rate using multivariate logistic regression analysis. Their multivariate analysis indicates the way in which maternal, health infrastructure, household environmental, and socio-economic factors variably influence neonatal and early childhood mortality. Most maternal and child health care and socio-economic factors included had a statistically significant influence on infant and child mortality.

Ravi Duggal (2009)[6] strongly argued that persons who provide health care and understand the reality at the grass root level, their participation is highly essential while making planning. According to him, if the planners have no idea about the ground realities, then, increase in expenditure on public health through NRHM will be fruitless. Thus, he suggests that those who have direct link with the public health system, they should be given full autonomy while allocating the budget.

Srabanti Mukharjee (2010)[7] tried to analyze how NRHM is working in India. For this reason, she interviewed 100 doctors who were working in rural areas of Odisha, Assam, Jharkhand and Chhatisgarh. She reached at the conclusion after examining

the data that NRHM has brought some moderate improvement in the rural health care framework. But, because of the inefficiencies in terms of man power, health, infrastructure, lack of prevention of health insurance, implementation of AYUSH, it cannot be said that NRHM is 100% effective in providing adequate health services to people in rural areas.

Zakir Husain (2011)[8] made a study on the successful implementation of NRHM in India by three common review missions by the Ministry of Health and Family Welfare available in the NRHM website. In that paper he attempted a desk review of the progress of the mission with respect to its core strategies-provisioning of health services to households through accredited social health activists, strengthening rural public health facilities, enhancing capacity of panchayats to control and manage provisioning of health services and positioning of an effective health management information system. Using data from the NRHM portal, he has estimated the number of units required, the number available and the deficit. He reached the conclusions that were deficiencies in physical infrastructures i.e. SCs, PHCs, CHCs in India.

EVALUATION OF NRHM

For evaluation of NRHM in Odisha, Puri district was selected. In this district, one CHC, one PHC, two sub-centers, one sector and one village were selected. These were CHC Gop, PHC (N) Konark, Konark sector, Simili sub centre and Konark Sub centre; and Kharagaon village. Discussions were held at block level, sectors level and at village level. Besides, discussions were also made with doctors, LHV, Block Extension Educator (BEE), Pharmacists, nurses, ASHAs, AWWs, Sarapancha, Ward members and village people. The detailed data obtained from the selected CHC, PHC, Sub centres, and Sector and village are discussed below.

STRENGTHENING OF CHCs[9]

In Odisha, 314 CHCs are required for the existing population. But only 231 CHCs are noe running in Odisha. As per the IPHS norm, all the CHCs will be upgraded very soon. Now, 18 PHCs, 51 CHCs and 18 SDH are working as FRU. There is acute shortage of specialists in Odisha. In place of 924 specialists, only 371 posts are filled up although 496 posts have been sanctioned at CHC level and no contractual doctors have been appointed at CHCs in Odisha.

CHC Gop was established in the year 1994. Before 1994, it was a PHC.11 lakh 88 thousand people depend on this CHC. Presently it has 8 PHCs and 29 sub centres. But before NRHM it has only 27 sub centres and 8 PHCs. From the visit to CHC Gop, it is found that at present, the infrastructure of the CHC (Gop) is very poor and is improving. Construction work is going on inside the CHC. Maximum numbers of equipments and essential instruments have been purchased and are now available at the CHC.

Presently, the CHC (Gop) is running in the old government PHC building. Some specific treatments that include poisoning cases, treatment of wounds, burns, fractures etc. are undertaken at CHC. Universal immunization, care of new born baby, antenatal cara, prenatal care etc. are also being carried out at the CHC.

Now, one new labour room is constructed, laboratory is renovated, separate AYUSH OPD is constructed, general OPD renovated, new office building is functioning. Except that two medicine stores and two doctors' quarters are under construction.

Before the implementation of NRHM, the CHC Gop possessed Doctors-4, Block Extension Educator/Public Health Extension Officer-1, Pharmacists- 1, LHV-4, Staff nurse-1, Ophthalmic Assistant-1, Attendant-4, Sweeper-2, Driver-2 (one ambulance driver and one general vehicle driver), Ambulance-1, General Vehicle-1, Cook-1, Statistical assistant-1, Junior clerk-1, ANM and Health Worker Female-27, Multi purpose Health Worker MPHW(m)male-17, VS clerk-1, Senior helper-1 and Peon-1.

