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DISTRIBUTION OF HEALTH CARE FACILITIES IN BARAN DISTRICT (RAJASTHAN)

Saniya Khan[1] and **Alok Chauhan**[2]
[1]Research Scholar, [2]Assistant Professor of Geography,
Department of Geography, Vardhman Mahaveer Open University, Kota (Raj.), India
Email: alokres@gmail.com

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Abstract*: Health is fundamental aspect to the national progress in any sphere. Due to various socio-economic and political factors, there exists a widespread inequality in the distribution of health care facilities in India. The study area Baran district is an outgrowth of Madhya Pradesh's uplands, which are a portion of the Malwa plateau. It consists primarily of low hills and undulating plains. It is the part of South-east region of Rajasthan known as Hadoti. The main objective of this paper is to analyses the spatial variation of health care facilities in the district. The present study is based on statistical data regarding the distribution of different types of health care facilities and family welfare facilities at district hospital, community health centres (CHCs), and primary health centres (PHCs) and Sub-centres. The present study reveals that health care facilities are not equally distributed in all the tehsils of the district. The study also reflects a huge gap across tehsil level in terms of population distribution of health care facilities.*

Key words: Health Care Facilities, Rajasthan, Baran, PHCs and CHCs.

Introduction

Health is an essential component for the development of human resource and the quality of life. According to the World Health Organisation, “Health is a state of complete physical, mental, and social well-being and not merely the absence of disease or infirmity.” Health - a major form of human capital is an important determinant of human development in terms of high life expectancy and healthy life. India has made significant progress in improving health care facilities but basic health care services still have not reached to the rural masses, no matter how much progress is achieved in the urban and semi-urban areas. In the backdrop of this, the present study is an attempt to analyse the distribution pattern of health care facilities in Baran district. Though healthcare facilities in India have undergone a change at an unprecedented scale, yet substantial proportion of the population is unable to receive even minimally adequate healthcare at needed time. Unequal distribution of healthcare facilities, low income and high cost of medical care are major constraints in accessibility and affordability of healthcare facilities (Bhandari and Dutta, 2007; Datar et al, 2007).

In order to know the distribution pattern of health care facilities in any region, it is pertinent to first assess the distribution of health care facilities in spatiotemporal perspective. It has now become essential to analyse the availability of health care facilities in the study area in terms of suggested norms of Indian health care policy (Rai et al, 2023). It will also help in providing proper health services to the rural population and framing strategy for national distribution of health care facilities and its proper utilization among the population (Nemet and Bailey, 2000; Patil et al, 2002; Rai et al, 2012). Health care facilities of Baran district are based on primarily modern allopathic system of treatment. To assess the distribution pattern of health care facilities, data has been collected from District Statistical Handbook and from office of the chief medical and health officer of Baran district. Present study shows the tehsil wise distribution of health care facilities, namely Allopathic, PHCs, CHCs, and Sub-Centres, Ayurvedic, Homeopathic and Unani health centres during 2021-22.

Study Area

The study area is located between 24˚24' to 25˚26’ N latitude and 76˚12' to 77˚26’ E longitude. It is located in Rajasthan's south-eastern region and is bordered by the states of Madhya Pradesh on its east, south, and south-east, the Rajasthan districts of Kota and Jhalawar on its north and west, and the state of Rajasthan's Madhya Pradesh on its south and west. In the Baran district, there are eight tehsil headquarters- Mangrol, Anta, Baran, Atru, Chhabra, Chhipabarod, Kishanganj, and Shahbad. Baran district is ranked 26th in terms of population density and 19th in terms of area in Rajasthan state. There are 1221 villages in the Baran district- 1114 of them are inhabited, while 107 are uninhabited. The district has a total population of 12, 22,755 as per the 2011 Census and 14, 66,276 in 2021(Projected). Population density of Baran district was 175 persons per sq. km in 2011 and increased to 210 persons per sq. km in 2021 (Projected). The percent of Scheduled Castes and Scheduled Tribes in the Baran district is 18.1 and 22.6 respectively whereas the corresponding figures for the State are 17.8 and 13.5. The major tribal group in Baran district of Rajasthan is Sahariya. Sahariya is the fourth most populous tribe in Rajasthan. Sahariya is the only Particularly Vulnerable Tribal Groups (PVTG) of Rajasthan inhabiting Baran district of Rajasthan. A large share (97 %) of this PVTG inhabits in Kishanganj and Shahbad tehsil of Baran District.

