

Inter- district Healthcare facilities in Assam; An Evidence from Secondary Sources

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Abstract

Background

The paper has given a brief discussion on health status of Assam. Further, it has also provided an outline in distribution of public healthcare facilities across districts of Assam. The health status is indicated by the maternal mortality ratio and infant mortality rate. Both the indicators are considered essential subjects for the global community and uses as an indicator to compare health status across countries. Moreover, these indicators are also used to reflect the socio-economic development process of a country.

Methodology

The study is based on the secondary information, which is collected from annual reports of the Ministry of Health and Family Welfare, India and Statistical Handbook Assam for the year 2018-19. To compare the availability of healthcare facilities across the districts of Assam, simple mathematical calculation has been done.

Results

Assam has been reducing its maternal mortality and infant mortality. However, the state needs more investment in healthcare sector because the state has still higher MMR in comparison to the national average. In this aspect the study has analysed the distribution of healthcare resources across districts of Assam. Districts like Nagaon, Kamrup and Sonitpur have relatively higher

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percentage of health institutions, while Kamrup (Metro) and Dima Hasao have the lowest percentage of health institution. However, in terms of per capita health care resources different results are observed.

Conclusion/Implication

The study will help in understanding the health status of the state in comparison with the national average. Moreover, readers can also get an idea about the distribution of healthcare resources across districts of Assam. However, there is a further scope to analyze the inequality in distribution of healthcare resources and its probable link with healthcare performance of districts in Assam.

Key Note: health, health care, resource, infant mortality, maternal mortality, per capita

1 Introduction

The state is still in the backward position regarding healthcare performance. For example, the state's maternal mortality rate (MMR) was 229, while the average MMR in India was 122 during 2015-17 (NITI Aayog, 2019)². However, Niti Aayog's health index (2019) has placed the state in the category of achiever in overall and incremental performance in the healthcare sector. The Sample Registration System (SRS) report (2020) shows that the Infant Mortality Rate (IMR) in Assam has declined from 47 (2015) to 40 (2019)³. The possible cause of the improvement of health indicators is an increase in institutional delivery rate, from 71 per cent in 2015-16 to 91 per cent in 2019-20. Moreover, the government has initiated various steps to improve the state's health sector performance, for instance, a wage restitution scheme for pregnant women working in the tea garden 104 Sarathi scheme to provide free-of-cost helpline services round the clock.

² World Health Organization (WHO) defines the Maternal Mortality Ratio (MMR) as deaths of mother due to pregnancy related complications in pregnancy time or within 42 days after childbirth per one lakhs live births.

³ Infant Mortality Rate (IMR) is the number of infant dying before one year age per one thousands live births.

Besides, Janani Shishu Suraksha Karyakram (JSSK) and Janani Suraksha Yojana (JSY) are some centrally sponsored schemes that have been continued in the state of Assam.

The paper tries to briefly discuss health status of the state. The health status is indicated by the maternal mortality ratio (MMR) and infant mortality rate (IMR). Both the indicators IMR and MMR are considered essential subjects for the global community and uses as an indicator to compare health status across countries (Mgawadere et al., 2017; Collier and Molina, 2019). Moreover, these indicators are also used to reflect the socio-economic development process of a country (Collier and Molina, 2019). Further, the study has also examined the distribution of government health care facilities across the districts of Assam. The healthcare facilities are indicated by availability of doctor, nurse & midwives and allied health worker.

The study is based on the secondary information, which is collected from annual reports of the Ministry of Health and Family Welfare of India and Statistical Handbook Assam for the year 2018-19. To compare the availability of healthcare facilities across the districts of Assam, simple mathematical calculations such as per capita, percentage has been done. The per capita implies the availability of health care resources against ten thousands population in each districts of Assam.

The results of the study revealed that Assam has been reducing its maternal mortality and infant mortality. However, the state needs more investment in healthcare sector because the state has still higher MMR in comparison to the national average. In this aspect the study has analysed the distribution of healthcare resources across districts of Assam. Districts like Nagaon, Kamrup and Sonitpur have relatively higher percentage of health institutions, while Kamrup (Metro) and Dima Hasao have the lowest percentage of health institution. However, in terms of per capita health care resources different results are observed.

