

Spatial and Temporal Analysis of Healthcare Facilities in Gorakhpur District, Uttar Pradesh

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ABSTRACT

Health is a state of being free from disease and injury but in a deeper sense, it does not remain the same. India has a long history of providing healthcare services to its people in the form of home remedies such as Ayurveda. For the development of rural areas of India, Indian committees had suggested three-tier health facilities namely community healthcare centers, primary health care centers, and sub-centers. The present study attempted to analyze the spatial and temporal availability of health facilities in all the blocks of the Gorakhpur district of Uttar Pradesh. The study has been attempted by collecting data from various secondary sources. There is adequate availability of health care centers in the district but there is inequality in their distribution at the block level. The district lacks 9 CHCs, 54 PHCs, and 127 SCs for better health conditions in the entire district. The district needs to increase the availability of healthcare infrastructure as this can also reduce the overburden of patients on the available healthcare centers.

Keywords: Healthcare Facilities, Community Health Centers, Primary Health Centers, Sub-Centers, Block,

INTRODUCTION

‘Prevention is better than cure’ is well-known to everyone but if we say prevention along with the cure is like a cherry on the cake. Both mental and physical health were regarded as crucial indicators of health. India has a long history in the study of medicine. Our Vedic books have been gems for millennia, The "Charaka Samhita" served as the cornerstone of medicine, while the "Sushruta Samhita" was an ancient medical text on surgery that was written about the sixth century B.C. (National Health Systems Resource Centre, 2013). Now, if we look at the present-day definition of health given by WHO, it says “Health is a state of complete physical, mental, and social well-being and not merely the absence of disease or infirmity.” India has made frequent improvements in

prioritizing health and providing adequate facilities to their citizens. During the first year of the fifth five-year plan (1974-78), the Minimum Needs Program (MNP) was introduced to improve health standards by providing the minimum needs of the population. In a way of improving health, facilities different missions, and organizations were set up to attain the remarkable position in providing healthcare services. India has several health policies as it is well mentioned in the VII Schedule of the Constitution of India, that the State government will provide health care. The government of India plays a vital role in providing these facilities. The first health policy in India was introduced in 1983 with a policy of ‘Health for all’. Since then, there have been significant changes in the forces that determine the health sector. Rural areas

were considered on a priority basis and so under the National Health Mission, the government has started the National Rural Health Mission. It can be seen that the fast growth of health centers and their availability in urban areas are due to high literacy and high life expectancy.

The availability of healthcare infrastructure is important to understand its utilization. The places which have easy access to their health centers can be considered as having good health conditions. Table 1. shows the required, in place, and the shortfall percentage in the availability of health infrastructure in rural areas of Uttar Pradesh in the year 2021. According to the Uttar Pradesh dossier, National Health Systems Resource Centre (NHSRC), Uttar Pradesh, 2021 this state is one of the largest states regarding population which has an estimation to increase by over 23 Crores by 2021(NHSRC). According to this dossier, there are 20,778 SCs, 2,880 PHCs, and 711 CHCs in place, against the required 35,115 SCs, 5,846 PHCs, and 1461 CHCs.

In terms of healthcare, the first name that gains importance is Bhore’s Committee.

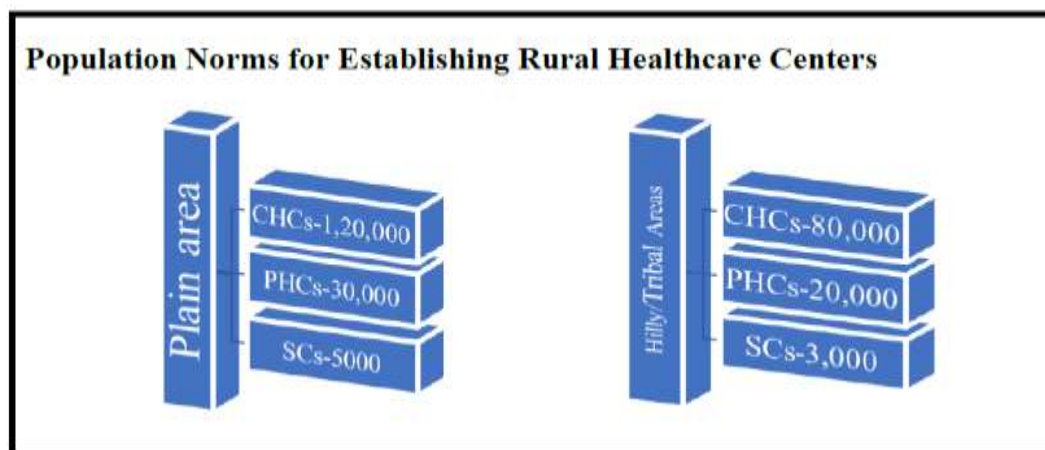
This is also known as the Health Survey and Development Committee. On 18 October 1943, the Government of India announced the appointment of this committee under the chairmanship of Sir Joseph Bhore (Duggal, 1991). This committee suggested the 3-tier healthcare system in India which involves the Sub-Health Centre (Urban and Rural), Primary Health Centre (Urban and Rural), and Community Health Centre (Urban and Rural) as the three pillars of the Primary Health Care System in India. To provide the facilities in these health centers, the government of India provides financial and technical support to states and union territories. With a special focus on rural areas, National Health Mission (NHM) launched National Rural Health Mission (NRHM) as its sub-mission in 2005 started with the goal of "achieving universal access to equitable, affordable, and high-quality health care services that are responsible and responsive to people's needs and that take effective inter-sectoral convergent action to address the broader social determinants of health." The 3-tier healthcare systems are:

Key Health Infrastructure Indicators			
Rural	Required (R)	In place (P)	Shortfall (S) (%)
Number of Community Health Centers (CHCs)	1461	711	51.33
Number of Primary Health Centers (PHCs)	5,846	2,880	50.74
Number of Sub Centers (SCs)	35,115	20,778	40.83

Source: National Health Systems Resource Centre (NHSRC), Uttar Pradesh, 2021

Community Health Centers (CHCs)- This center covers a population of about 1,20,000 in plain areas and 80,000 in hilly/tribal areas. Out of the primary, secondary, and tertiary levels of the healthcare system, it is the second level that handles the cases referred from primary health centers. The staff in this health center includes 4 Medical Specialists i.e., a Gynaecologist, Surgeon, a

Paediatrician, and a Physician, and 21 paramedicals. As of 31st March 2022, in Uttar Pradesh, there are 829 Community Health Centers (CHCs) which was 515 in 2012. An increase of 314 Community health centers that cover an average rural population of 2,14,805 and 132 villages has been registered.



Source: National Rural Health Mission, 2005

Fig. 1

Primary Health Centers (PHCs)- They cover a population of about 20,000 in hilly/tribal areas and 30,000 in plain areas. It is known as the point of contact between village people and the medical officer. There should be one PHC in every 6 sub-centers. It also has types A and B but here it means that type A are those which have less than 20 delivery loads in a month and those are type B which have 20 or more deliveries in a month. Indian Public Health Standard (IPHS) has provided some basic norms which mention that there should be a Medical Officer in charge and 14 subordinate paramedical staff, 6 indoor/observation beds, 6 hours of OPD service in which 40 patients per doctor per day, and 24 hours facility with nursing facilities. As of 31st March 2022, in Uttar Pradesh, there are 2919 Primary Health Centers (PHCs) which was 3692 in 2012 and this shows a decrease of 773 Primary health centers that cover an average rural population of 61,005 and 37 villages.

Sub-Centers (SCs)- This center was established for every 5,000 people in plain areas and 3,000 people in hilly/tribal areas. It is said to be the first point of contact between the healthcare system and the community. The Indian Public Health Standards (IPHS) has prescribed some basic objectives for the healthcare services that should be available at every sub-center which includes the availability of manpower, equipment and instruments, buildings, drugs, and others. These

standards also include the constitution of the Village Health Sanitation and Nutrition Committee for better management and improvement of Sub-center services with the involvement of Panchayati Raj Institutions (PRI) and include the mechanism of monitoring and quality assurance. Sub-centers are divided into two types i.e., Type A and Type B. Type A has all the facilities except deliveries whereas Type B has facilities including deliveries. The staff recommendation at these health centers is one HW (F)/ANM & and one HW (M). It is ideal for the sub-center to offer regular OPD services for at least six hours each day, seven days a week. As of 31st March 2022, in Uttar Pradesh, there are 20,781 Sub Centers (SCs) which was 20,521 in 2012 in rural areas which shows an increase of 260 sub-centers and covers an average rural population of 8,569 and 5 villages. There are two main objectives of the study, to account for the availability of healthcare facilities i.e., CHCs, PHCs, and SCs in the study area and to analyze the spatial and temporal distribution of these healthcare facilities in the study area.

MATERIALS & METHODS

The methodology defines the work structure i.e., how the research work is done and what data is required to conduct the research. The methodology of this research has been divided into two parts: data collection and data presentation. In the data collection process, required data is collected for

research work, so in this reference, this study is based on the secondary data sources which are provided by the Primary Census Handbook 2011, Gorakhpur, Uttar Pradesh, Indian Public Health Standards (Ministry of Health and Family Welfare), Directorate of Medical & Health Services, Uttar Pradesh, National Health Mission, Uttar Pradesh, National Health Systems Resource Centre (NHSRC) Uttar Pradesh, 2021, Annual Report by Department of Health & Family Welfare (Ministry of Health & Family Welfare Government of India), Directorate of Economics and Statistics (Government of Uttar Pradesh), Rural Health Statistics 2012 and 2022, and District Statistical Magazine 2012 and 2022. After arranging the collected secondary data, the data is presented in the form of maps, diagrams, and tables. ArcGIS software is used for preparing different thematic maps.