Objectives

The main objectives of the present study are as follow:

i. To evaluate the existing infrastructure for health care services in Baran district.
ii. To assess the inter-tehsil variations in health care facilities in the study area.
iii. To find out the regional pattern in the distribution of health care infrastructure of Baran district.

Database and Methodology

The present study is based on secondary data, the Statistical Handbook of Baran district 2022 providing data regarding the availability of different types of health care facilities at District hospital, CHCs, PHCs and Subcentres. Other data related with health care facilities were obtained from Chief Medical Health Officer (CMHO) office of Baran District. The ratios are calculated by the help of absolute figure of different health care facilities in tehsils as per Lakh population of Baran district. The data regarding the population of 2011 is obtained from District Census Handbook while projected population data were used to calculate the population in 2021.

Results and Discussion

Sound health infrastructure ensures efficient and effective utilization of essential public healthcare services. The totality of the public healthcare infrastructure includes all governmental and non-governmental entities that provide public healthcare services to the people. A total of 75 Primary Health Centres (PHC), 272 Sub-Centres (SC), one district hospital, 14 Community Health Centres (CHC), and one T.B. clinic make up the public health institutions of the Baran district. In addition, there are 61 Ayurvedic hospitals/dispensaries, six Homeopathic hospitals/dispensaries and three Unani hospitals/dispensaries for the public's medical needs (Table 01). Health care facilities are not distributed evenly across district (Table 1). Even at a tehsil level, the unequal distribution of health facilities can be seen, both between and within tehsils, depending on the need for medical facilities and patient access.

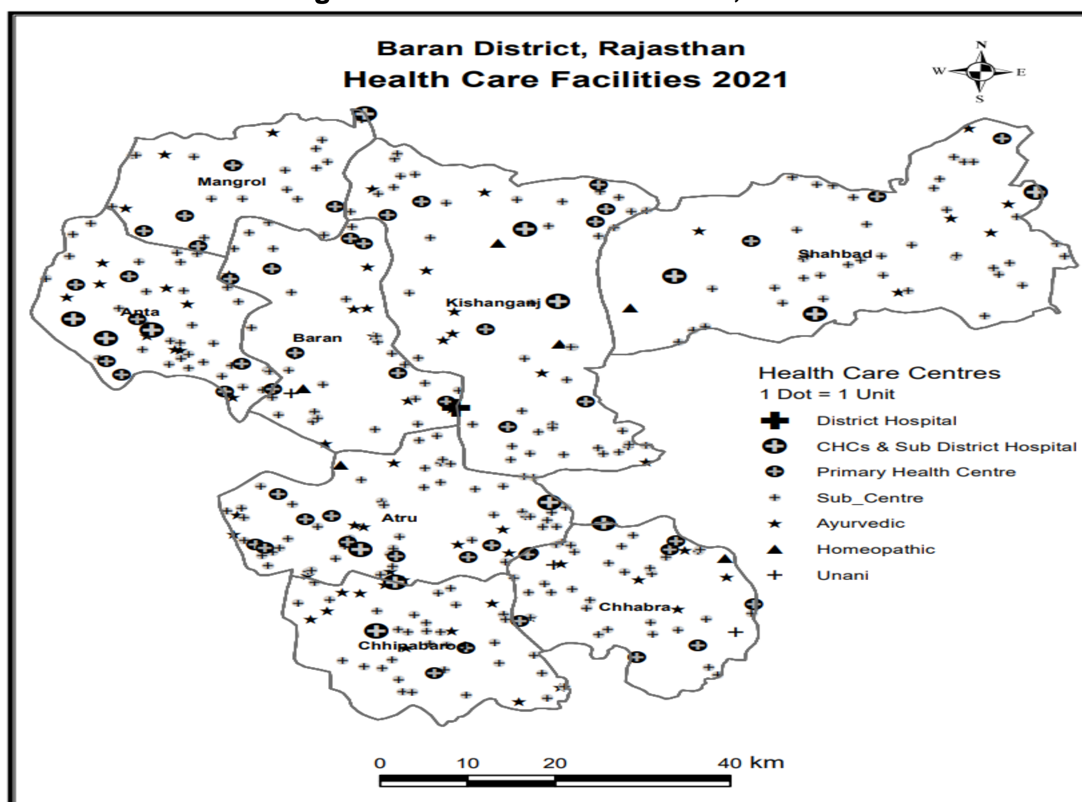
Table 01: Distribution of Health Care Facilities in Baran District 2021

