



Regional Disparities in Health Facilities in Haryana

A Spatio-Temporal Analysis

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Abstract

Haryana has been one of the prosperous states of India, but in the perspective of health facilities the regional disparity is more visible in Haryana. Therefore in this study an attempt has been made to understand the Population and health facilities ratio which is found in Haryana. The spatial unit of analysis to understand the Population and Health Facilities ratio has determined district. To understand the Health Facilities in Haryana some parameters have been determined which are number of person per Hospitals, number of person per PHC, number of person per CHC, number of person per Sub centres, number of person per Beds. In this study we have used secondary data which have been taken from the statistical abstract of Haryana (2011 & 2020) and Census of India. To understand the Population and Health Facilities ratio in Haryana, Choropleth maps are prepared by the help of QGIS. It has been found by this study that in 2011, the population burden on Hospitals in Bhiwani, Hisar, Rohtak and Ambala has been found to be less as compared to other districts. On the other hand, this ratio is seen more in Kaithal, Mewat, Palwal, Kurukshetra and Karnal. However, the number of hospitals in these districts has increased in 2020. Number of person per CHCs has decreased in 2020 as compared to 2011, the number of CHCs has increased in 2020. On the other hand, the population pressure is more in Panchkula, Gurgaon and Faridabad. If seen in PHC, population is found between 40000 to 55000 per PHC in most of the districts of Haryana. However, it does not reflect much better situation in Haryana. If we look at the population ratio in the sub-health centre in 2020, there is more pressure of population in Kaithal, Bhiwani, Jhajjar and Panipat and relatively less in Fatehabad. The ratio between number of person and per bed has been found to be higher in 2020 than in 2011. Except Bhiwani, Hisar, Jhajjar, Kaithal, Rewari, Ambala, Panchkula, Yamunanagar, other districts have high population pressure. Total Health facilities are relatively more than other, in the following districts which are Bhiwani, Hisar, Sonipat and Jind ect. Whereas in Rohtak, Karnal, Sirsa, Ambala, Gurgaon, Kaithal, Kurukshetra, Fatehabad, Mhendergarh, jhajjar have medium level of health facilities. On the other hand the level of health facilities have relatively less in Rewari, Palwal, Mewat, Panipat, Panchkula, Yumnanagar, Faridabad districts.

Key words: Health Facility, regional disparities.

Introduction:

After the basic needs of man (food, clothes, home), his health is also very important for the development of any country, the health of the people of any country is real wealth for that country. Health is a state of complete physical, mental and social well-being and not merely an absence of disease or infirmity to lead a socially and economically productive life. (WHO, 1978). Health is increasingly being recognised as a critical human capital component which contributes significantly towards the development of a nation. Healthier people can work more productively, and more productivity means more contribution to economic growth (Schultz, 1961; Arrow, 1962; Mushkin, 1962; Romer, 1986; Zon and Muysken, 2003). If the health of a man is not good, then the quality and efficiency of his work will also be affected and impact on the development of the country. Therefore, many health facilities are provided by the government from time to time so that citizens can get the best facilities and stay healthy. In any Nation, the health status of its populace is an important precondition that determines its economic as well as social development. (Bala Tarun, 2016). The country which has better health facilities, has found to be relatively better economy than other countries. Therefore, the health facilities and policies found in any country also reflect the economy of that country.

Health facility means any place where health services are provided or any facilities provided for the prevention and treatment of disease are called health facilities. Health facilities range from small clinics and doctors' offices to large hospitals. The number or quality of health facilities in any country or region is considered a measure of the prosperity and quality of life of that region. Health services vary by country and state. It is strongly influenced by the health policies and socio economic conditions of that country or state. Different policies are formulated in every country to avail health facilities. Health facilities in any country or state can be estimated from the number of health centers like hospitals, PHC centers, CHC centers and other facilities present in that area. Health facilities not only include health centers, but also the service personnel present in them, who provide health facilities, and also from the technologies available there. . Apart from this, the number of doctors present there, the number of staff, the number of nurses available, the number of technical beds, the number of tools there, etc. also play an important role. Health facilities are not only provided by the government, but health facilities are also provided by many people for a beneficial purpose. Health facilities, such as private hospitals, clinics, etc., in many countries are regulated to some extent by law, such as the opening of a facility for business. Often a license is required by a regulatory agency before it. Only after that a person is allowed to open a private health facility or clinic.

