Spatial Distribution of Health Care Facilities in Rural Bist Doab (Punjab)

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ABSTRACT

Health care is the basic necessity of modern society. This paper examines the spatial distribution of public as well as private medical facilities in Bist Doab region of Punjab. The data has been obtained from the Department of Health and Family Welfare (Punjab) for the year 2010. The number of health institutions per 1 lakh population was calculated and the resulting figures were plotted on blockwise maps. The results show that the availability of government and private health care institutions is high in the southern parts of the study area, particularly in the western half of district Nawanshahr and adjoining eastern half of district Jalandhar. On the other hand, the physically disadvantaged areas like the uneven hilly terrain of Shiwaliks and the flood plains of river Beas and Satluj have very low level of availability of health care services.

Keywords
Health care, spatial distribution, Bist Doab.

1. INTRODUCTION

Health care is the basic necessity of modern society. Health care embraces the multitude of services provided to individuals or communities for promoting, maintaining, monitoring or restoring health. It involves prevention, treatment and management of illness and preservation of mental and physical well-being through the services offered by the medical, nursing and allied health professionals. In India, the geographical patterns and spatial efficiency of health care services have been examined by many researchers[1,2,3,4,5,6,7]. These studies have highlighted the availability, functionality and hierarchical ordering of health centres in different states of India and the relationship of utilization of health care facilities with social structure. However, not much work has been done on the geography of health care in Punjab. The present paper makes a small attempt in this direction to fill the research gap.

In Punjab it is the responsibility of the Department of Health and Family Welfare to provide preventive, promotive and curative health care services to the people of the state. This department, under the Ministry of Health and Family Welfare, guides and supervises the health and family welfare programmes in the state. Health care facilities are provided to the people through a network of medical institutions such as sub centres, subsidiary health centres (SHCs) (dispensaries/clinics), primary health centres (PHCs), community health centres (CHCs), sub-divisional and district hospitals and hospitals attached to government medical and dental colleges. Out of these, the functioning of subsidiary health centres was shifted under the Department of Rural Development and Panchayats in 2006 and are hence being run by ZilaParishad in every district.

The entire network of health care institutions in Punjab is divided into three levels, i.e. primary, secondary and tertiary. Primary health care is delivered to the masses via the sub-centres, subsidiary health centres (dispensaries/clinics), primary health centres, community health centres and ayurvedic, unani and homeopathic dispensaries. The hospitals at the sub-divisional and district level serve as the secondary level of health care system. Since CHCs also provide specialist services especially in rural areas, these can be considered as part of the secondary level health care system. Hospital services at the secondary level play a crucial and complementary role to the primary health care system. Tertiary level health care services are provided in the state by the specialized hospitals and the hospitals attached to state medical colleges. In addition to providing support to the secondary level health care system, these institutions are expected to carry out research for the health services of the state.

This paper examines the spatial distribution of public as well as private medical facilities in Bist Doab region of Punjab. Bist Doab is one of the three traditional cultural regions of Punjab, the other two being Majha and Malwa(Fig 1). Its boundary is delineated by river Beas in the north-west, Satluj in the south and Shiwalik hills in the east. The region shares 17.6% (8844 sq. km.) of state’s total geographical area and about 20% of Punjab’s total population.
2. DATA AND METHODS

The data on the location of government medical institutions (sub-centres, subsidiary health centres, rural hospitals, primary health centres, community health centres, sub-divisional hospitals, district hospitals) and private practitioners (degree holders and registered medical practitioners) in Bist Doab has been obtained from the Department of Health and Family Welfare for the year 2010. The number of health institutions (sub-centres, subsidiary health centres, primary health centres and community health centres) per 1 lakh population was calculated. The resulting figures were plotted on blockwise maps in ArcGIS 9.3 software.