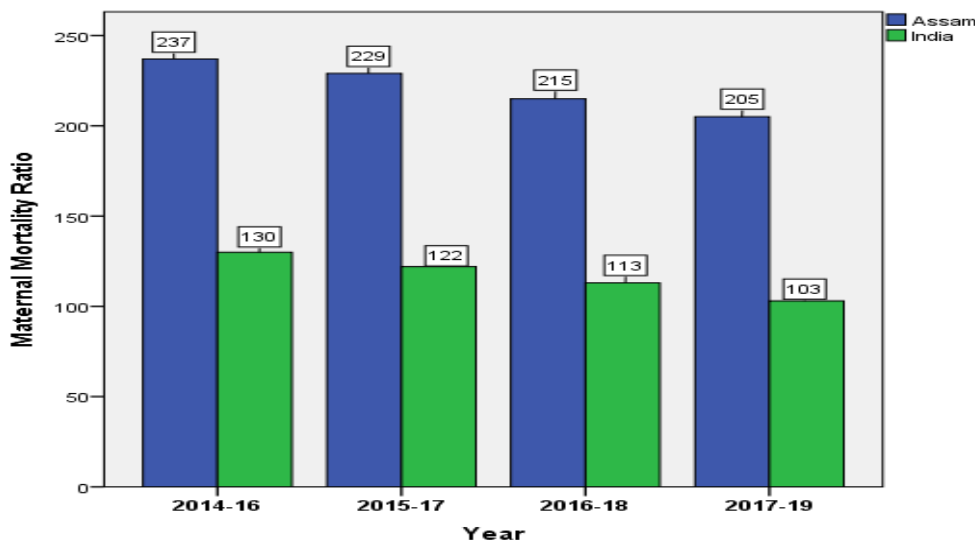
The paper is organised into four sections. Following the introduction, the second section provides a brief discussion on health status of Assam. The third section provides a brief discussion on public healthcare facilities of the state. Further this section has tried to provide a

outline in distribution of healthcare resources including physician, bed, hospital and other health worker across districts of Assam. At the end the section four provides a brief summary and conclusion of the study.

2. Health Status of Assam

As stated earlier, the health status of Assam is poorer than other states of India. The state has recorded the highest maternal mortality ratio in the country for the year 2017-19 (see **figure 1**). Further, the state's MMR has been higher than India's average MMR from 2014-16 to 2017-19, although the state has shown around 14 per cent improvement in MMR during the period. Similarly, the state has recorded the third-highest infant mortality rate for 2019.