Haryana state is one of the prosperous states of India which comes in the economically well developed states of India. At present, if we talk about health facilities in Haryana many new schemes are being started by the government, so that health facilities can be increased. The number of medical institutions in the state of Haryana in 1970 was found to be 840. Which increased the number of medical institutions to 3242 in 2010-11. And in 2019-20, this number has increased to 3470. In which 68 hospitals, 133 CHCS, 536 PHCs, 63 dispensaries, 2655 sub centers, and 15 district TB centers have been found. In this way, there is an

increase in medical institutions as well as medical staff and other health facilities in the state of Haryana. But the regional disparity in health facilities is more visible in the state of Haryana. Haryana compares favourably with the rest of India in terms of health indicators and overtime, indicators have improved sharply compared to other states. The per capita government expenditure on health in Haryana has been showing a rising trend over last few years. It has increased from Rs.166.83 in 2000 to Rs.734.00 in 2013. (Kumar Pushp, Prasad Ramun, 2016). According to the Haryana Health Account Report 2014-15 total health expenditure in this state was Rs. 8,682 crores. The expenditure on health as percentage of GDP in Haryana is 1.99 percent.

Study Area:

Haryana is a state located in the north-west of India. Whose latitudinal extent is 27°39' north to 30°55' north latitude and longitudinal extent is 74°27' east to 77°36' east longitude. The total area of Haryana state is 44,212 square kilometers, which is 1.4% of the country's Geographical area. Thus, on the basis of area, it is the twentieth largest state of India. The elevation of Haryana is between 700-3600 feet (200 meters to 1200 meters) above sea level. Haryana was formed on 1 November 1966. It is bounded on the northwest by Punjab in the north and northeast by Himachal Pradesh and Uttarakhand, on the east by Uttar Pradesh and the Union Territory of Delhi, and on the south and southwest by the state of Rajasthan. The climate of Haryana is hot in the summer and markedly cold in winter; maximum temperatures in May and June may exceed 110 °F (43 °C), and in January, the coldest month, low temperatures may drop below the freezing point. Agriculture is the main occupation of the people of the state. Rice, wheat, jowar, bajra, maize, barley, pulses, sugarcane, cotton, oil seeds and potato are the major crops of the state. Haryana is one of the economically developed states of India with a rich agricultural and industrial sector. Haryana has 2.0 percent of country's Population. According to Census of India 2011, Population of Haryana was recorded at 25,353,081. Hindu followers (87.45%) constitute majority of population in the state. As of 2011, the state recorded a literacy rate of 76.64 percent. This further consist of male literacy 85.38 percent while female literacy is at 66.67 percent. Literacy rate in Haryana has improved from 67.91 percent in 2001 to 76.64 percent in 2011. The official language of Haryana is Hindi but predominant among them Haryanvi (also known as Bangru).

Objective:

To understand the regional disparity of health facilities in Haryana.

To understand the spatio - temporal structure of health facilities in Haryana.

Data Base and Methodology:

