Health Status of Assam: A District Level Analysis

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Abstract

Health is an important indicator of HDI which is specially designed to assess the economic development of countries. Access to quality health service at an affordable cost for the common masses is the prime requirement for the overall development of the country. Quality human resource is associated with the quality health and educational services available in the country. Every country spends a percentage of their GDP for health and education sector. Every state government too adopts some scheme and programmes in the health sector. The government of Assam has been adopting many schemes in the health sector since independence. In order to understand the health status of Assam, it is imperative to examine the different health facilities available in the health sector of Assam. In this paper attempt has been made to examine the health status of Assam in general and tried to explore the district-wise analysis of health status. By considering seven indicators, with the help of performing index specially developed to assess the performance level of the different districts. The districts have been classified as Poor, Medium and Good performing districts based on the index value

Key words: *Health, HDI, Index, Resource, service, quality*

Introduction

Health and Education are the qualitative characteristics of a particular population. Population of a particular country is considered as human resource for that country. Along with natural resource, human resources are making important efforts for the development of the country in terms of expanding goods and services. But, quality of human resource is subjected to the attainment of quality education, availability of health infrastructure so that quality health service is accessible for the common masses. Improvement of health indicators like IMR, MMR, CBR, CDR, Neo-natal and Post Neo-natal Mortality, Life expectancy at birth, female literacy, Morbidity rate, different measures of fertility and mortality, institutional delivery etc. represent the improvement of health status of that particular country. Nurkse's doctrine of vicious circle of poverty emphasized on the improvement of health status by making available nutritious food to common masses so that they can come out from the vicious circle of poverty. According to this theory people are poor and because of that they are unable to take nutritious food resulting deteriorating their health condition and because of that they could not work. Again income declines and plagued by poverty. Poor health condition is one causes of this vicious circle of poverty. Therefore, public and private efforts have been made to improve the health status of the state. Anand P. (2006) has shown that in the desert and non-desert districts, little increase (5%) in health institutions (health sub centre at village level) and doubling the number of health workers visiting households can better account for IMR and LE[8]. Kapoor S. (2010) examines the factors affects the infant mortality rate and found that literacy and women's labour force participation are the most influential factor affecting IMR[9]. Banrajee S.(2020) in the study entitled "Major-Determinant of Infant Mortality: District Level Evidence from Odisha" the study reveals that breastfeeding, birth spacing and mother's nutritional status are the major factors in this regards[iii]. Saikia and Das (2014) have analyzed the progress in health institutions, availability of health care facilities, the status health work force and the quality of health care services in the rural areas across the eight north-eastern States[iv]. Paul K.P, Jana K.S and Maiti A (2019) try to show the status of health infrastructure,

health facilities and expenditure pattern on health sector in the state of Assam. The paper uses the technique of Analysis of Variance (ANOVA) to find the variation of different health parameters among the districts in Assam. The results reveal that there is a significant difference across districts of Assam in respect of health parameters like sanitation facilities, institutional birth in public facilities and woman being mother or pregnant at the age of 15- 19 years[v]. Nath (2014) observes the status of development in health care services of Assam has been estimated with the help of composite index based on optimum combination of 35 development indicators. They evaluate the inter districts imbalances in the level of development of health care system and to classify the districts in to different stages of development such as high level, medium level, developing and low level[vi]. Sharma and Sharma (2014) find that Assam has less satisfactory performance than the national level standard regarding these statistics. They try to know the impact of human development indices on human development rank through multiple regression analysis[vii]. Hooda (2013) analyzes the implications of changing pattern of government health expenditure in India during the last two and a half decade (1987-88 to 2011-12). The results show that government health spending has remained almost constant during the period and hovered around one per cent of GDP, which is even lower than most of the developing countries[viii]. Kalita & Harsha (2015) has shown the sanitation facilities among the households of the slum pockets in the city. In this study attempt has been made to reveal health status of Assam by taking the aforesaid mentioned eight indicators. All the districts of Assam are not equally performed in the health sectors[ix]. Some are performed better than others. Therefore, a performance index has been developed to identify the districts as poor, medium and good performers in terms of these seven indicators.