But after the implementation of NRHM, one AYUSH doctor, three contractual staff nurses and five ANM and MPHW (Female) have been appointed at the CHC GOP.

Health Infrastructure at CHC GOP: Before the implementation of NRHM, CHC GOP contained 16 beded indoor, Old labor room -1, Labrotary for Pathology and malaria -1, NO Separate AYUSH OPD, General OPD, Medicine store room -1, Defunctioned Diarrhoea ward, Ambulance-1 and Jeep cum trolly-1**.** But after the implementation of NRHM, New labor room has been constructed, Laboratory for Pathology and malaria has been renovated, separate AYUSH OPD has been opened, general OPD has been renovated and a new medicine store is under construction

STAFF QUARTERS AND BUILDINGS AT CHC GOP

Before the implementation of NRHM, CHC Gop had Doctors' Quarter-2, BEE Quarter-1, LHV Quarter-1, Pharmacists-1, Statistical Assistant-1, Sub centre-27, Multi Purpose Health worker female Quarter-1, Staff Nurse Quarter-1, Sweeper Quarter -2, Attendant Quarter-2, Driver Quarter-1, One old Office building, Immunization room cum ILR -1.

But after NRHM, another two doctors' quarters under construction, two sub centres and one new office building have been built at CHC Gop.

Requirement at CHC Gop : Appointment of surgical specialists, dental specialist, medicine and eye specialists, anesthesia specialist, appointment of additional ANM i.e. 24, appointment of MPHW (M) i.e. 12, renovation of OT, expansion of outdoor, up gradation of indoor –up to 30 beded, establishment of one conference hall, renovation of staff quarters, Operation of Blood Storage Bank, replacement of ambulance and replacement of office vehicle are important requirements at CHC Gop for its smoother working.

Strengthening of PHCs[10]: 1279 PHCs have been sanctioned by the central government for Odisha. But it is regret to say that none of them has been run on 24×7 basis. In 46 PHCs, there are no doctors. There is also absence of laboratory services at all PHCs. Only malaria slides are collected and for examination, these are sent to CHCs. Tests other than malaria such as diagnosis of RTI, stain, BTCT, rapid test for pregnancy and HIV etc. are not carried out at the PHC.

The PHC (N) Konark was taken for evaluation of NRHM. It is located at Konark i.e. 33 K.M. from Puri and 72 km from Bhubaneswar, the state capital. It is famous for the Sun Temple, often called as the Black Pagoda. Konark (N) PHC covers 55,000 populations. Cultivation of rice is the main occupation of the people. The PHC (N) Konark was established on 15.10.1969.

Before 2005 or before the launching of NRHM, there were one doctor, one pharmacist, two ANM, two attendants and one sweeper at the Konark (N) PHC. There were also no bed, no ambulance, no guest room, no VIP cabin, no labour room and no AYUSH doctor at the Konark (N) PHC. But, after the implementation of NRHM these are now available. After the implementation of NRHM, Rogi Kalyana Samiti (RKS) and Janani Suraksha Yojana (JSY) are now in operation at the PHC (N) Konark.

Under the scheme RKS, the doctors, LHVs, medical wing hospital staffs meet together at the PHC (N) Konark and discuss about different problems and for their solution. Each Tuesday is observed as the Village Health Nutrition Day (VHND). On this day, iodine, calcium, iron folic acid, zinc salphet tablets are distributed among the pregnant women under the supervision of ANM. Under this scheme, sanitation and health awareness are also being carried out by ASHAs, AWWs and ANM. Rs.10, 000 is given to each village per year to carry out the sanitation work and to create awareness among the village people for their health and environment. Especially Rs.10,000 is transferred to the joint account of the AWWs, ASHA, Ward member and SHG member.

Janani Suraksha Yojana (JSY) is also successfully operating at the PHC (N) Konark. Under this scheme the mother of the new born baby who belongs to rural area (5 km away from the PHC) gets Rs 1400+Rs 250=Rs 1650 and if she belongs to urban area (less than 5 km from the PHC) gets Rs 1400+Rs 150 =RS 1550.