Figure 1: Maternal Mortality Ratio of Assam and India during 2014-16 to 2017-19

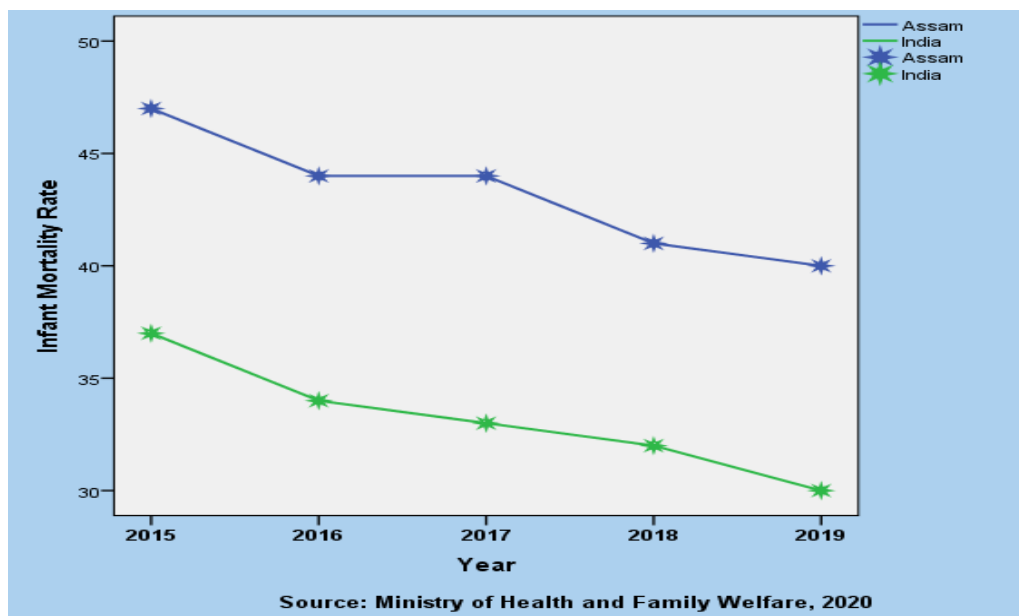


Source: Ministry of Health and Family Welfare, 2020

Similarly, Assam has been reflecting a higher infant mortality rate for the last five years (see **figure 2**). In 2015, the IMR of the state was 47, and it was higher than in many states, including Bihar, Chhattisgarh, and Uttar Pradesh. It improved to 44 in 2016 but remained higher than the national average. Further, in 2019 the state recorded IMR equal to 40, a marginal reduction in

IMR from 2018 (41). Thus from 2015 to 2019, the state recorded around a 15 per cent decline in IMR.

Figure 2: Infant Mortality Rate of Assam and India during 2015 -2019



The possible causes of the decline in MMR and IMR of the state are an increase in institutional delivery rate from around 71% (2015-16) to 91% in 2019-20 and the government's initiatives to enhance the institutional delivery rate in the state. With the central government's support, the government of Assam has been implementing the Janani Shishu Suraksha Karyakram (JSSK) and Janani Suraksha Yojana (JSY). Moreover, the state government has implemented a wage compensation scheme for pregnant women working in the tea garden of Assam. Further, the 104 Sarathi scheme is launched to provide free-of-cost, round-the-clock helpline service. However, studies including Saha and Paul (2021) argued that some women of nine low-performing states, including Assam, cannot take benefit of government schemes because of a lack of health awareness and poor public healthcare infrastructure. However, the state was entitled as an achiever in overall and incremental performance by Niti Ayog's health index (2019).

3 Public healthcare facilities of Assam

Among the north-eastern states, Assam has the highest number of medical colleges. In Assam, there are six medical colleges which are 2.44 per cent of the total medical college in India. **Table (1)** explains that the medical colleges have total of 726 admission capacities. The Assam Medical College has the highest number of seats, followed by Guwahati medical college. Other four medical colleges, including Fakhruddin Ali Ahmed Medical College (FAAMC), Jorhat Medical College (JMC), Silchar Medical College (SMC) and Tezpur Medical College (TMC), have the same admission capacity.

Table 1: Medical Colleges and Admission Capacity in Assam

Name of the Hospitals	District	Admission Capacity	Bed Number
Assam Medical College (AMC)	Dibrugarh	170	1365
Fakhruddin Ali Ahmed Medical College (FAAMC)	Barpeta	100	500
Guwahati Medical College (GMC)	Kamrup (Mero)	156	1982
Jorhat Medical College (JMC)	Jorhat	100	400
Silchar Medical College (SMC)	Silchar	100	906
Tezpur Medical College (TMC)	Tezpur	100	500
Source: Ministry of Health and Family Welfare, Assam, 2020			

These medical education institutions provide tertiary and secondary levels of healthcare services. Further, the medical colleges have a total 5653-bed capacity. GMC has the most significant

number of beds in these teaching medical institutions or hospitals, followed by AMC. Further, JMC has the lowest number of beds, and FAAMC and TMC have the same number of beds.

In the case of nursing education, there are three government B.sc. Nursing colleges are located in three districts kamrup (Metro), Dibrugarh and Silchar. The total admission capacity of these institutions is 180, as per the government report. Moreover, many private nursing colleges have been helping in providing nursing education in the state.