3. SPATIAL DISTRIBUTION OF PUBLIC HEALTH CARE INSTITUTIONS

The rural areas of Bist Doab region have 625 sub centres (out of 2950 situated in rural Punjab) and 269 SHCs (out of 1187 of rural Punjab). Additionally, 87 of the total 423 rural PHCs and 16 of the 77 rural CHCs of Punjab are located in the study region. The national norms for setting up of these health institutions state that there should be one sub centre for every 3000 to 5000 persons, one SHC or PHC covering 20,000 to 30,000 population and one CHC serving around 1 lakh population. For the present research work, the number of each type of health institutions available per lakh population was calculated to maintain uniformity in indicators. Therefore the norms mentioned above were also re-stated, according to which there should be 20 sub centres, 3.33 SHCs, 3.33 PHCs and 1 CHC per lakh population.

In rural Bist Doab, there are 18.41 sub centres available per lakh population. Although this figure is slightly higher than that for rural Punjab (18.32), yet it is lower than the national norm. The number of SHCs per lakh population in rural Bist Doab is 7.77, which is quite above the set norm and even higher than the state figure (7.37). However, the number of PHCs available per lakh population in rural Bist Doab (2.50) falls below the norm of 3.33 PHCs and the study region performs poorly than rural Punjab as a whole (2.62). The CHCs per lakh population stood at 0.48 for both rural Bist Doab as well as rural Punjab and this value is substantially lower than the national norm of 1 CHC per lakh population.

A glance at Fig 2, 3,4 and 5 clearly reveals that the availability patterns of these health institutions varies greatly within the region. The number of sub centres available per lakh population is high in north-eastern, southern and south-eastern parts of the Bist Doab (Fig 2). Table 1 shows that only eight blocks namely Saroya (27.06), Talwara (22.53), Mahilpur (21.95), Bhogpur (21.41), Nurmahal (21.33), Tanda (21.05), Bhunga (20.92) and RurkaKalan (20.30) meet the set criteria of 20 sub centres per lakh population. To the contrary, most of the worst performing blocks are concentrated in western parts of the study region. However Fig 3 and 4 show that many of these blocks perform fairly well in terms of availability of SHCs and PHCs (more than 3.33 per lakh population).

The number of SHCs per lakh population is highest in most of the southern parts of Bist Doab in the blocks of RurkaKalan (13.54), Nurmahal (11.23), Balachaur (10.68), Nakodar (10.60), Saroya (10.52) and Nawanshahar (9.83) (Fig 3). However, the rest of the study region also lies above the set norm of 3.33 SHCs per lakh population. The only three blocks that fail to meet this standard are Mukerian (0.90), Nadala (2.32) and Hajipur (2.57). Even out of these three blocks, Mukerian lies in the best performing category of PHCs availability (3.61) and Hajipur also scores high (1.29) in terms of CHCs available per lakh polulation. So, it is block Nadala which is facing
the real shortage of medical institutions to meet the health care needs of its population.

As far as the PHCs are concerned, the south-eastern parts of Bist Doab have higher availability per lakh population (Fig 4). The administrative authorities of these areas (particularly district Nawanshahar) have taken tremendous efforts to improve the local health care system. Additionally, a large number of persons have emigrated from these areas to the Western countries, who are taking a keen interest in developing high quality health care system back in their native areas by working in close conjunction to the district administration. The blocks having maximum number of PHCs per lakh population are Aur (7.21), Saroya (4.51) and Banga (3.63) in south-eastern part, along with Sultanpur Lodhi (4.03) in extreme west and Mukerian (3.61) in extreme north.

Most of the blocks ranking high in terms of availability of PHCs also perform high in case of CHCs. The blocks of
Aur (6.18), Saroya (1.50), Bhogpur (1.43), Hajipur (1.29), Talwara (1.07) and SultanpurLodhi (1.01) meet the required norm of 1 CHC per lakh population (Fig 5). But nearly 2/3rd of the blocks of Bist Doab do not have any CHC at all. It reflects the inadequate coverage of CHCs, which are an important component of specialist health care services in rural areas of the study region.