The detailed information about the PHC (N) Konark before and after launching of NRHM is given below.

Before the implementation of NRHM, there were Doctor-1(One MBBS Doctor), Pharmacists-1, ANM-2, Attendant-2, Sweeper-1, No staff nurse, No staff nurse, No Ambulance. But after NRHM , the human resources have been increased. One doctor and two staff nurses are being appointed at the PHC (N) Konark.

Health Infrastructure of PHC (N) Konark: Before the implementation of NRHM, CHC Gop had out door, NO Bed, One pharmacists room, One store room, One Dressing room, But after the NRHM, there were 4 observation beds in a ward, One

pharmacists room renovated, One store room renovated, One AYUSH Doctor room, One labor room with one duty room. One VIP cabin, One Guest Room, One patient waiting Room under construction at PHC Konark.

Thus,after NRHM the health infrastructure has also been improved in terms of observation beds, renovated pharmacist's room, renovated dressing room, VIP cabin, Guest room, Patient waiting room and establishment of One AYUSH Doctor room.

Health Schemes operated at PHC (N) Konark: Under NRHM, two important schemes are launched and are operating not only in India but also in Odisha. These schemes are Rogi Kalyana Samiti (RKS) and Janani Suraksha Yojana. Before the implementation of NRHM, there was no AYUSH at PHC (N) Konark. Mobile Medical Unit is also functioning at the PHC (N) Konark.

Medical Equipments at PHC (N) Konark: After NRHM, different medical equipments like Auto clave, Delivery Equipments, Delivery Equipments, Oven cylinder, Dressing Drum, Baby Tray, Dressing Instruments and Labor room instruments are now available at the PHC (N) Konark which were not available at the PHC before the implementation of NRHM in Odisha.

Sub centres under PHC (N) Konark: The Sub centres under PHC(N) Konark are (1) Konark, (2) Simili, (3) Sarada, (4) Mahalapara, (5) Kundisha, (6)Kanapur, (7)Sutan, (8) Badatara.

Requirements at PHC (N) Konark: The important requirements at PHC (N) Konark include (i)Sufficient needed medicines should be provided, (ii) As 1 lakh population depends on this PHC, it should be declared as an area hospital, (iii) At least seven doctors are to be appointed, (iv) Paramedical staff should be extended to 10, (v) X-ray, ultrasound, blood test lab should be opened.

Strengthening of Sub Centre: 6688 sub centres are now functioning in the state and 242 sub centers are under construction. Out of 6688 sub centres, 2542 are running at government building and 3385 are running at rent building.

For the present study, Simili and Konark sub centres are selected. The detailed idea about the two sub centres are given below.

Simili[11] Sub centre: Simili sub centre comes under PHC (N) Konark and under the CHC Gop and under the Konark sector. This sub centre covers four villages. At this sub centre, the Universal Immunization Program (UIP) is successfully undertaken by the Multi Purpose Health Worker (Female) along with ASHA and AWW. There is no any sub centre building. It is running at the Anganwadi Centre. Rs 20,000 are sanctioned for the operation of the sub centre in a year which is not sufficient.

Indicators of Health in Odisha[12]: To measure the health status of Odisha and how NRHM affects it, we take three indicators that are crude death rate, imfant mortality rate and total fertility rate. It is given in the following table.

Table 1

SL. No	*Indicators of Health Progress*	*2003*	*2004*	*2005*	*2006*	*2007*	*2008*
1.	Crude Death Rate	9.7	9.6	9.5	9.3	9.2	9.0
2.	Infant Mortality Rate	83	77	75	73	71	69
3.	Total Fertility Rate	2.6	2.7	2.6	2.5	2.4	2.4

From the above table it is clear that the crude death rate, infant mortality rate has been reducing over the period 2003 to 2008. The CDR was 9.7 in the year 2003 which reduced to 9.6, 9.5, 9.3, 9.2 and 9.0 in the year 2004, 2005, 2006, 2007and 2008 respectively in Odisha Similarly, the IMR was 83 per 1000 live birth which reduced to 75 and further to 69 in the year 2005 and 2009 respectively in Odisha. The TFR is also reducing over the periods. In the year 2003, the TFR was 2.6 which reduced to 2.5 in the year 2005 and further reduced to 2.4 in the year 2008 in Odisha.