3.1 Public healthcare facilities in the districts of Assam

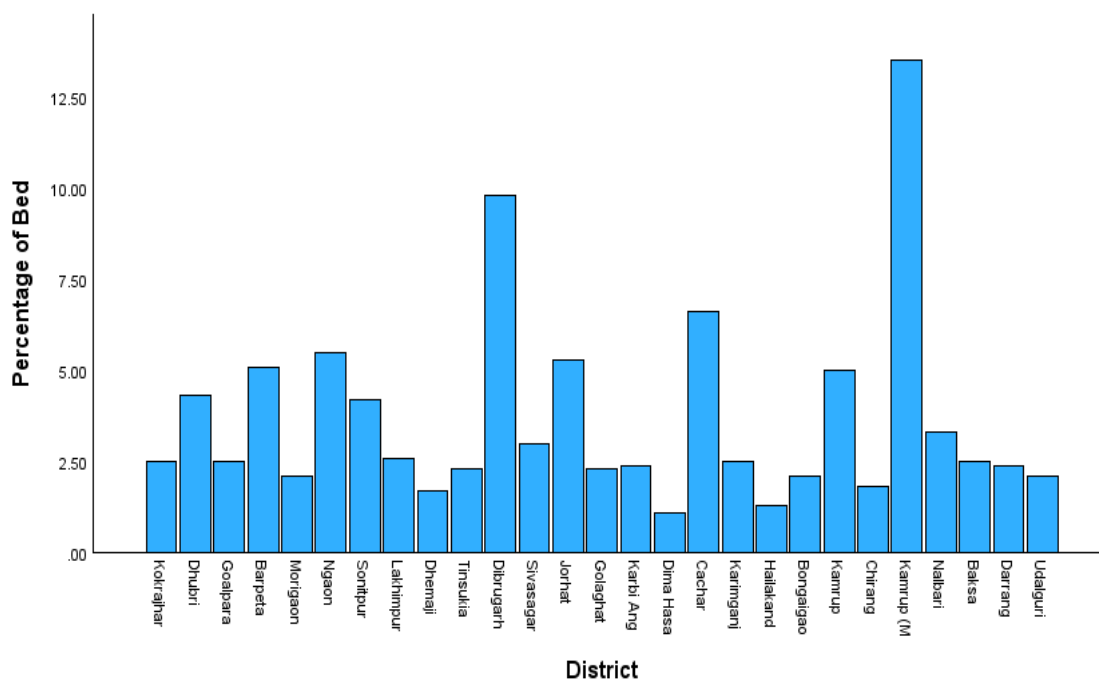
Apart from medical colleges, there are 6096 hospitals in rural and urban areas of Assam. **Figure (3)** shows that the Nagaon district has the highest percentage of health institutions. The district also has a very high population. The second highest percentage of health institutions is available in Kamrup and Sonitpur districts. Both districts have shared 6% of the total health institution in Assam.

Moreover, districts like Dhubri, Barpeta, Dibrugarh, Cachar and Nalbari have a relatively good percentage of health institutions. On the other hand, two districts, Dima Hasao and Kamrup (Metro), have shared the lowest percentage (each 1%) of total health institutions in Assam. The Dima Hasao district is a hilly area and has a deficient population.

If we look at the per capita hospital availability, Nagaon district has two hospitals per 10,000 population of the district (**see figure 4**). Similarly, districts like Dhubri, Goalpara, Barpeta, Morigaon, Nagaon, Sonitpur, Lakhimpur, Dhemaji and Dibrugarh have less than 3 per capita hospitals. The lowest per capita hospital is observed in two districts, Kamrup (Metro) and Tinsukia. Both districts have one hospital per 10000 populations individually. Moreover, Dima Hasao and Nalbari districts have the highest per capita hospitals. Individually, both districts have four hospitals against a 10000 population. Kamrup, Chirang and kokrajhar follow these two districts⁴. These three districts have three hospitals per 10000 populations individually.