Tehsil	District Hospital	CHCs/ Sub-DH	PHCs	Sub centre	Ayurvedic	Homeopathic	Unani
Mangrol	-	1	5	19	3	0	0
Anta	-	3	7	31	9	0	0
Baran	1	-	8	27	8	1	1
Atru	-	2	9	49	11	1	0
Kishanganj	-	2	8	42	8	2	0
Chhabra	-	1	8	31	6	1	2
Chhipabarod	-	2	2	32	10	0	0
Shahbad	-	3	3	41	6	1	0
Total	**1**	**14**	**50**	**272**	**61**	**6**	**3**

Source: CMHO Office Baran, 2022

Among all the eight tehsils of the district Anta and Shahbad tehsils have highest number of CHCs. While considering PHCs it was observed that Atru tehsils (9) has the highest number of PHCs, followed by Baran (8), Kishanganj (8), Chhabra (8), Anta (7), and Mangrol (5). Low numbers of PHCs are located in Chhipabarod (2) and Shahbad (3) Tehsils. The figures make it evident that the central west portion of the district has the highest concentration of health centres, while the northern and north-eastern tehsils of the district have the lower concentration (Figure 01).

Figure 01: Health Care Facilities, 2021



The number of SCs is highest in Atru (49) tehsil followed by Kishanganj (42) and Shahbad (41) While Mangrol (19) tehsil has the lowest number of Sub-Centres. The distribution of homeopathic hospitals/dispensaries is mainly concentrated in Kishanganj (2), Baran (1), Atru (1), Chhabra (1) and Shahbad (1) tehsils. Anta and Chhipabarod tehsils do not have any homeopathic health care centre. Maximum number of Ayurvedic health centre found in Atru (11) followed by Chhipabarod (10) tehsils. Out of the total three Unani hospitals two are located in Chhabra and one in Baran tehsil.

Distribution of villages Based on Distance from Health Care Facilities

India's rural and urban populations have vastly different levels of access to healthcare. Rural folks have significantly fewer options than city dwellers, who can choose from public or private providers. With sub-centres operating at the local level, India has a very extensive public health network. The primary health clinics and the community are connected by the health sub-centres, which are primarily staffed by barefoot health workers (Barik and Thorat, 2015). One of the most crucial factors in determining the effectiveness of healthcare service delivery and the accessibility of the public to a particular health centre is the average population served by the facility. Given that population norms are the foundation for all criteria used to establish a health centre, its significance is clear. Additionally, it can be claimed that there is a negative correlation between a health centre's population coverage and its accessibility to the general public; the greater the population coverage, the lower the accessibility (Taqi et al, 2017). Here accessibility to healthcare centres has been analysed with the distance (up to 10 km) at the tehsil levels (Table 02).

In the district, 8.47 percent of the total villages have a community health centre (CHC) within less than 05 kms, while 32.31 percent of the villages have a CHC within a distance of 5–10 kms. However, 59.2 percent of the total villages have poor accessibility, with a CHC at a distance of more than 10 kms. Anta Tehsil tops the list of villages with relatively high accessibility, with 14.44 percent of its villages having a CHC within 05 kms, followed by

Shahbad (10.74 %). With only 4.84 percent of CHC within a 05 kms radius, Chhabra Tehsil is the most inaccessible in terms of CHC.

Table 02: Distribution of CHCs, PHCs, SCs According to their Relative Distance from Villages across Tehsils

Tehsil	CHC			PHC			SC		
	<5KM	5-10km	>10km	<5km	5-10km	>10km	<5km	5-10km	>10km
Anta	14.44	51.32	34.21	30.25	56.58	13.16	59.21	34.21	6.58
Mangrol	12.1	49.66	38.24	27.62	58.23	14.15	56.48	31.23	12.29
Baran	6.66	37.78	55.55	21.11	55.55	23.33	45.55	32.22	22.22
Atru	5.7	20	74.28	12.85	32.86	53.57	49.99	20	22.14
Shahbad	10.74	14.12	75.14	26.37	25.79	47.8	47.12	23	29.84
Kishanganj	5.25	23.15	71.58	17.36	37.9	44.73	53.72	35.1	11.17
Chhabra	4.84	26.88	68.28	13.08	44	42.86	60.93	29.69	9.9
Chhipabarod	8.04	35.63	56.32	17.82	36.78	45.4	21.96	25.43	10.98
Total	**8.47**	**32.31**	**59.2**	**20.80**	**43.46**	**35.62**	**49.37**	**28.86**	**15.64**

