International Journal of Research in Social Sciences
Vol. 9 Issue 9, September 2019,
ISSN: 2249-2496 Impact Factor: 7.081
Journal Homepage: http://www.ijmra.us, Email: editorijmie@gmail.com
Double-Blind Peer Reviewed Refereed Open Access International Journal - Included in the International Serial Directories Indexed & Listed at: Ulrich's Periodicals Directory ©, U.S.A., Open J-Gage as well as in Cabell's Directories of Publishing Opportunities, U.S.A

Public Healthcare Initiatives and the Observed Health Outcomes in maternal Healthcare: A case study in Barak Valley in Assam

Pradipta Deb Dey[1]
Niranjan Roy[2]

Abstract:

This paper takes up the case of Barak Valley region of Assam, India to analyse the public healthcare spending and its provisioning as well as its impact on maternal health. Maternal health is invariably related to child health and welfare and contributes to the human capital formation of the country in the long run. This paper particularly focuses on maternal health and healthcare services and the changes in their respective indicators during the NRHM. The paper observed the relationship between per capita expenditure on health sponsored by the state and its impact on selective maternal healthcare indicators.

Key Words: Maternal Health; Public healthcare expenditure; NRHM, India; Barak Valley

Introduction:

Health is a significant contributor towards economic development since it is the backbone of building the human capital of a nation. As also propounded by Grossman in his theory of demand for health care, expenditure on health is not only a consumption expenditure but also an investment in human capital formation. It is widely accepted that healthy, educated and skilled workforce is the most important productive asset of a nation.

[1] Research Scholar(awarded Ph.D), Department of Economics, Assam University, Silchar.

[2] Professor, Department of Economics, Assam University, Silchar.

In developing countries like India, the capacity of healthcare expenditure, as in case of curative spending as well as healthcare investment as in case of the preventive and maintaining health spending, is quite limited due to the limited income of the majority of the population. But considering the importance of health capital and maintenance of a healthy population, the responsibility of health expenditure is to be partially taken up by the government in form of public provisioning of healthcare facilities.

Auster et al (1969) showed the relationship between health inputs and health outcomes. In this study, cross state regression model in the United States was taken and a relationship was found to exist between medical care and better health. Improved health was measured by age adjusted mortality. However, the study also found environmental variables to be a significant determinant in health outcomes. As good health has positive externality, bad or ill health has equal amount of negative externality on related aspect. Health along with education is the most important form of investment in human capital and income-generation. This leads implicitly to improved health status which in turn increases productivity.

Expenditure on health is one of the crucial elements in improving the health. Wolfe (1986) using the data of six OECD countries found that health expenditures is positively related to health status. He also argued that improvement in health status apart from depending on existing health expenditures also depends on the pattern of life style followed by the individuals. In this regard, Hitiris and Posnett (1992) also showed that there exist relationships between lower mortality rates and increased per capita health expenditure.

According to Bhatt and Jain (2006), the basic objective of health care systems is to meet country's health need in an equitable and efficient manner. In this respect financing of healthcare through public and private channels is one of the important strategies. The study examined the relationship between income and public-private health care expenditures. It was found that, India has created huge system of public health service delivery. But sadly, more than 60 percent of the health budget is spent in the recurring costs of staff salary. Government resource constraint and the ever increasing healthcare demands of the population, which requires regularly upgrading the health infrastructure, pave the way for initiation and growth of private health system. Deficient financial support to the public health system and the perceived or created notion of better quality care in the private health care system is making people increasingly receptive towards private sector. Although direct treatment cost in most of the public hospitals are subsidized but the households have to bear cost of medicine, which

is quite high most of the time. Thus illness impose heavy burden on the poor. The study recommended for increasing public expenditure in providing health service.

Decisions regarding public healthcare provisioning and expenditure are very significant in developing countries with limited resources and unlimited wants. So, it requires a sound judgement as to what to provide, how much to provide and the self-sustainability of the provisions in the long run. When we talk about healthcare, it encompasses a wide variety of health aspects and caters to a wide range of healthcare services which can be differentiated on the basis of gender, age, region and other physiological characteristics of the population under study.