Figure 3: Percentage of Hospital Beds in Districts of Assam

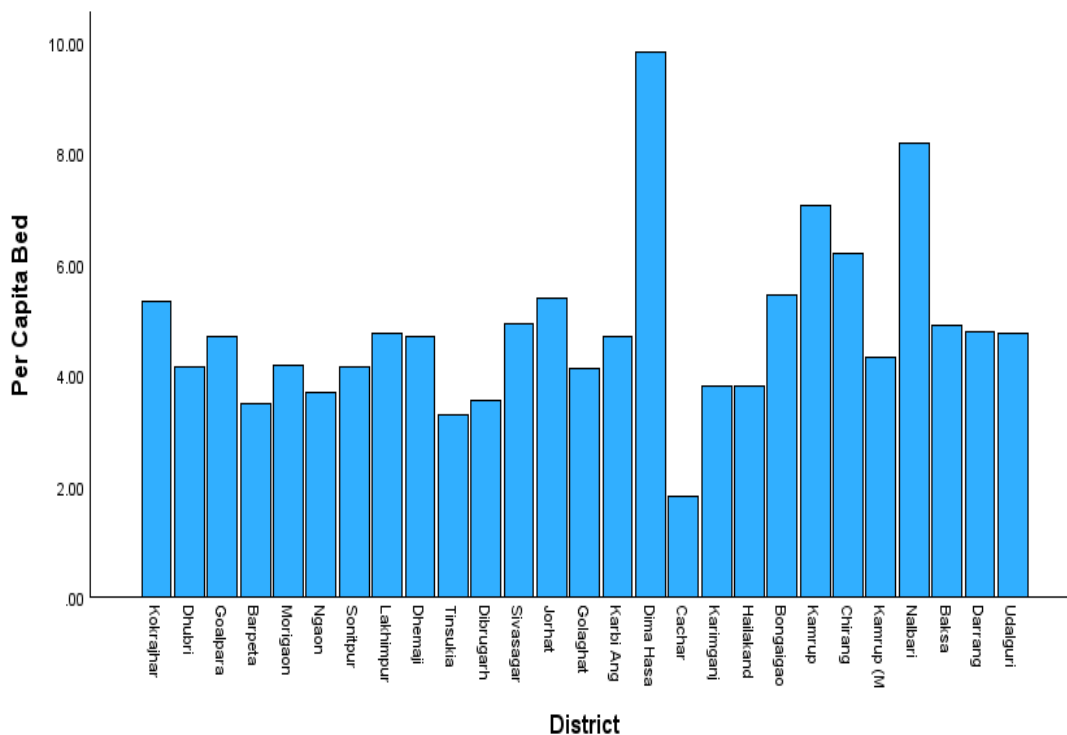
⁴ Kamrup district is also called as Kamrup (Rural)



Source: Statistical Handbook Assam, 2019

The state has 18 886 beds in the government sector, which shares around 2% of the total public hospital bed in India in 2018. **Figure (3)** shows that district Kamrup has the highest percentage of beds, which is 7 per cent of the total hospital bed in Assam. The Kamrup district is followed by Sonitpur (6%), Nalbari (5%), Lakhimpur (4%), Sivasagar (4%), Jorhat (4%) and Kamrup (Metro) with 4 per cent of the total hospital bed. The lowest percentage of beds is observed in five districts, namely Dhemaji, Dima Hasao, Cachar, Hailakandi and Chirang. These districts have shared about 2 per cent of total hospital beds individually.

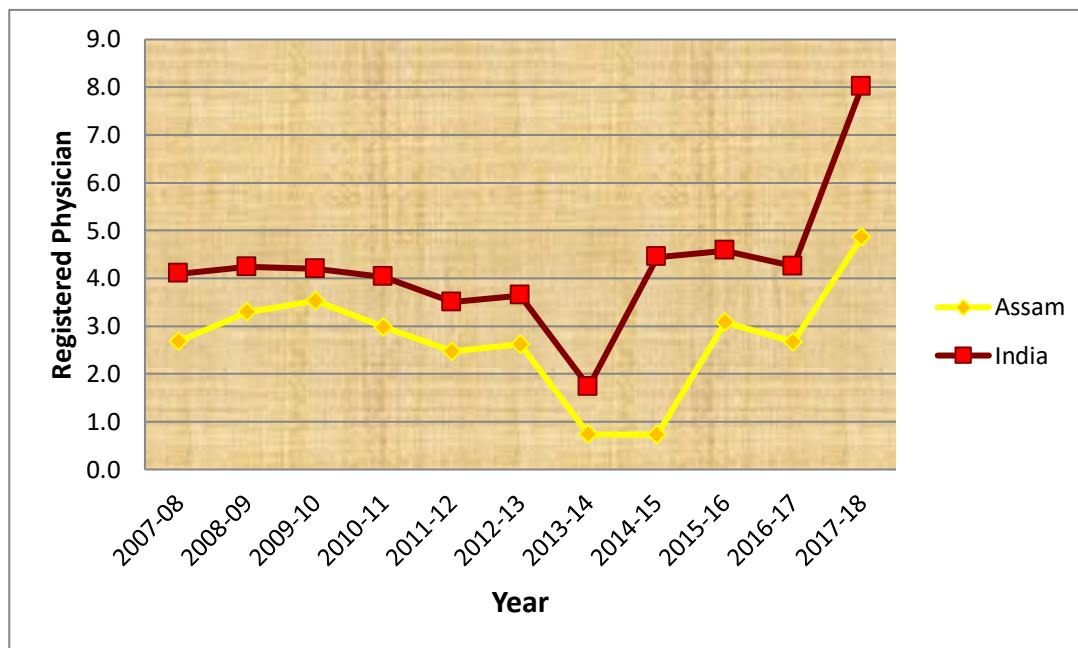
In the case of per capita hospital beds (**see figure 4**), it is observed that district Dima Hasao has the highest per capita bed, which is ten against the 10000 population in the district. The district is followed by Nalbari (8), Chirang (7) and Kamrup (6), and other districts like Kokrajhar, Goalpara, Lakhimpur, Dhemaji, Sivasagar, Jorhat, Karbi Anglong, Bongaigaon, Darrang and Udalguri have a similar number of per capita hospital beds which is five against 10000 population. Moreover, the lowest per capita hospital bed is observed in Cachar district.