Source: Calculated by Authors, 2021

Primary Health Centres (PHCs) are located within 5 kms of 20.80 percent of the villages and there are 43.46 percent of the villages have PHC within 10 kms distance. 35.62 percent of the total villages have inadequate accessibility since their nearest PHC is located at the distance of more than 10 kms. Anta Tehsil tops the list of villages with relatively high accessibility, with 30.25 percent of its villages having a PHC within 5 kilometres, followed by Shahbad (26.37 %). Only 12.85 percent of the settlements have nearest PHC at the distance of in less than 5 kms thus making it the most inaccessible in terms of PHC. More than half (53.37 %) of the total villages in Atru tehsil have the nearest PHC at a distance of more than 10 kms. Only Anta tehsil has the better availability of PHCs as there are only 13.16 percent of the total villages have the nearest PHC at a distance of more than 10 kms.

Analyzing the distributional pattern of SCs is highly significant as sub-centres are thought to be crucial in maintaining the health of the population, particularly for women and children in rural areas. It is satisfactory that almost half (49.37 %) of the total villages in the district have the nearest SC at the distance of less than 5 kms. More than half of the total villages in Chhabra (60.93 %) and Kishanganj (53.72 %) tehsils have the nearest SC at the distance of less than 5 kms while Chhipabarod tahsil has only 21.96 percent villages in this category. Only 15.64 percent of the total villages have the nearest SC at the distance of more than 10 kms.

Density of Healthcare Facilities across Tehsils

Access to healthcare has been shown to be significantly influenced by geographic considerations. Although they have a significant impact on how each person uses healthcare, supply-side factors cannot account for geographic disparities. The inequalities may also be influenced by variations in other parameters, such as the cost and responsiveness of services (Mulyanto et al, 2020) The density of density of health care facilities per 100 sq. km. is presented in table 03. It is clear from the table that there is less than one (0.98) health care facility available in 100 sq. km. of area. This figure is not satisfactory more specifically for the district which has a large proportion of tribal population. The availability of beds and doctors is also poor in the district. Availability of merely two doctors in 100 sq. km. of area is a serious concern for policy and decision makers. Tribal dominant tehsils Kishanganj and Shahbad are lagging far behind in terms of availability of health care facilities in per 100 sq. km. area.

Table 03: Density of Health Care Facilities per 100 sq. km.

Tehsil	Institution	Beds	Doctors	Paramedical Staff	Other Staff
Anta	1.62	28.71	3.97	15.78	6.72
Mangrol	1.41	21.23	2.45	12.43	4.27
Baran	1.27	7.61	1.58	8.09	2.69
Atru	1.29	15.82	2.24	7.67	2.95
Kishanganj	0.69	10.69	1.67	4.19	2.02
Shahbad	0.40	10.07	1.77	4.76	2.04
Chhabra	1.12	18.45	2.61	8.72	4.36
Chhipabarod	0.48	8.64	1.44	4.80	2.52
Total	**0.98**	**14.28**	**2.18**	**7.71**	**3.32**

Source: Calculated by Authors, 2021

Availability of Healthcare Facilities

In many nations, observers are beginning to wonder whether the public's requirements and expectations can be met by the health systems there. To address these issues, two major strategies have been put forth. The first involves giving health systems more resources on the grounds that the issues are brought on by a lack of resources to deal with an ageing population, rising public expectations, and technological advancements. The second strategy focuses on improvements to the way health systems are set up and how services are delivered, and it advises making better use of the resources that are already available (Lamarche et al, 2011). Therefore, it is necessary to analyse the availability of healthcare facilities on the basis of population. The availability of healthcare facilities, such as the number of medical institutions, beds, doctors, paramedical staff, and other staff per 100,000 population has been presented in Table 4.

Table 04: Health Care Facility Per Lakh Population 2021

Tehsil	Institution	Beds	Doctor	Paramedical Staff	Other Staff
Anta	7.6	134	18.54	73.68	31.37
Mangrol	5.4	112	14.32	65.02	28.42
Baran	6.7	40.50	8.43	43.03	14.34
Atru	5.9	72	10.22	34.96	13.44
Kishanganj	4.8	73.94	11.60	29	14.01
Shahbad	3.4	84.01	14.76	39.74	17.03
Chhabra	6.04	99.34	14.09	46.99	23.5
Chhipabarod	1.88	33.97	5.66	18.88	9.91
Total	**5.19**	**76.82**	**83.3**	**40.89**	**17.66**

Source: Calculated by Authors, 2021

Institution per Lakh Population: An average of 5.19 institutions are located in the district for every one lakh people. The distribution of medical facilities varies noticeably within the district. It is clear from Table 4 that in 2021 Anta tehsil has the highest number of institutions per lakh population. The availability of institutions in Kishanganj, Shahbad, and Chhipabarod tehsils is lower than the district average.