Study Area

Uttar Pradesh is 4th largest state in India with an area of about 2,40,928 sq. km that has 75 districts in it. The district Gorakhpur lies between latitude 26° 13' N to 27° 29' N and longitude 83° 05' E to 83° 56' E. It has an area of about 3,321 sq. km. that is

covered mainly by plains and drained by *Rapti* as the main river. According to the census 2011, it is the 10th largest district in Uttar Pradesh in terms of population with rural areas having a population of about 81.2 percent of the total population and 1,160 density per sq. km. Gorakhpur district is divided into seven tahsils namely Bansgaon, Campierganj, Chauri Chaura, Khajni, Sadar, Gola, and Sahjanwa in which there is a subdivision of 19 Blocks, 1,233 Gram Panchayats, and 3,119 Revenue villages. Azamgarh District and Mau District to the south, Deoria District and Kushi Nagar District to the east, Maharajganj District to the north, and Sant Kabir Nagar District to the west all share a border with Gorakhpur District (Fig.2).

The National Health System Resources Centre (NHSRC) Uttar Pradesh, 2021 has taken into account several indicators of health, which have provided the percent of the shortfall in the districts based on these indicators. These indicators include sex ratio at birth (Females/1000 Males), percentage of households with any usual member covered under a health insurance/ financing Scheme percentage of mothers who had at least 4 Antenatal Care visits, etc.

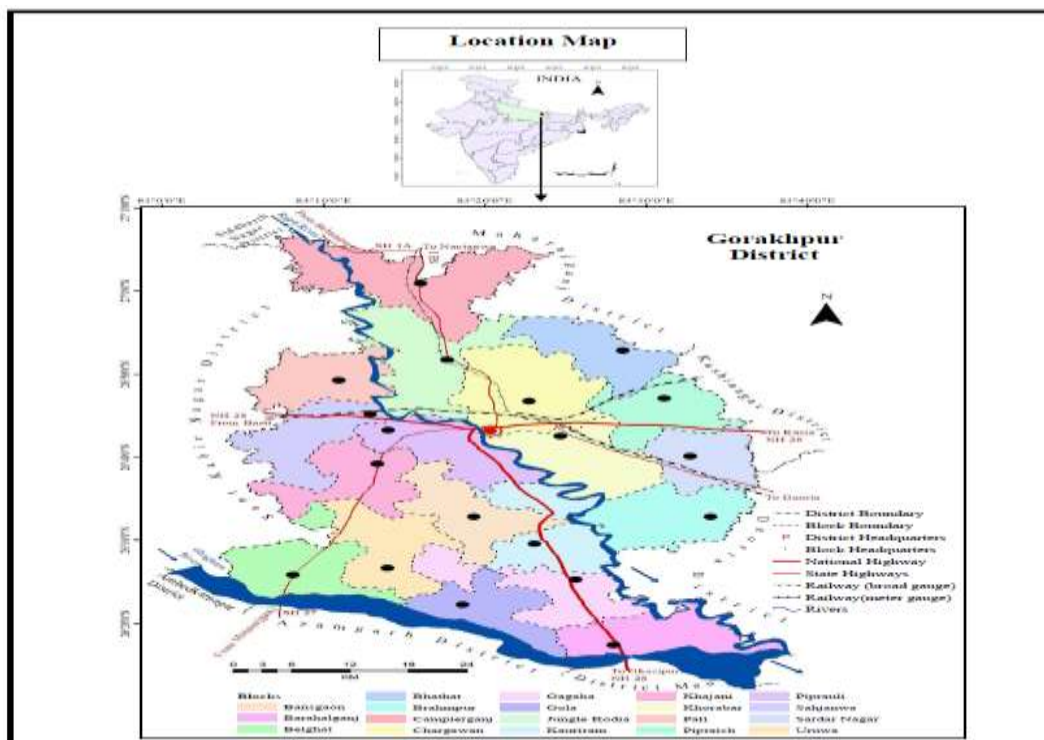


Fig.2

RESULT

The state governments are trying to reach the norms provided by IPHS which includes the availability of healthcare facilities. This study shows the availability of healthcare facilities and spatial as well as temporal change in these facilities in all 19 blocks of Gorakhpur District.