Methodology

The present study considers the district level analysis. Therefore, the study captures the entire state of Assam. The data has been collected from different sources. The data has been collected from secondary source for analysis. The data related to health profile of Assam considers indicators such as Birth Rate, Death Rate, Infant Mortality Rate (IMR) etc. Health profiles of the state are collected from MOSP. The sources like National Rural Health Mission (NRHM) and National Family Health Survey (NFHS), SRS bulletin etc were helpful for analyzing health facilities. The information regarding the health facilities such as number of SCs, PHCs and CHCs, sub-divisional hospital, district hospital of state Assam are taken from the district level data of NRHM.

Table-1: Health Facilities of Assam (As on 2016)

	Indicator	Number	(%)
Facilities available at Sub-Centre	Number of Sub Centers Functioning	4621	Na
	Number of Sub Centers with ANM Quarter	2337	50
	Number of Sub Centers with ANM living in Sub Center Quarter*	452	19.3
	No. of Sub Centers Functioning as per IPHS norms	Na	Na
	Number of Sub Centers Functioning	7659	Na
	Without Regular Water Supply	2298	49.72
	Without Electric Supply	2263	48.9
Facilities at PHCs	Number of PHCs Functioning	1014	Na
	With Labour Room	763	75.2
	With Operation Theatre	29	2.8
	With at least 4 beds	332	32.7
	Number of PHCs Functioning	1014	Na
	Without Electric Supply	90	8.8
	Without Regular Water Supply	129	12.7
	Without All-Weather Motorable Approach Road	53	5.2
	With Telephone	210	20.7
	With Computer	656	64.6

Source: Bulletin on Rural Health Statistics in 31st March 2016

Table-1 gives the availability of health facilities of Assam at sub centre and PHCs level. Access to quality health service by the common masses is vital for all round development of the state. Accessibility of quality health services depends on the availability of health facilities at sub-centre and PHCs. In this table, availability of different health services of Assam at Sub-centre and PHCs level has been shown.

Table-2: Infant Mortality Rate in Assam as Compared with India

Year	Assam	India
1998	76.0	72.0
2000	75.0	68.0
2002	70.0	63.0
2004	66.0	58.0
2006	67.0	58.0
2008	64.0	58.0
2010	58.0	47.0
2012	55.0	42.0
2014	50.5	39.0
2016	44.0	34.0

Source: SRS Bulletin (1998-2016

Infant Mortality rate is considered as one of the important indicator of health status. Infant is the baby before completing first birth day. There are many causes of infant mortality. Some are related to neo-natal mortality and some are related to post neo-natal mortality. Infant mortality is connected with the availability of adequate and scientific health facilities. Therefore, decline IMR is the consequence of improved health facilities. Table-2 reveals the infant Mortality Rate (IMR) for the state of Assam and India from 1998 to 2016. IMR declined in Assam from 76 to 44 from 1998 to 2016. Similarly, IMR declined from 72 to 34 from 1998 to 2016 at the national Level.