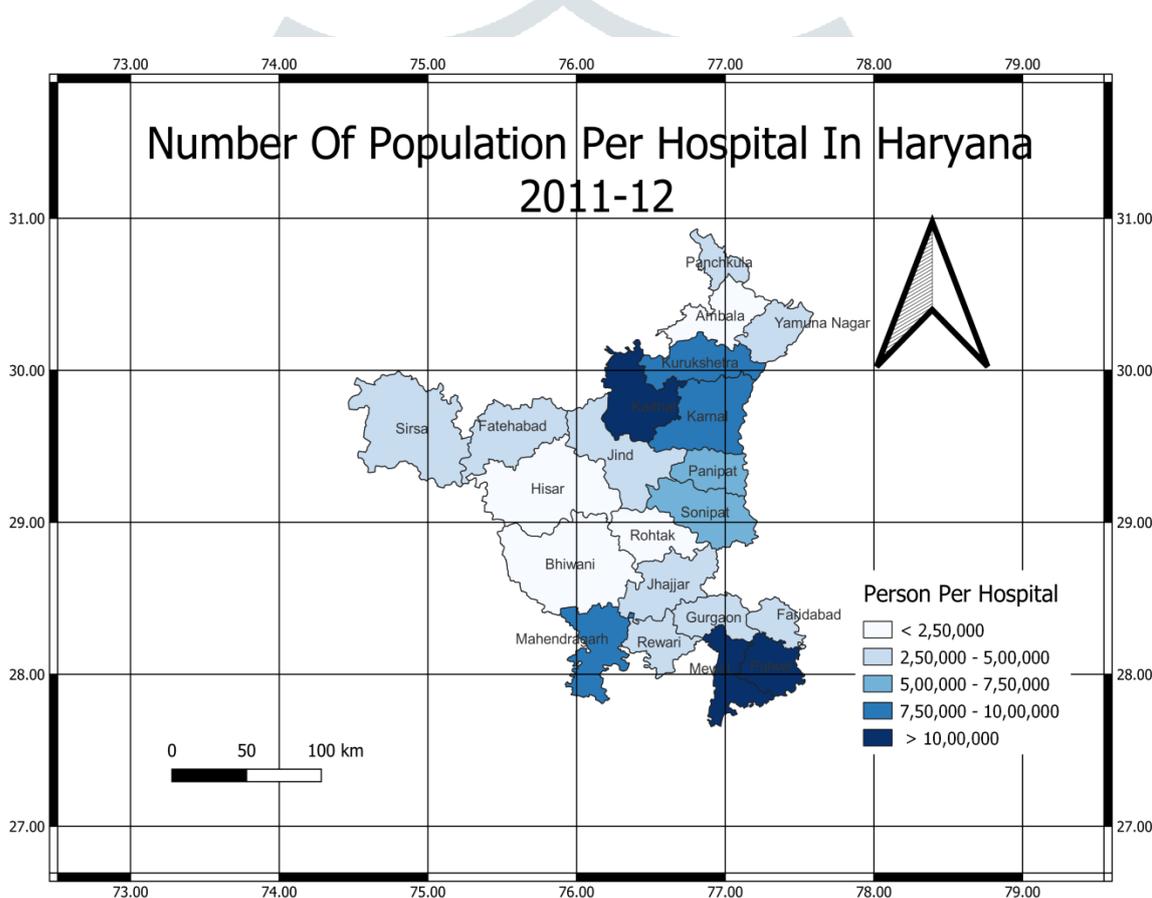
Secondary data has been used to understand the Population per health facilities in Haryana, in which the secondary data has been taken from Haryana Statistical abstract and Census of India and apart from this different research papers have been studied. To study the Population per health facilities in Haryana different parameters such as number of Population per Hospital, Population per PHC's, Population per

CHC’s, Population per Dispensaries, Population per Sub Centers and Population per Beds etc. have been observed at the regional level. Along with this, the contemporary changes in the state of Haryana have been shown for which Haryana statistical abstract from Health and Family Welfare 2011-12 and 2020-21 data have been used. MS word, MS Excel and QGIS software have been used to analyze these data, using choropleth maps via Q GIS to show regional disparity. Along with this, tables have also been used.

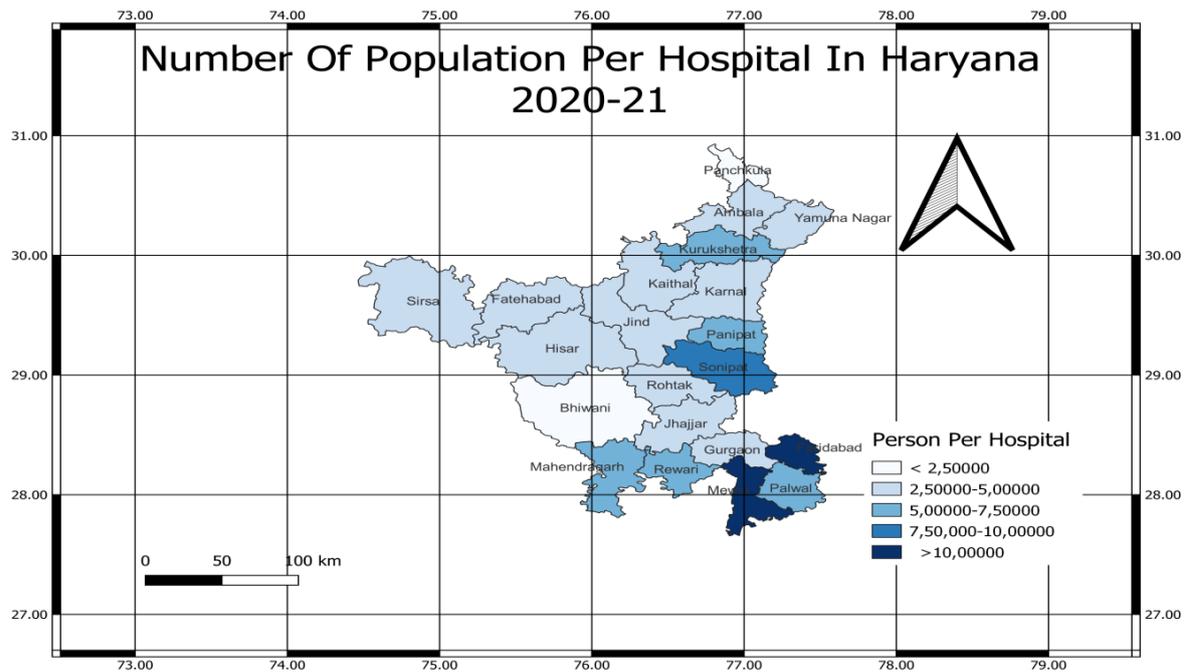
Results and discussion:

Hospital is an important establishment in the hierarchy of health facilities. It is the apex unit of all the institutions. A hospital is an institution where treatment facilities are also provided to sick and injured persons, so that they can remain healthy.

Map:1 Number of Population Per Hospital In Haryana



Source: Prepared with the help of GIS

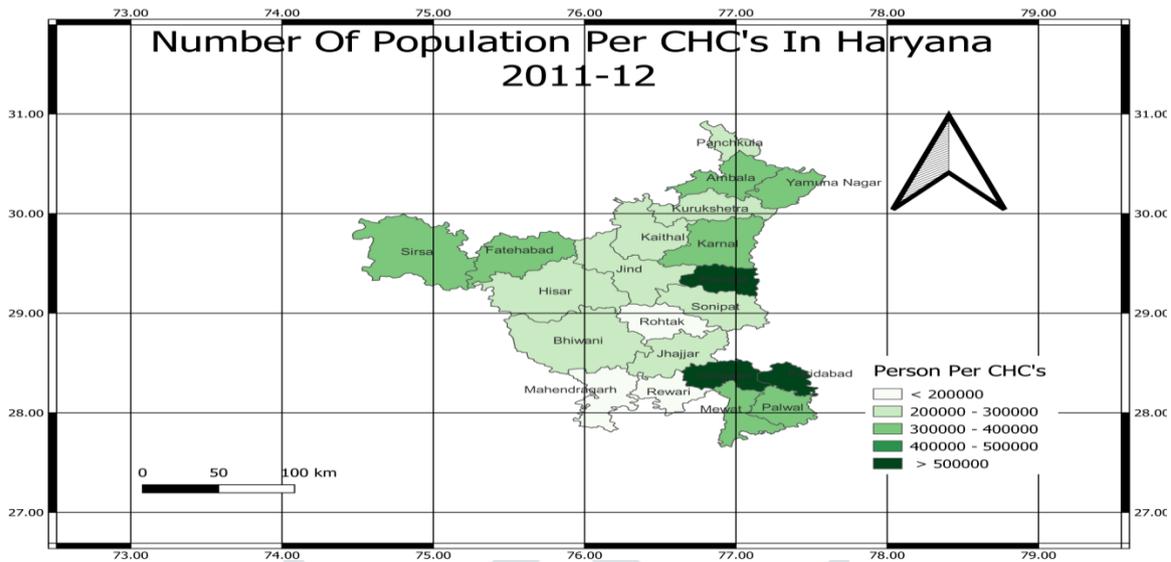
Map:2 Number of Population Per Hospital In Haryana