Availability and Distribution of Healthcare Facilities

Availability of Healthcare Facilities plays an important role in healthy people and healthy development in fact to solve the health-related problems of the people living in any area, it is very important to have health-related facilities because only a healthy person can carry forward to the development process. Along with the CHCs, PHCs, SCs, other healthcare facilities also need to be developed for the betterment of the population as only the former mentioned facilities are not enough for the satisfactory health of people living there. Table 2 reveals that the number of allopathic centers has

improved within 10 years. Allopathic showed a progressive percentage change of 53.84 from 2012 to 2022, followed by Family and Mother-Child Welfare Center showing a 48.64 percent change of 74 in 2012 and 110 in 2022. A change of 16.48 percent was noticed in the number of Family and Mother-Child Welfare Sub-Centers from 455 in 2012 to 530 in 2022. The number of Allopathic Hospitals, Community Health Centers, and Health Centers per lakh population was 3.07 in 2012 which changed to 2.16 in 2022 which means that there is a marked improvement in the hospitals and health centers per lakh population with a percent change of 29.64. The average population per Family, Mother, and Child Welfare Center has also indicated an enhancement in the facility with a percentage of 7.00. Ayurvedic manifests a decrease in percent change from 2012 to 2022 with 2.22 percent. In these ten years, there was no progress in Homeopathic and Unani health services in the study area.

S.no.	Hospital and Dispensary	2012	2022	Change (%)
1	Allopathic	52	80	53.84
2	Ayurvedic	45	44	-2.22
3	Homeopathic	36	36	0.00
4	Unani	3	3	0.00
5	Family and Mother-Child Welfare Center	74	110	48.64
6	Family and Mother-Child Welfare Sub Center	455	530	16.48
7	Number of Allopathic Hospitals, Community Health Centers, and Health centers per lakh population	3.07	2.16	- 29.64
8	The average population per Family and Mother and Child Welfare Center	8551.98	7953.13	-7.00

Source: District Statistical Magazine, 2012 and 2022, Gorakhpur District, Uttar Pradesh

Gorakhpur district is divided into 19 blocks in which the availability of healthcare facilities is 21 CHCs, 66 PHCs, and 594 SCs in the rural areas of each block in 2022 but in 2012 there were 15 CHCs, 44 PHCs, and 09 SCs. As per the spatial distribution of healthcare facilities in Table 3, the highest number of CHCs are found in Pipraich (2) and Khajani (2) whereas the remaining blocks have at least 1 CHC in 2022. In the year 2012, the Kauriram block had the highest number of CHCs with 3 number followed by 2 CHCs in Khajani. The availabilities of PHCs are maximum at

Jungle Kaudia (5), Chargawan (5), and Khorabar (5), and the other blocks have at least 3 PHCs according to 2022. The number of SCs is highest in Campierganj with 44 numbers while it is lowest with number 29 in Pali, Sahjanwa, Piprauli, and Sardar Nagar. Table 3 reveals that there is a huge investment in terms of sub-centers as it increased to 594 from 09 sub-centers from 2012 to 2022. As per the census 2011, the population of the rural area of Gorakhpur district is about 3,604,766 persons. Therefore, there is a requirement of 30 CHCs, 120 PHCs, and 721 SCs as per the

norms of the population in plain areas mentioned in Fig 1. Along with the availability and requirement of primary healthcare centers, other healthcare facilities like AIIMS were inaugurated on 7th December 2021 with 30 non-oxygen beds (but lacks ICU beds including ventilator) and a new building of Regional Medical Research Center of ICMR in Gorakhpur.

There is an appreciable increase in the number of PHCs, CHCs, and SCs from 2012 to 2022 but it needs more investment in healthcare facilities for the enhancement of infrastructure and human resources. The basic prerequisite is awareness about schemes initiated by the state and central government, the availability of roads, and local transportation.

Table 3: Availability and Distribution of Healthcare Facilities in Gorakhpur District, 2012 and 2022

S.no.	Block Name	2012			2022		
		CHCs	PHCs	SCs	CHCs	PHCs	SCs
1.	Campierganj	1	2	1	1	4	44
2.	Jungle Kaudia	1	4	2	1	5	37
3.	Pali	0	2	2	1	3	29
4.	Bhathat	1	0	1	1	3	31
5.	Chargawan	0	4	0	1	5	30
6.	Pipraich	0	2	0	2	2	30
7.	Sahjanwa	0	1	0	1	3	29
8.	Piprauli	0	2	0	1	3	29
9.	Khjani	2	4	0	2	3	31
10.	Bansgaon	1	3	0	1	4	30
11.	Sardar Nagar	1	2	0	1	3	29
12.	Brahmpur	1	2	0	1	3	31
13.	Kauriram	3	3	0	1	4	30
14.	Uruwa	0	3	1	1	4	32
15.	Belghat	1	2	1	1	3	31
16.	Gaugaha	0	3	0	1	3	30
17.	Gola	0	3	0	1	3	31
18.	Khorabar	1	1	1	1	5	30
19.	Barhalganj	2	1	0	1	3	30
	Total	15	44	9	21	66	594

Sources: Census of India, 2011, and Directorate of Medical & Health Services, Uttar Pradesh, 2022