Beds per Lakh Population: The total number of beds available in all the health care institutions was 1158 in 2021. It is a crucial health indicator that guarantees the availability of indoor clinical space in the event of a serious illness or emergency. There exists a large variation in terms of availability of beds. In the district there are only 76.82 beds are available for per lakh population. Anta tehsil has the highest (134) availability of beds while Chhipabarod has the lowest (33.97).

Doctors per Lakh Population: It serves as an example of a quantitative evaluation of the population's reliance on hospital doctors. Doctors are the cornerstone of any region's

healthcare system since without an adequate number of doctors, any sort of medical infrastructure is completely useless. A better standard of medical care is more likely to be obtained when the doctors are adequate. When considering the number of doctors per lakh of the population, the district average is 83.3 with the highest in Anta and the lowest in Chhipabarod tehsils.

Paramedical Staff per Lakh Population: The district's paramedical staff average in 2021 was 40.89. The availability of paramedical personnel in Anta (73.68) is found highest. When compared to the district average, anta, Baran, and Chhabra tehsils have better availability of paramedical staff.

Other Staff per Lakh Population: The other employees at the healthcare facilities include the sweeper, attendant, clerk, gatekeeper, etc., who are involved in non-medical tasks. The district has 17.66 other staff members per lakh population. Anta (31.37) tehsil has the highest availability of other employees.

Conclusion

It has been found in the study that there exists a significant variation in terms of availability of health care facilities in Baran district. The tehsils located in the close proximity of district headquarter, i.e., Baran and Anta have better health care infrastructure. Health care infrastructure is very poor in tribal dominated Kishnganj and Shahbad tehsils. In remaining tehsils, the figures are also not satisfactory. Overall condition of health infrastructure is not satisfactory in the context of rural areas of Baran district. Study reveals that the availability and accessibility of health care is significantly heterogeneous. Beside this, availability of trained manpower, beds, number of doctors and para-medical staff in different health centres is not sufficient to serve the present population. A suitable mechanism should also be developed with people’s participation for effective management of health care facilities. Health care programmes are to be made more effective by community participation to increase the ratio of the beneficiaries.

References

1. Barik, D., & Thorat, A. (2015) Issues of Unequal Access to Public Health in India. Frontiers in Public Health, 3, 245. https://doi.org/10.3389/fpubh.2015.00245.
2. Bhandari L. and Dutta, S. (2007) Health Infrastructure in Rural India. India Infrastructure Report, pp. 265-271.
3. Datar A, Mukherji A, Sood N (2007) Health Infrastructure & Immunization Coverage in Rural India. Indian Journal of Medical Research 125: 31.
4. Lamarche, P. A., Pineault, R., Gauthier, J., Hamel, M., and Haggerty, J. (2011). Availability Of Healthcare Resources, Positive Ratings of The Care Experience and Extent of Service Use: An Unexpected Relationship. Healthcare Policy, Politiques de Sante, 6(3), pp. 46–56. https://doi.org/10.12927/hcpol.2011.22178
5. Nemet GF, Bailey AJ (2000) Distance and health care utilization among the rural elderly. Social Science and Medicine 50, pp. 1197-1208.
6. Patil, A.V., Somasundaram, K.V. and Goyal, R.C. (2002). Current Health Scenario in Rural India. Australian Journal of Rural Health 10, pp. 129-135.
7. Rai, P.K., Nathawat, M.S. and Onagh, M. (2012). Application of Multiple Linear Regression Model through GIS and Remote Sensing for Malaria Mapping in Varanasi District, INDIA. Health Science Journal 6, pp. 731- 749.
8. Rai, V.K., Kumar, P., Rai, P.K., Singh, A. and Prasad, D. (2023) GIS Based Analysis of Spatial Disparities in Health Care Facilities of Ghazipur District, India. Health Science Journal, 17(1), p. 994.
9. Taqi, M., Bidhuri, S., Sarkar, S., Ahmad, W. S. And Wangchok, P. (2017) Rural Healthcare Infrastructural Disparities in India: A Critical Analysis of Availability and Accessibility. Journal of Multidisciplinary Research in Healthcare, 3(2), pp. 125-49.