Source: Prepared with the help of GIS

Figure 1. Shows number of population per hospital in year 2011 and 2020. According to comparative study of 2011 and 2020, it was found that average population per hospital in Haryana decrease in 2020 in context to 2011, 535296 to 504946. At the district level population ratio per hospital in Haryana in 2011, it has been found that Mewat, Kaithal, Palwal have the highest proportion in 2011. Where more than 10 lakh population is found in a hospital. Similarly, this ratio is more visible in Kurukshetra, Karnal and Mahendragarh also. On the other hand, the population per hospital in Bhiwani, Hisar, Rohtak and Ambala is less than 2,50,000, indicating good hospital facilities in these 4 districts. In 2022, the number of hospitals has also increased in Bhiwani and Panchkula of Haryana. That is, the pressure of population per hospital has been seen less in these two districts. The population pressure is slightly higher in the districts like Hisar, Rohtak and Ambala which provided good facilities in 2011. In 2020, Mewat and Faridabad have seen a population of over one million. Ambala, Yamunanagar, Kaithal, Karnal, Jind, Fatehabad, Sirsa, Hisar, Rohtak, Jhajjar, Gurugram are the districts where the population is found to be between 2 to 5 lakhs. There is an improvement in the number of hospitals in 2020 compared to 2011 in some districts. Some districts have good hospital facilities, while areas adjoining Delhi like Faridabad, Mewat, Sonipat have more population pressure.

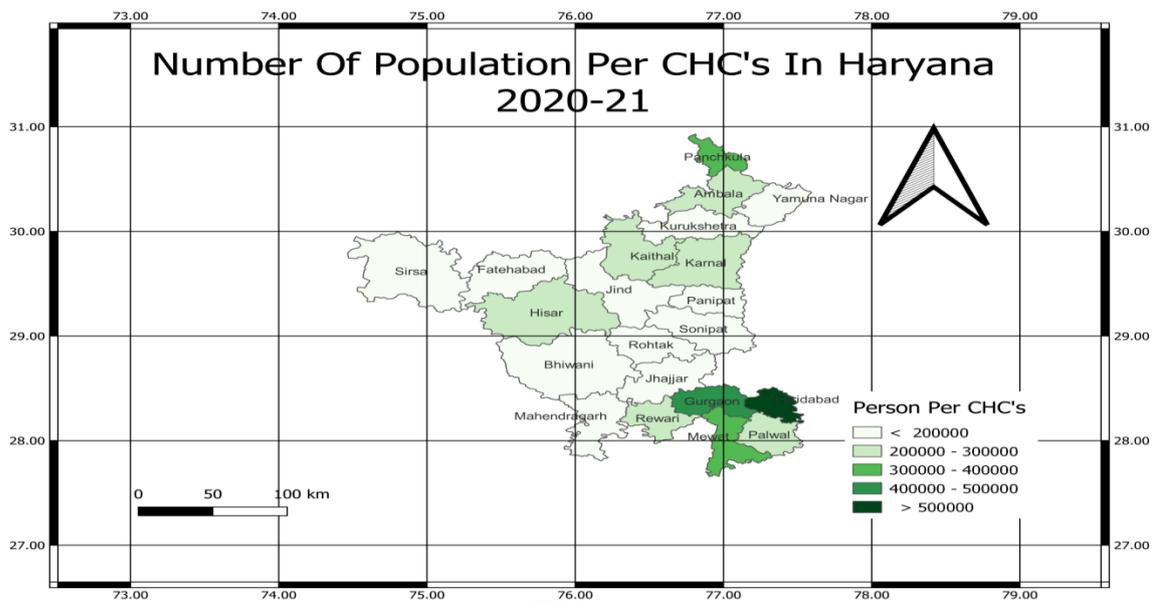
Community health centre is found at 120000 population in any area. It works as consumer directed healthcare organisations, not for profit. Minimum 30 beds are found in these organisations. In staff, minimum four specialist with a surgeon, gynecologist, physician, pediatrician and 21 paramedical are found.