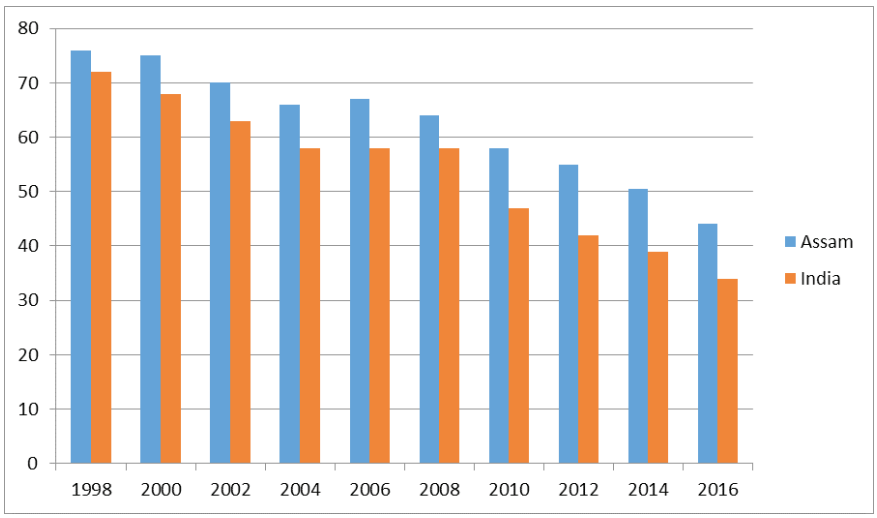

Figure-1: : Infant Mortality Rate in Assam as Compared with India

A District Level Analysis:

In order to understand the health status of Assam, it is imperative to make a district level analysis. Some districts are performing well in terms of some indicators but lagging behind in some other indicators. Some other districts are performing well in some other indictors. The available statistics reveals that all the districts are not equally performed. Therefore, single government scheme and programme is not equally effective for all the districts of Assam. A performance index has been developed to analysis the district level performance in terms of seven health indicators.

Table-3: District wise Health Centers in Assam (As on 31st March, 2016)

District	Sub Centre	PHCs	CHCs	Sub Divisional Hospital	District Hospital
Barpeta	264	51	6	1	1
Bongaigaon	84	30	3	0	1
Baksa	157	41	5	0	1
Cachar	270	33	5	0	1
Chirang	86	25	3	0	1
Darrang	163	30	6	0	1
Dhemaji	98	22	4	0	1
Dhubri	246	44	8	2	1
Dibrugarh	231	30	7	0	0
Goalpara	151	41	5	0	1
Golaghat	144	40	4	1	1
Hailakandi	105	13	3	0	1
Jorhat	144	44	5	2	0
Kamrup (R)	280	71	11	1	1
Kamrup (M)	51	25	3	0	1
Karbi Anglong	145	46	5	1	1
Karimganj	218	29	5	0	1
Kokrajhar	161	45	4	1	1
Lakhimpur	156	30	8	1	1
Morigaon	123	36	5	0	1
Nagaon	354	80	15	0	1
Nalbari	121	47	9	0	1
Dima Hasao	65	11	2	0	1
Sivasagar	219	45	4	2	1
Sonitpur	275	58	7	2	1
Tinsukia	164	23	6	0	1
Udalguri	146	24	3	0	1
Total	4621	1014	151	14	25

Source: National Rural Health Mission (NRHM)

Table-4:: Inter District Variation in Some Health Parameters in Assam

District	Households using improved sanitation facility (%)	Institutional births in public facility (%)
Baksa	54.3	77.5
Bangaigaon	45.9	56.8
Chirang	32.6	50.1
Dhubri	33	40.3
Goalpara	46.2	66
Barpeta	34.9	49
Kokrajhar	39.2	61.4
Nalbari	51.2	69.1
Udalguri	53.8	65.2
Darrang	45.6	64.8
Cachar	37.3	56.8
Dima Hasao	59	53.2
Hailakandi	36	51.9
Kamrup(M)	61.2	57
Kamrup (R)	52.6	76.9
Karbi Ang.	41.5	45.5
Karimganj	39.5	41.8
Morigaon	40.1	64.8
Nagaon	45.5	56.6
Lakhimpur	49.6	77.7
Dhemaji	41.4	73.4
Dibrugarh	56.6	62.2
Golaghat	59.6	75.4
Jorhat	64.5	80.3
Sivasagar	55.5	66.1
Sonitpur	61	67.1
Tinsukia	50.8	56.9

Source: NFHS-4(2015-16)

Performance Index

Performance Index has been developed to understand the health status of different districts of Assam. Central government and the state government of Assam have been adopting various Schemes and programmes under health sector. The health status of the state is connected with efficient implementation these schemes and programmes. Indicators like Sub-centre, PHCs, CHCs, Sub-Divisional Hospital, District Hospital, Households used improved sanitation facility, institutional delivery have been considered for understanding the health status in different districts of Assam. All districts are not equally performed in terms of these indicators. Some districts have shown good performance whereas others have shown poor performance. To examine the district wise performance, a performance index has been constructed by taking these seven indicators.