The overall state-led organizational and management structure of health in Assam, India is quite similar to the management structure followed across other states of India, despite health being a state subject. This is mainly because the financial allocation of the resources is determined by the central government and this is done through plan schemes or programs that are usually uniform across states. In Assam, the Health and Family Welfare department comes under the supervision of the Ministry of Health and Family Welfare. The Minister of Health and Family welfare has a Commissioner and a Secretary. There are two departments under the Secretary. Department A includes the General Directorate of Health Services (DHS) and DHS of Family Welfare (FW). Directorate of Medical Education (DME) comes under Department B. Each of these departments has their own hierarchical structures from the state capital down to the district level. Assam launched the National Rural Health Mission (NRHM) in April 2005, and is actively trying to support the Directorate of Health and services, both General and Family Welfare by providing effective health care in all the areas of health, especially in the rural areas. NRHM mainly adopts the approach of incentive-led schemes to attract rural people to avail the healthcare benefits.

Profile of Study Area

Barak Valley is located in between Longitude 92' 15 and 93'1 5 East and Latitude 24'8 and 25'8 North. The total geographical area of the Valley is 6922 sq. km. This constitutes 8.9 percent of the total geographical area of Assam. The region is surrounded by the state of Manipur in the East, Tripura and the country of Bangladesh in the west, Mizoram in the south and North -Cachar Hills and Meghalaya in the North. The Barak Valley mainly comprises of three districts- Cachar, Karimganj and Hailakandi. Of the three districts of the valley, Cachar is the largest district with 3786 sq. km., Hailakandi is the smallest district with total

geographical area of 1327 sq. km and the second largest district Karimganj covers 1809 sq. km of the total geographical area. These three districts are further demarcated into development blocks to facilitate developmental activities (Roy, 2018). Barak Valley has witnessed a remarkable increase in the growth of population. As per Indian Census reports, the population of Barak Valley has steadily increased by 20.94 per cent between 1961 and 1971 and by 30.1 per cent till 1991. This increased by 16.66 per cent in 2001 census and then further increased by 31 per cent according to 2011 census. The economy of Barak Valley is basically agrarian with 80 percent of population dependent on agriculture, paddy being the major crop. Agricultural infrastructure and modernization is sadly missing in the area. Based on local resources, the viable industries in the area are those based on cane, bamboo, pineapple and other agro-based industries.

In 2006 the Indian government named Cachar as one of India's most backward district amidst a list of the country's 250 most backward districts out of a total of 640 districts. The Assam Human Development Report (AHDR) 2003 states that in respect of Human Development Index (HDI), Cachar ranks eighth in the State with an index value of 0.402 which is marginally lower than the state index at 0.407. The Human Poverty Index (29.22) shows that almost 30 percent of the population in the district is in poverty. The Gender related Development Index (GDI) for Cachar in 2001 is estimated to be 0.409, which is far less than the state average of 0.537.

The performance of the Karimganj district in terms of development in basic human capabilities is not satisfactory. As indicated by the Human Development Report of Assam (2004) the human development index for the district stands at 0.301 (ranks 19th in the state) which is much lower than the state average of 0.407. In terms of income, education and health the district ranks 19th, 14th and 18th respectively in the state out of its present 33 districts. On the other hand in gender related development index the district is placed at bottom in the state.

Hailakandi is one of the worse performing districts in terms of development in basic human capabilities in three fundamental dimensions viz., a long and healthy life, knowledge and decent standard of living, as indicated by its HDI value of 0.363 (11^{th} rank) which is lower than the state average of 0.407. The district occupies 9th place in terms of income while 14th place in terms of both education and health in district wise rankings. The human poverty index calculated in 1999 indicates that 27 per cent of total populations in the district are in poverty. In terms of Gender related Development Index (GDI), Hailakandi ranks 6th in

district wise ranking, with GDI value of 0.609 which, is above the state average of 0.537. However, the HDI-GDI rank disparities indicate that women in this district suffers from deprivation of development potential leading to lower achievement than men (Assam Human Development Report,2003).

Database and Methodology:

Three districts of Southern Assam (Barak Valley) have been taken up in the study. The three districts, namely Cachar, Hailakandi and Karimganj, each comprise of Block Primary Health Centres which cater to a club of villages each. Cachar district comprises of nine Block Primary Health Centres (BPHCs), Hailakandi, five and Karimganj six BPHCs apart from one urban unit each in the three districts located in the district capital. Data of the Health outcomes of the Block Primary Health Centres (BPHCs) of the three respective districts related to maternal health and healthcare has been collected from reliable government sources.