Map:3 Number of Population Per CHC'S In Haryana



Source: Prepared with the help of GIS

Map:4 Number of Population Per CHC'S In Haryana



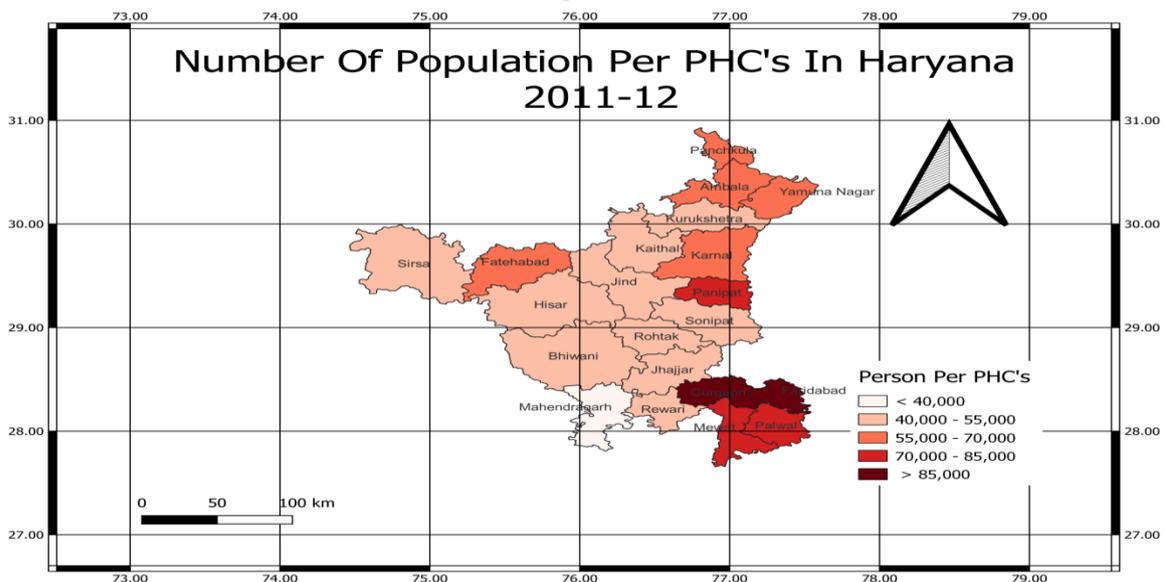
Source: Prepared with the help of GIS

Figure 2 shows number of population per CHCs. According to year 2011 and 2020, it was found that average population per CHCs in Haryana decrease 415625 to 234742. CHC comes at the top position in rural health infrastructure. In Haryana, the highest population pressure per CHC in 2011 has been observed in Faridabad, Gurugram and Panipat. This ratio is less visible in Rohtak, Mahendragarh and Rewari which shows better condition in these districts as compared to other districts. Population per CHC is not observed in any district as per national norms. Still the ratio of population of Rohtak, Mahendragarh, Rewari districts is less than two lakhs. Looking at this ratio in Haryana, there is an improvement in 2020. While in 2011 only 3 districts with less than 2 lakh population depended on a CHC, the number of districts has increased to 11 in 2020. In which Yamunanagar, Kurukshetra, Bhiwani, Jind, Sonipat, Panipat, Rohtak, Jhajjar,

Mahendragarh, Sirsa, Fatehabad districts are included. Thus where in 2011 more than 2 lakh population in these districts depended on the districts. The population of these districts is less than two lakhs in 2022. Hence, it can be said that there has been an increase in the number of CHCs in Haryana in 2020.

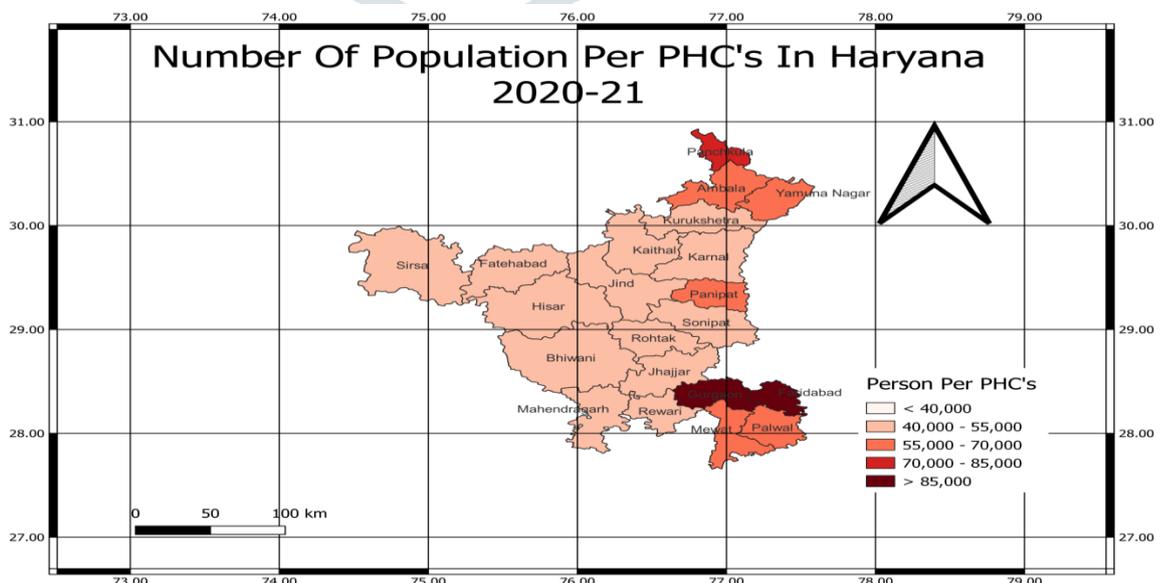
A primary health centre works as a unit on 6 sub centres. it is a medical institution .1 MBBS doctor is necessary for it and 14 paramedicals are part of this with other staff. Minimum 4 to 6 beds are found in These centres it is found on a population of 20000 in hilly areas for tribal areas and on 30000 population in plain areas.