The healthcare facilities of Gorakhpur district are evenly spread overall but there is variation at the block level. As in the year 2022, some portions of the district in the study region have a high concentration of healthcare services, whereas others have less or no CHC or PHC. According to the area of the block, the largest block of the district is Kahjani, and it has one CHC which is located to the north, and three PHCs, two near center of the block with SH 27 running through it and one PHC to the west in the villages of Bhaisanathu, Katwar, and Banhaita and also have 31 Sub-Centers, while the smallest block of Gorakhpur District is Sardar Nagar that is to the east of the district having one CHC, three PHCs and 29 Sub-Centers in which CHC is located near SH1 (to Deoria) and PHCs of the Sardar Nagar block are located in the

villages named as Belva Bujurg, Dumari Khas, and Karmha. Based on population, the Campierganj block is the largest in the Gorakhpur district. There is only one CHC in the block located to the north of the block near SH 1, four PHCs, and 44 Sub-Centers as well. Four PHCs are located in the villages of Jangal Agahi, Machhali Gaon, Ramnagar Keotalia, and Sahbganj in Campierganj block. In the block of Jungle Kaudia, there is one CHC, five PHCs, and 37 Sub-Centers. Out of five PHCs, one of which is located to the northwest of the block. Another two PHCs are located to the north of the block, one near the SH1 and railway, and the other to the northeast of the block. These five PHCs are situated in the villages of Abhooram, Barhaya, Doharia, Jangal Kauria, and Sarhari of Jungle Kaudia block. The southern half of Jungle Kaudia

block is devoid of PHC facilities. The block of Pali

covers the least population of the district. The distribution of health centers in this block consists of one CHC towards its east and three PHCs one of which is located in the center of the block, and the other two are in the far north and north-west at Dumri, Palikhas, and Rithvakhori Khas villages. Bhathat has one CHC which is situated in the center of the block three PHCs, and 31 Sub-Centers. The PHCs here are in the villages of Haphij Nagar, J. Janul Abden Urf Jainpur, and Patara in which two are adjacent to the road, and one in the north of the block. Pipraich block has two CHCs one to the north and another to the center of the block and both are along the road passing nearby. The two PHCs of this block are in Harpur, and Unaula Doim named villages one is located along the boundary of the block near Chargawan block and has a road alongside, and the other is in the center of the block and near the SH1. The number of sub-centers in the block of Pipraich is 30 in numbers. In the Khorabar block the CHCs, PHCs, and Sub-Centers are one, five, and thirty in number respectively. CHC in this block is near the SH1 and is situated along the east. The PHCs here are located along the outermost edge of the block sharing its boundary with Sardar Nagar, Brahmpur, Kauriram, and Piprauli, with the remaining two being in the center of the block and these primary health centers are distributed in the villages named Jungle Gaori No.2 Urph Amaia, Jangl Belwar, Lalpur Tikar, Khorabar Urf Soobabazar, and Pyasee. In the Chargawan block, except for one PHC in the north, the block provides for one CHC and five PHCs positioned near every major mode of transit and has thirty SCs as well. Sahajanwa block provides health facilities with one CHC, three PHCs, and 29 Sub-Centers. The CHC in this block is located near NH 28, with one PHC to the east of the block and another two to the west and southwest in the villages of Bharsar, Katsahra, and Sonbarasa. Piprauli block has one CHC that is to the north near SH 27,

three PHCs, and 29 Sub-Centers. Two PHCs of this block are near the CHC of the block and NH 27 and one to the west of the block in the villages of Khoraria Urf Bhati, Jangl Raneer Sohas Kunwari, and Chhapia. There is one CHC, four PHCs, and 30 sub-centers in the Kauriram block. The CHC is in the south-east of a large part of the block and one PHC is near the CHC of the block, while the remaining two are in the east of the block at Bhitha, Gajpur Ah, Pandepar, and Malav Mus villages. In the Brahmpur block the CHC, PHCs, and SCs are one, three, and thirty-one respectively. CHC in the block is at the central west of the block and PHCs are in Vishunpur Matiar, Brahm Pur, and Araji Jagdish Pur villages in which two PHCs are situated as one is to the north-west and another is to the west of the block. The block of Bansgaon has one CHC, four PHCs, and thirty Sub-Centers in it. The CHC is in the center of the block whereas two of the four PHCs are near CHC having the road along it and the remaining two are in the north and south of the block. The Gaugaha block has one CHC, three PHCs, and thirty SCs One part of the Gaugaha is devoid of any CHC and PHC whereas its other part has one CHC and two PHCs along the NH 28 and one to the east of the block. Another block of the district is Barhaganj which has one CHC along the NH 28 and three PHCs two are near the NH 28 and one to the north of the block distributed in the villages of Bhatpar, Dumari, and Mishrauli This block has 30 Sub-Centers in it. The Uruwa block has One, four, and thirty-two CHCs, PHCs, and SCs respectively which are distributed from the northeast to the southwest. The CHC is located at the center of the block and four PHCs are located in the villages of Bhaisa Rani, Dhebra Bujurg, Malhanpar, and Urua Bazar. The Belghat block of Gorakhpur district has one CHC, three PHCs, and 31 Sub-Centers. This block is separated into two parts one part is lacking in any kind of CHC and PHC facilities whereas CHC in the other part of the block is in the center along the NH 27, two PHCs towards the

southwest, and the third is in the north of the block. The PHCs in this block are distributed in the villages of Bari Gonva, Pipersandi, and Rapatpur. In the Gola block, there are one CHC, three PHCs, and 31 Sub-

Centers. The CHC of this block is located in the south-central part whereas PHCs are located in the north, east, and southeast of the block in the villages of Newaijpar, Chilawa, and Pakari (Fig.3).