Figure 4: Per Capita Public Hospital Bed in Districts of Assam

Source: Statistical Handbook Assam, 2019

3.2 Number of allopathic doctors in the districts of Assam

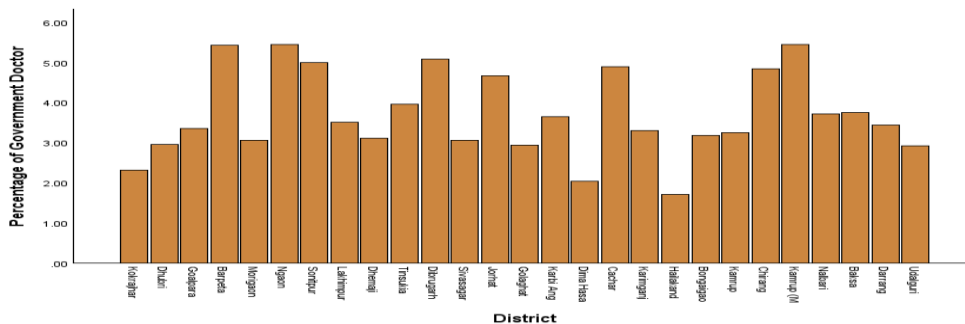
On average, the number of registered doctors in India has increased by around 58% from 2007-2018. It was 731439 in the year 2007 and increased to 1154686 in the year 2018. Similarly, Assam had 23804 registered physicians in 2018, an increase from 17436 in 2007. During 2007-2018 about a 37 per cent increase in registered doctors was observed. **Figure (5)** shows that following India's highest growth rate for a registered doctor in 2017-18, Assam also recorded the highest growth rate in 2017-18. An increasing growth rate of registered doctors was observed from 2007 to 2010 in Assam, while after 2010, it started falling to the lowest level of 0.7 (2014) and again increased.

Figure 5: Growth of Registered Physicians in India and Assam during 2007-2018

Source: National Health Profile, 2015, 2019, GOI

Moreover, the state had 4401 government doctors in 2014, which has increased to 6082 in 2017 as per the provisional report of NHP, 2015. During the period, around 38 per cent growth is observed in the number of government doctors. **Figure (6)** shows that districts like Barpeta, Nagaon, Sonitpur, Dibrugarh, Jorhat, Cachar and Kamrup (Metro) have shared 5 per cent of the total government doctor each. The second highest percentage is found at 4 per cent, acquired by five districts, namely Lakhimpur, Tinsukia, Karbi Along, Nalbari and Baksa. On the contrary, the lowest percentage (2%) of total government doctors is shared by the two districts Kokrajhar and Dima Hasao.