Apart from the above rural medical institutions, Bist Doab also has 122 SHCs, 23 PHCs and 52 CHCs located in urban centres. There are also 8 sub-divisional hospitals, out of which 3 are in district Hoshiarpur, 2 each in Jalandhar and Kapurthala and 1 in Nawanshahar. Additionally, there are 4 district hospitals, each of which is located in the four district headquarters of the region.

4. AVAILABILITY OF PRIVATE MEDICAL PRACTITIONERS

There are two types of private medical practitioners available in Bist Doab region: (i.) the degree holder doctors and (ii.) registered medical practitioners (Table 2).

As far as the private degree holder doctors are concerned, they are available in high number (more than 12 per lakh population) in southern half of Bist Doab. More specifically, the development blocks namely Banga (27.58), Adampur (25.19), SultanpurLodhi (25.19), Jalandhar East (17.38), Mahilpur (14.10) and Shahkot (13.26) make this category of areas with high availability (Fig 6). The high availability of private doctors in western parts (e.g. Shahkot and SultanpurLodhi blocks) of the region can be explained due to the poor availability of public sector health facilities in these areas. However, the high availability of private as well public medical facilities in central and south-eastern parts can be related to the higher levels of income and awareness of people of these areas due to their higher literacy level. The southeastern parts of the region, spread over Nawanshahar (10.73), RurkaKalan (10.15), Hoshiarpur-II (9.4), Phagwara (6.47) and Garhshankar (6.13) blocks display moderate availability (12 to 6) of private degree holders per lakh population, along with block Tanda (10.53). In remaining parts of the region, the availability is low (6 to 3.50) to very low (less than 3.50). These are generally the peripheral areas which either have unfavourable conditions of relief or suffer from problem of floods in the major rivers and hence are backward in private and public medical facilities.

In addition to the private doctors, the registered medical practitioners (RMPs) also play a significant role in providing basic health care services in rural areas of Bist
Doab. The mapping of data on RMPs shows that areas having high availability (more than 75 RMPs per lakh population) form a north-south belt in the central parts of the study region, encompassing the blocks of Banga (122.64), Jalandhar West (117.54), Mahilpur (106.54), Bhogpur (104.19), Tanda (101.76), Hoshiarpur-I (91.85) and Nakodar (84.18) (Fig 7). The areas having moderately high availability of RMPs (50 to 75 per lakh population) are situated in the northeastern and southeastern parts of the region and the areas having moderately low availability (25 to 50 per lakh population) are scattered throughout the study area. The areas displaying lowest availability (less than 25 RMPs per lakh population) are again located in the backward floodplain zones of rivers Beas and Satluj and less developed areas of Shiwalik hills. The blocks falling in this lowest category are Talwara (23.61), Balachaur (12.81), Nurmahal (12.35), Phillaur (12.19), Nadala (10.43), Sultanpur Lodhi (10.08) and Dhillwan (3.57), along with two blocks of the central region, namely Adampur (12.09) and Phagwara (4.85).

Thus it has been found that the floodplain areas lying along rivers Beas and Satluj and the eastern Shiwalik hills have very low level of availability of health care services. It has been found that 2/3rd blocks do not have any CHC in rural areas. The government health infrastructure in these areas should be strengthened for providing effective health care services to the concerned population.

5. CONCLUSION

In this paper, it has been found that the availability of government and private health care institutions is high in the southern parts of the study area, particularly in the western half of district Nawanshahar and adjoining eastern half of district Jalandhar. On the other hand, the physically disadvantaged areas like the uneven hilly terrain of Shiwaliks and the flood plains of river Beas and Satluj have very low level of availability of health care services. It has been found that 2/3rd blocks do not have any CHC in rural areas. The government health infrastructure in these areas should be strengthened for providing effective health care services to the concerned population.

REFERENCES