Performance Index (PI)

A performance index was constructed using seven indicators. Depending upon the variability of these indicators, a three point scale was formulated for each indictor. The index has been developed based on the literature "Socio-Economic impact of MGNREGA: Evidence from district of Udam Singh Nagar in Uttarakhand, India," Kharkwal, S. and Kumar, A. 2015[10]. The Performance Index for the districts is constructed by using the following method:

4. $PI_i = \sum S_{ik}$ / (Maximum Possible Total Scale Value)

Where PI_i= Performance Index of the i^{th} district

$\sum S_{ik}$=Scale Value of the i^{th} districts for K^{th} indicators

Maxium Possible Total Scale Value= 21

To attain the index value, the total scale achieved by a district is divided by the maximum attainable score of a district. In this case, the maximum attainable score is 21. The index has been developed by following the earlier methodology adopted in computing socio-economic index by Sarkar and Supriya (2011)[11]

5. FORMULATION OF SCALE FOR THE INDICATORS

All the seven indicators are quantitative and positive indicators. The following principle has been used to construct the scale for indicators.

Mean ± 0.5 × standard Deviation (S.D)

TABLE-5: FORMULATION OF SCALE FOR THE INDICATORS

Indicators	Scale-1	Scale-2	Scale-3
Sub-Centre	≤Mean-0.5xSD	>Mean-0.5xSD to ≤ Mean+ 0.5xSD	>Mean+0.5xSD
PHCs	≤Mean-0.5xSD	>Mean-0.5xSD to ≤ Mean+ 0.5xSD	>Mean+0.5xSD
CHCs	≤Mean-0.5xSD	>Mean-0.5xSD to ≤ Mean+ 0.5xSD	>Mean+0.5xSD
Sub-Divisional Hospital	≤Mean-0.5xSD	>Mean-0.5xSD to ≤ Mean+ 0.5xSD	>Mean+0.5xSD
District Hospital	≤Mean-0.5xSD	>Mean-0.5xSD to ≤ Mean+ 0.5xSD	>Mean+0.5xSD
Households used Sanitation	≤Mean-0.5xSD	>Mean-0.5xSD to ≤ Mean+ 0.5xSD	>Mean+0.5xSD
Institutional Delivery	≤Mean-0.5xSD	>Mean-0.5xSD to ≤ Mean+ 0.5xSD	>Mean+0.5xSD

The index value for the district is calculated based on the total scale value attained by the district.

Categorizing of Districts According To Performance Index (PI)

The districts are categorized into different level of performance by using the same principle:

Mean ± 0.5 × standard Deviation (S.D)

TABLE-6: CATEGORIZING OF DISTRICTS ACCORDING TO PERFORMANCE INDEX

Level of Performance	Low level of Performance	Medium Level of Performance	High Level of Performance
Index Value	≤Mean-0.5xSD	>Mean-0.5xSD to ≤ Mean+ 0.5xSD	>Mean+0.5Xsd

Based on index value, the districts have been categorized into Poor, Medium and Good. The level of performance is good if the index value is greater than or equal to 0.73, it is poor if the index value is less than or equal to 0.56 and the level of performance is Medium if the Index value lies between these two maximum and minimum values.

Out of the total 27 districts, ten districts are Poor performance category. 12 districts are Medium performance and the remaining five districts are High performer in terms of these seven indicators.

Conclusion

The present study shows that the health status of Assam has improved since 1998. Due to the implementation of NRHM, a flagship progrmme in the health sector in 2015, IMR, Death Rate as well as birth rate started to decline. But it is still higher than the national level. District-wise, out of 27 districts 5 districts have been found under the category of good performing district, 12 are medium performing district and 10 are low performing districts. In order to upgrade the medium and poor performing districts to good performing district, it is imperative to increase the public and private expenditure in health sector.

Ethical Clearance: Not needed for this kind of Study

Source of Funding: Self

Conflict of Interest: Nil

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