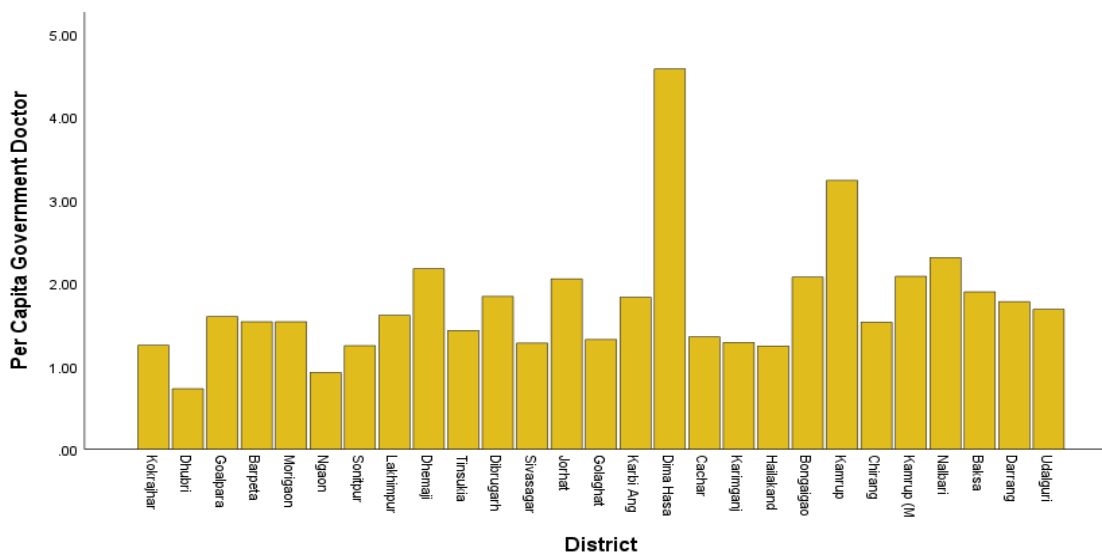
Figure 6: Percentage of Government Doctors in Districts of Assam



Source: Statistical Handbook Assam, 2019

From the result of per capita government physicians in districts of Assam, it is observed that the average per capita physician is 1.7 in Assam. The below **figure (7)** revealed that 11 districts have per capita physicians more than the average. These districts are Dhemaji, Dibrugarh, Jorhat, Karbi Anglong, Dima Hasao, Bongaigaon, Chirang, Kamrup (Metro), Nalbari, Baksa and Darrang. Among the districts, the hilly district Dima Hasao (4.6) has the highest per capita physician, and the district has a low percentage of physicians. Dima Hasao is followed by Chirang (3.2) and Nalbari (2.3). Moreover, the most diminutive per capita physician is observed for the district Dhubri (0.7), followed by Nagaon (0.9), Sonitpur (1.2) and Hailakandi (1.2).