Equation (1): Birth Rate = 3.76 *[13]-(0.025) SGRE-(0.04) SGCE**[14]

This equation explains that one percentage change (increase) in State Government Revenue Expenditure (SGRE) on medical, health & sanitation reduces the birth rate by 0.025 percentages. Similarly, one percentage change (increase) in State Government Capital Expenditure (SGCE) on medical, health & sanitation reduces the birth rate by 0.04 percentages. Both SGRE and SGCE on medical, health & sanitation significantly affect the birth rate. The model is a good model as $R^2 = 0.90$ and $\bar{R}^2 = 0.89$.

Equation (2): Death Rate= 14.29- (0.01) SGRE*[15] - (0.02) SGCE**[16]

This equation explains that one percentage change (increase) in State Government Revenue Expenditure (SGRE) on medical, health & sanitation reduces the death rate by 0.01 percentages. Similarly, one percentage change (increase) in State Government Capital Expenditure (SGCE) on medical, health & sanitation reduces the death rate by 0.02 percentages. Both SGRE and SGCE on medical, health & sanitation significantly affect the death rate. The model is a good model as $R^2 = 0.75$ and $\bar{R}^2 = 0.73$.

Equation (3): IMR= 138.9 -(0.12) SGRE*[17] + (-0.27) SGCE**[18]

This equation explains that one percentage change (increase) in State Government Revenue Expenditure (SGRE) on medical, health & sanitation reduces the IMR by 0.12 percentages. Similarly, one percentage change (increase) in State Government Capital Expenditure (SGCE) on medical, health & sanitation reduces the IMR by 0.27 percentages. Both SGRE and SGCE on medical, health & sanitation significantly affect the IMR. The model is a good model as R^2=0.87 and ^{2}=0.86.

MAJOR FINDINGS OF THE STUDY

The major findings of the study are as follows:

1. NRHM is working smoothly in these study areas. But, more funds are needed for the successful implementation of the program. Paucity of fund is the main obstacle in the successful operation of the program.
2. Rogi Kalyana Samiti (RKS) and Janani Suraksha Yojana (JSY) are also successfully operating in these study areas.
3. After the implementation of NRHM, the health indicators are also showing good trend.
4. State government capital expenditure and revenue expenditure significantly are significantly affecting to the birth rate, death rate and imfant mortality rate.

CONCLUSION

The study shows that the health status of study area is very poor and is gradually increasing as a result of the implementation of NRHM and the staple reasons for this tendency are: low income, illiteracy, shortage of doctors, unwillingness doctors to go to remote areas and lack of health care facilities and lack of production of laboratory technicians and radiographers.

POLICY RECOMMENDATIONS

Though there has been a significant improvement in the health status of the people, some possible strategies for adoption by the state to improve the health status further have been suggested below.

- Both the government organizations and non-government organization should put their combined effort to bring reforms in the health system in the rural areas of Odisha.
- Free education up to higher secondary level should be given to SC and ST people.
- Public Private Partnership should be given due importance in order to fill up the large gap in the field.
- State government expenditure on health as percentage of SDP should be increased so that per capita availability to the people in terms of health care facilities will give them better access in this region.

Notes

1. *http://www.nrhmorissa.gov.in/pdf/NRHM%20Mission%20Document.pdf*
2. *http://planningcommission.nic.in/reports/genrep/ar0506.pdf*
3. SP Jain:"Levels and Differentials of infant and child mortality-Determinants and demographic impact, child in India", Himalayan publishing House, Bombay, 1981, pp. 94-114.
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8. Zakir Husain: "Health of the National Rural Health Mission", Economic and Political Weekly, Vol. XLVI, NO 4, January 22, 2011.
10. CHC : Community health Centre.
11. PHCs-Primary Health Centres.
12. Notes- simili sub centre is one of eight sub centres of PHC (N) Konark.
13. Source: *http://orissa.govt.in/portal/default.asp*
14. *=significant at 1% level
15. **=significant at 20% level
16. *=significant at 1% level
17. **=significant at 20% level
18. *=significant at 1% level
19. **=significant at 20% level

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