The data is mainly analysed using simple statistical tools like percentages, ratios etc.

Results and Discussion:

To identify the trend and nature of public investment on health and specifically on maternal health data has been collected for the period 2005-06 to 2015-16. The table 1 presents the expenditure done for maternal health and its proportion composition out of total RCH (Reproductive and Child Health) for that particular year.

Table 1 Maternal Health Expenditure as Percentage of RCH Expenditure in Barak Valley (2005-06 to 2015-16)

BARAK VALLEY			
YEAR	CACHAR	HAILAKANDI	KARIMGANJ
	Maternal Health Expenditure as Percentage of total RCH expenditure	Maternal Health Expenditure as Percentage of total RCH expenditure	Maternal Health Expenditure as Percentage of total RCH expenditure
2005-06	NA	66.48	-
2006-07	NA	127.18	62.37
2007-08	84.76	90.18	80.83
2008-09	84.18	85.89	62.14
2009-10	63.73	51.98	79.64
2010-11	66.80	68.89	57.72
2011-12	39.89	26.02	60.77

2012-13	24.17	27.29	21.93
2013-14	36.17	23.16	27.00
2014-15	32.29	23.06	27.52
2015-16	33.30	23.31	27.52

Source: NRHM Cachar, Karimganj, Hailakandi

There has been an overall decreasing trend in maternal health expenditure as percentage of total Reproductive and Child Health (RCH) expenditure in all the three districts over the time period. The individual maternal health expenditure settles to an average of below 40 per cent of RCH expenditure post 2011-12.

Analysis has been made on the trends on selective maternal health indicators for the three districts across a time period from 2011-12 to 2016-17. For studying maternal health, one of the indicators taken is safe delivery, which indicates proper pre-natal, pregnancy and delivery care of the mother and that the delivery has taken place under expert supervision, which ensures the life of both the mother and the child, decreasing mortality chances. Some inherent health characteristics of the mother, whether she is anaemic (low haemoglobin level) and if it was chronic anaemia and treated and also if the mother was registered with high Blood Pressure which increases maternal morbidity and mortality due to eclampsia and also increases life risk of the infant, are studied.. For the former, the indicator used is the percentage of pregnant women with chronic anaemia (haemoglobin level less than 7) and treated to registered cases of anaemia (haemoglobin level less than 11). For the latter, the indicator used is the percentage of cases of pregnant women with high Blood Pressure registered to total ANC registration.

Table 2 Percentage of safe deliveries to total reported deliveries in the three districts of Barak Valley, Assam, India (2011-12 to 2016-17)

Districts	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**
Cachar	81.88	85.6	88	92.5	95.3	97
Hailakandi	61.76	64.4	67.5	72.7	77.3	79.1
Karimganj	57.52	59	63.2	65.3	65.6	66.6
Barak Valley*	67.05	69.7	72.9	76.8	79.4	80.9

Source: HMIS Reports, various years. * Average of three districts

From the data in Table 2 it has been found that percentage of safe delivery show a positive and increasing trend for all the three districts. All the three follow polynomial trend, showing a good fit through high value of adjusted R-square.

Table 3 Percentages cases of chronic anemia treated to total reported cases of anemia for Cachar, Hailakandi and Karimganj, Barak Valley (2011-12 to 2016-17)

District	2011	2012	2013	2014	2015	2016
Cachar	1.2	2.1	0.3	0.1	0.2	0.3
Hailakandi	2.4	0.5	1.1	0.9	0.6	1.4
Karimganj	4.2	1.6	0.1	0.1	0.4	1.3
Barak Valley *	1.4	1.4	0.5	0.4	0.4	1

Source: HMIS Reports, various years. * Average of three districts

The figues in Table 3 indicate that Cachar shows a declining trend in anemia. But alarmingly for the other two districts, the trend declines initially, but post 2014-15, there is a sharp increase in the cases of severe anemia.

Table: 4 Percentage pregnant women with high Blood Pressure to total pregnant women registered for ANC in Cachar, Hailakandi and Karimganj, Barak Valley (2011-12 to 2016-17)

Districts	2011	2012	2013	2014	2015	2016
Cachar	2	1.5	2	4.9	1.7	1.1
Hailakandi	1.4	0.7	1.1	0.7	0.8	2.6
Karimganj	0.7	1.2	1.6	1.4	1.1	1.4
Barak Valley	1.4	1.1	1.6	2.3	1.2	1.6

Source: HMIS Reports, various years

Cachar shows the highest cases of BP among pregnant mothers in the year 2014-15, which declines in the following years. For Hailakandi, there is an upward rising trend in BP cases. Also Karimganj shows a positive movement or increment in such cases (refer Table 4). High BP is a potent threat to both mother and child.