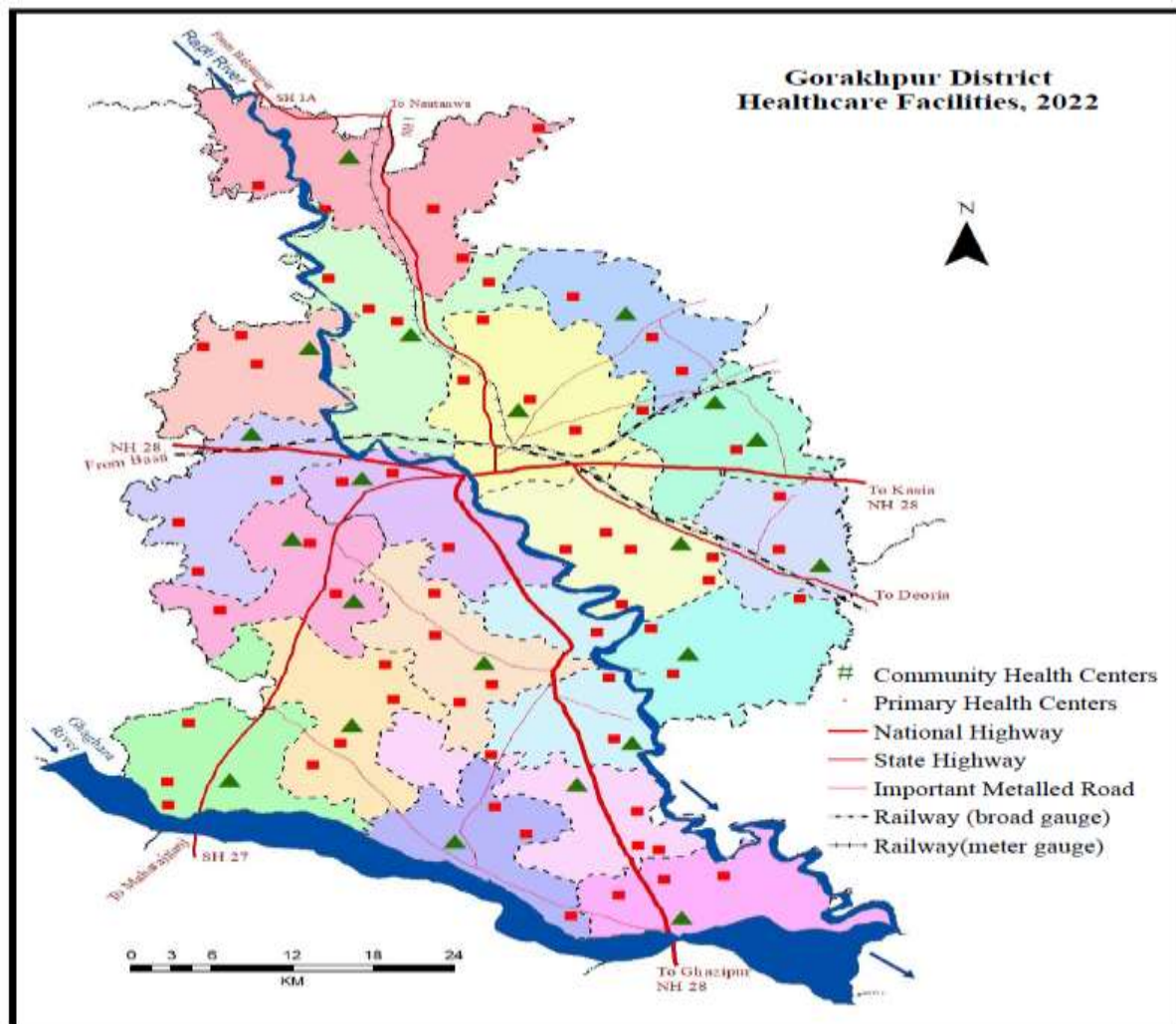


Fig 3

Spatial and Temporal Change of Healthcare Facilities from 2012 to 2022:

Spatial accessibility to healthcare depends on several critical elements, including population demand, the availability of health services, and their connections such as transportation infrastructure. These three variables fluctuate in distinct ways with time and place, resulting in temporal shifts and geographic inequities in access to healthcare (Yang & Mao, 2018). The spatial and temporal distribution of healthcare facilities defines the accessibility of the population living in that region. If the

healthcare centers are within reach, then there is much possibility of people getting good care of their health. At the district level, there is an increase of 40 percent, 50 percent, and 6500 percent in CHCs, PHCs, and SCs respectively. In the study area, only one block Khajani has a mark decrease of 25 percent in terms of PHCs availability while there are some blocks such as Pipraich, Gaugaha, and Gola where there has been no change in the numbers of PHCs. Other blocks have registered an increase in percent change in the number of PHCs. Kauriram and Barhalganj blocks

have seen a decline in the number of CHCs by 66.66 percent and 50 percent respectively, while no increase has been registered in the number of CHCs in Campierganj, Jangal Kauria, Bhathat, Khajani Bansgaon, Sardar Nagar, Brahmapur, Belghat, and Khorabar blocks. Apart from PHCs and CHCs, the Sub-centers are meant for the first point of contact between the village and the healthcare system, and with the increase in critical conditions the patients are referred to the PHC and further CHC but the data shows the loophole in this context. Table 4 shows the spatial and temporal change in

percent from 2012 to 2022 which defines there is a drastic increase in the number of Sub Centers in each block with the highest percent change in Campierganj followed by Urwa, Bhathat, Belghat, Gaugaha, Khorabar, Jungle Kaudia and the remaining block has the 100 percent change. It is clear from Table 4, that many blocks have not registered any increase in the number of CHCs and PHCs and hence it can be inferred that many sub-centers are overburdened with the number of patients and there is also a lack of healthcare facilities.

Table 4: Block-wise Spatial and Temporal Change of Healthcare Facilities in Gorakhpur District, 2012 to 2022

S.no.	Block Name	2012			2022			Change (%)		
		CHCs	PHCs	SCs	CHCs	PHCs	SCs	CHCs	PHCs	SCs
1.	Campierganj	1	2	1	1	4	44	0.00	100.00	4300.00
2.	Jungle Kaudia	1	4	2	1	5	37	0.00	25.00	1750.00
3.	Pali	0	2	2	1	3	29	100.00	50.00	1350.00
4.	Bhathat	1	0	1	1	3	31	0.00	100.00	3000.00
5.	Chargawan	0	4	0	1	5	30	100.00	25.00	100.00
6.	Pipraich	0	2	0	2	2	30	100.00	0.00	100.00
7.	Sahjanwa	0	1	0	1	3	29	100.00	200.00	100.00
8.	Piprauli	0	2	0	1	3	29	100.00	50.00	100.00
9.	Khjani	2	4	0	2	3	31	0.00	-25.00	100.00
10.	Bansgaon	1	3	0	1	4	30	0.00	33.33	100.00
11.	Sardar Nagar	1	2	0	1	3	29	0.00	50.00	100.00
12.	Brahmpur	1	2	0	1	3	31	0.00	50.00	100.00
13.	Kauriram	3	3	0	1	4	30	-66.66	33.33	100.00
14.	Uruwa	0	3	1	1	4	32	100.00	33.33	3100.00
15.	Belghat	1	2	1	1	3	31	0.00	50.00	3000.00
16.	Gaugaha	0	3	0	1	3	30	100.00	0.00	2900.00
17.	Gola	0	3	0	1	3	31	100.00	0.00	100.00
18.	Khorabar	1	1	1	1	5	30	0.00	400.00	2900.00
19.	Barhalganj	2	1	0	1	3	30	-50.00	200.00	100.00
	Total	15	44	9	21	66	594	40.00	50.00	6500.00

Source: Census of India, 2011, and Directorate of Medical & Health Services, Uttar Pradesh, 2022, and analyzed by the researcher

Availability, Required, and Shortfall of Healthcare Facilities:

Infrastructural healthcare facilities are one of the basic and important needs in every part of the region. A sufficient number of health centers defines the better health conditions of the population living in that region. Rural healthcare in India is experiencing a crisis, unlike any other sector. Due to outdated infrastructure and a lack of pharmaceuticals and equipment, just 20 percent of the population seeking outpatient services, and 45% of those seeking inpatient treatment use public services (Sriram, 2018). As per Table 5, Campierganj, Jungle Kaudia, Bhathat,

Piprauli, Brahmpur, Uruwa, Belghat, Gaugaha, and Khorabar blocks need at least one CHC whereas Pali, Chargawan, Pipraich, Sahjanwa, Khjani, Bansgaon, Sa rdar Nagar, Kauriram, Gola, and Barhalganj has no shortfall of CHCs. According to standard norms, the blocks that need PHCs more than six are Campierganj (9), Jungle Kaudia (8), Khajani (7), Uruwa (7), and Belghat (7) whereas the blocks need six PHCs are Bhathat, Chargawan, Pipraich, Piprauli, Bansgaon, Sardar Nagar, Brahmpur, Kauriram, Gaugaha, Gola, Khorabar, and Barhalganj. Only two blocks, Pali, and Sahjanawa required five PHCs according to population.