Figure 7: Per Capita Government Physician across Districts of Assam



Source: Statistical Handbook Assam, 2019

3.3 Number of auxiliary health workers in the districts of Assam

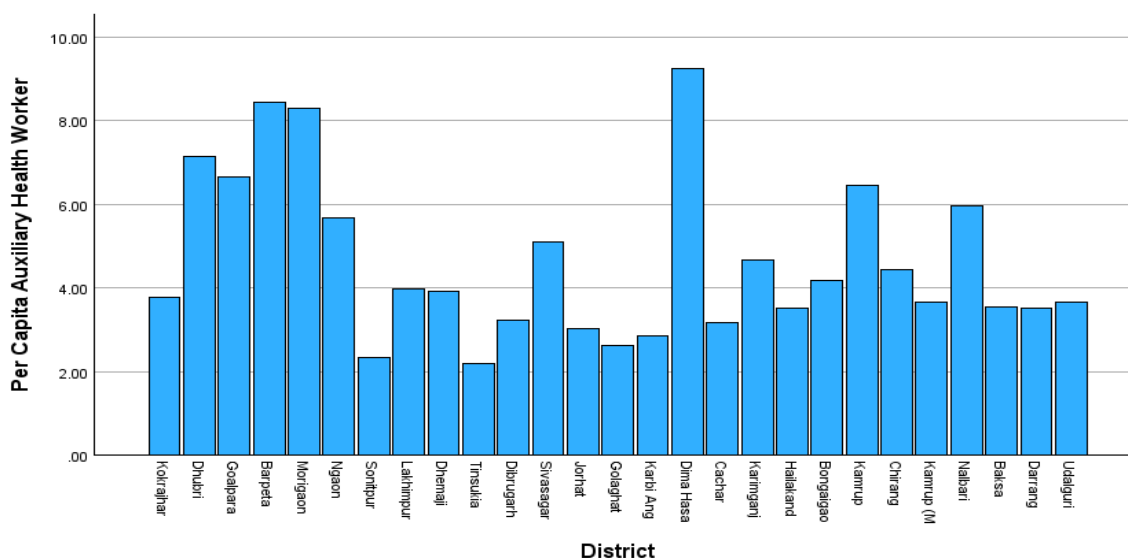
The NHP reports show that Assam has registered an increase in registered nurses and midwives from 18506 (2014) to 22,388 in 2018. During this period, around 17 per cent growth in the number of registered nurses and midwives was observed. Moreover, the share of the state's registered nurses and midwives in total number has increased from 1% (2014) to 2% in 2018. The state has also increased the number of pharmacists and other health workers, including Auxiliary Nurse Midwives (ANM) and Lady Health Visitors (LHV). The number of pharmacists increased from 2429 (2014) to 15462 in 2019, a tremendous growth of around 500% during the mentioned period. If we look at India's total figure, it was 6 64176 (2014) and has increased to 11,25222 in 2019. Around 69 per cent growth in the number of pharmacists is observed during the same period.

Figure (8) represents the distribution of auxiliary health workers (AHW), including ANM, midwives and pharmacists. District Nagaon has the highest percentage of AHW, which is 9 per

cent, and the district is followed by Dhubri (8%) and Barpeta (8%). Moreover, districts Morigaon and Goalpara have 5% of the total auxiliary health workers. Other districts have recorded less than 5% of auxiliary health workers. The lowest percentage is two per cent, recorded by districts Dhemaji, Tinsukia, Karbi Anglong, Dima Hasao, Darrang, Udalguri, Hailakandi and Bongaigaon.

Moreover, **figure (8)** also represents the per capita AHW in districts of Assam. It is observed that district Dima Hasao has the highest per capita AHW, which is about 19 per ten thousand population. The district is followed by Morigaon and Chirang, which have individually 11 per capita AHW. Moreover, the lowest per capita AHW is four, recorded by the districts Sonitpur and Tinsukia.

Figure. 8: Distribution of Auxiliary Health Workers across Districts of Assam



Source: Statistical Handbook Assam, 2019

4. Summaries and Conclusions

Assam has been reducing its maternal mortality and infant mortality. However, the state needs more investment in healthcare sector because the state has still higher MMR in comparison to the national average. In this aspect the study has analysed the distribution of healthcare resources across districts of Assam. Districts like Nagaon, Kamrup (Rural) and Sonitpur have relatively higher percentage of health institutions, while Kamrup (Metro) and Dima Hasao have the lowest percentage of health institution. Although all the districts have more or less similar number of healthcare centre, however distribution of hospital bed is found unequal. Moreover, the study has calculated the per capita healthcare resources, in which per capita means number of resources against ten thousands population. Districts like Dibrugarh, Kamrup (Metro), Nagaon and Kachar have the highest percentages of total hospital bed. However, districts like Dima Hasao, Nalbari, Chirang and Kamrup (Rural) have relatively higher number of per capita hospital bed and among these districts Dima Hasao has the highest per capita hospital bed. Similarly, it is observed that district Nagaon has highest number of auxiliary health workers, however due to its huge population per capita healthcare resources are found low. On the contrary, Dima Hasao which is a hilly district of Assam has the highest per capita auxiliary health workers.

Thus, the study will help in understanding the health status of the state in comparison with the national average. Moreover, readers can also get an idea about the distribution of healthcare resources across districts of Assam. However, there is a further scope to analyse the inequality in distribution of healthcare resources and its probable link with healthcare performance of districts in Assam.

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Statistical Handbook Assam (SHA), is an annual report published by the Directorate of Economics and Statistics, Government of Assam