The overall status of some selective maternal healthcare parameters in the area of study are shown in Table 5.

Table 5 Percentage Achievement on Maternal Healthcare Indicators in Barak Valley (2016-17)

BARAK VALLEY					
CACHAR		HAILAKANDI		KARIMGANJ	
Percentage of ANC completion	97.3	Percentage of ANC completion	84	Percentage of ANC completion	86.8
Percentage of Institutional Delivery	97.5	Percentage of Institutional Delivery	56.5	Percentage of Institutional Delivery	55.6
Percentage coverage of TT injection	98	Percentage coverage of TT injection	90.7	Percentage coverage of TT injection	97.8
Percentage coverage of IFA tablets	99.7	Percentage coverage of IFA tablets	99.9	Percentage coverage of IFA tablets	101.9

Source: HMIS Reports

Thus, to summarize, maternal healthcare indicators like safe delivery, TT injection coverage and administration of IFA tablets among pregnant mothers show an increasing trend or higher coverage in the area under study. But prevalence of Institutional Delivery is yet to be improvised and popularized among people through better accessibility, communication and awareness. Maternal health indicators like prevalence of anaemia and severe anaemia among pregnant women and mothers with high Blood Pressure to total mothers registered for ANC show erratic trend over time. Detail study of the trend reveals that anaemia has an increasing trend over the recent years. This is of concern as it reflects an inherent iron deficiency among women in general and pregnant women in particular, of this region, especially in the recent years.

Conclusions and Suggestions:

In a country like India, where majority of the population resides in rural areas and is economically backward, the Government plays a major role in the public provisioning of basic and vital life amenities of which health is of utmost priority. Ever since the inception of National Rural Health Mission (NRHM) in 2005, the rural healthcare sector has shown a significant improvement. The maternal healthcare parameters, which have been studied through this study, have also shown improvement. It is also to be noted that increasing public investment on health has become a major issue in developing county like India. So ascertaining the viability of such a huge facility is very important to know its success and to understand its self-sustaining capability. The study has proved that there exists a positive relation between public health expenditure and maternal health. Therefore when maternal health expenditure as a percentage of total public health expenditure falls, there is high possibility of a negative impact on maternal health and healthcare. This is evident when the trends of selective maternal health and healthcare parameters are studied. The trend lines either show a decline or an increase at a decreasing rate. Thus it can be said that as the focus of the public health investment shifts and the share of expenditure on maternal healthcare facilities decrease, their performance in terms of health outcomes and care provisioning gets equally affected. This aspect proves that public healthcare provisioning has not yet achieved self-sustaining level and needs constant financial back support.

It has been observed that the various schemes introduced by the Government like i)Mamoni, an encouragement to Ante-Natal Care (ANC) and TT injection administration through financial assistance of two cheques of rupees five hundred each on giving two

TT(Tetanus Toxoid) injections, as a sponsorship for the better nourishment and food intake of expecting mother). ii)Janani Suraksha Yojana (which provides a cash incentive of rupees fourteen hundred for every institutional delivery), iii) Mamata (gift incentive for the new born), iv) Morom (financial assistance to patients admitted in government hospitals as compensation for their loss of working days) , v) Majoni (financial assistance to girl child, in form of bank fixed deposit), vi) Adoroni (medical assistance during pregnancy and ambulance facility during delivery) and similar schemes introduced in the rural areas have received positive response but are not reaching out to the needy on cent percent basis. So initiative should be taken to increase the number of beneficiaries under each of such schemes and prevent the leakages in the system.

The spread of education and awareness among rural people and specifically mothers shall go a long way in creating consciousness among them regarding the need and benefit of ante natal care and child immunization which will help to reduce the morbidity and mortality of the child and mother.

Government should initiate steps and formulate policies to make the public healthcare system self-sustaining in the future. One of the ways is through spreading awareness and knowledge. If such governmental policies are designed and implemented which makes the healthcare system self-sustaining and maintains high standards of healthcare indicators even without the support of financial schemes and incentives, this will release an immense financial burden on the state exchequer.

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