Sub-centres are the first point of contact between the population and health centres and as per the standard, at least one sub-centres should be established for every 5,000 population. Blocks that need more than eight SCs are Campierganj (11), and Jungle Kaudia (10) whereas Bhathat, Pipraich, Piprauli, Khajani, Brahmipur,

Uruwa, Belghat, and Khorabar blocks have a shortfall of eight SCs. Blocks that need less than eight SCs are Chargawan (7), Sahjanwa (1), Bansgaon (5), Sardar Nagar (7), Kauriram (5), Gaugaha (7), Gola (3), and Barhalganj (7). Pali is the only block of the district that does not need a greater number of SCs.

Table 5: Blockwise Availability, Required and Shortfall of Healthcare Facilities Gorakhpur District, 2022

S.no.	Block Name	Total Population	Available			Required			Shortfall		
			CHCs	PHCs	SCs	CHCs	PHCs	SCs	CHCs	PHCs	SCs
1.	Campierganj	274914	1	4	44	2	9	55	1	5	11
2.	Jungle Kaudia	235235	1	5	37	2	8	47	1	3	10
3.	Pali	144080	1	3	29	1	5	29	0	2	0
4.	Bhathat	193535	1	3	31	2	6	39	1	3	8
5.	Chargawan	186787	1	5	30	1	6	37	0	1	7
6.	Pipraich	188645	2	2	30	2	6	38	0	4	8
7.	Sahjanwa	151488	1	3	29	1	5	30	0	2	1
8.	Piprauli	183992	1	3	29	2	6	37	1	3	8
9.	Khjani	196763	2	3	31	2	7	39	0	4	8
10.	Bansgaon	176523	1	4	30	1	6	35	0	2	5
11.	Sardar Nagar	178005	1	3	29	1	6	36	0	3	7
12.	Brahmpur	193681	1	3	31	2	6	39	1	3	8
13.	Kauriram	176345	1	4	30	1	6	35	0	2	5
14.	Uruwa	202021	1	4	32	2	7	40	1	3	8
15.	Belghat	195776	1	3	31	2	7	39	1	4	8
16.	Gaugaha	185525	1	3	30	2	6	37	1	3	7
17.	Gola	167583	1	3	31	1	6	34	0	3	3
18.	Khorabar	190891	1	5	30	2	6	38	1	1	8
19.	Barhalganj	182977	1	3	30	1	6	37	0	3	7
	Total	3604766	21	66	594	30	120	721	9	54	127

Sources: Directorate of Medical & Health Services, Uttar Pradesh, 2022, and analyzed by the researcher

DISCUSSION

The findings in the spatial and temporal analysis of healthcare facilities in the Gorakhpur district indicate there is approximately 40-50% less availability of health infrastructure in the state, which helps to predict the health conditions of the population living there. The availability and distribution show the variation in percent change from an increase of 53.84 % in allopathic to a decrease of 2.22% in ayurvedic. In terms of spatial and temporal distribution of the healthcare facilities, the maximum change in PHC has been noticed in Khorabar block whereas the minimum change in Jungle Kaudia and Chargawan block of Gorakhpur district. There are 21 Community Health Centers in the Gorakhpur district with a population of 1, 71,656 persons. As per the standard availability, there should be availability of 30 CHCs for a population of 1, 20,000

persons in the plains area but in the study area, 9 CHCs are lacking. For one PHC there is a requirement of at least 30,000 population but in Gorakhpur district, there is one PHC for 54,618 which is nearly double the population mentioned in the norms provided by the government. The total number of PHCs in the district is 66 against the total requirement of 120 PHCs, and hence there is a need for 54 more PHCs to meet the basic health needs of the population and this shortfall reflects the situation of overburden on the available health facilities. Concerning the Gorakhpur district, these sub-centers are available for every 6,069 persons which is more than 1,000 population in every sub-center present in the district. The available number of SCs in the district is 594 in numbers but there is a requirement of 721 SCs and hence there is a shortfall of 127 SCs in the district. The Campierganj and Jungle Kaudia are the

blocks of the district that have a shortfall of all types of health centers whereas Pali and Sahjanwa have the least or no shortfall in these healthcare facilities.

CONCLUSION

The study of the health facilities found in Gorakhpur district shows that there is a need to pay attention to the availability of health facilities as it is lacking in many ways, which makes the health status of the population living in those areas not up to the expectations. There is availability of government health-related facilities in some blocks of the study area but their service quality is lacking due to various reasons such as lack of transportation in rural areas, lack of awareness about health facilities, and negligence of health workers, etc. There is a need to be concerned about having more healthcare centers and the facilities in those centers and work towards providing necessities to the population. A healthy life is the right of every citizen and healthy citizens are the need of every country, therefore Both should contribute to each other to make their country great.

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