Map: 5 Number of Population per PHC'S In Haryana



Source: Prepared with the help of GIS

Map: 6 Number of Population Per PHC'S In Haryana

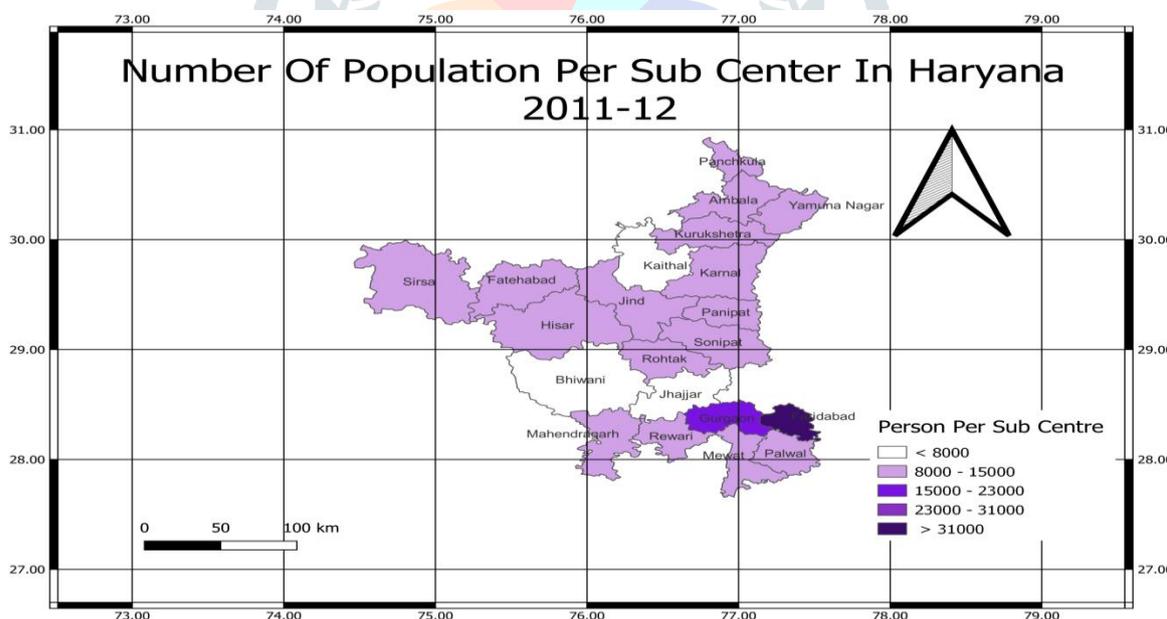


Source: Prepared with the help of GIS

Figure 3 describe number of population per PHCs. According to year 2011 and 2020, it was found that average population per PHCs in Haryana decrease 65782 to 58198. In Haryana the highest population pressure per PHCs in 2011 has been observed in Gurugram and Faridabad. There is one main reason is that this area is adjacent to the national capital, hence there is a high concentration of population. This ratio is less visible in Mewat, Palwal and Panipat. So that more population pressure can be seen on per PHCs in these districts. In these districts, 70-85 thousand people are seen at per PHC which shows the poor condition in these districts. Looking at this ratio in Haryana there is an improvement in 2020. In 2020 Karnal, Fatehabad, and Panipat in these districts has been see increasement of population per PHC. Thus level seems to be decreasing in Panchkula district. As per the national norms, this ratio should be 30,000 in plains and 20,000 in hilly areas but no district in Haryana meets these criteria. More than 40,000 persons are dependent on per PHC in the district which doesn't show good condition. In most of the districts of Haryana, this ratio is seen between 40000 to 50000 per person which shows the poor condition of the rural area of Haryana.

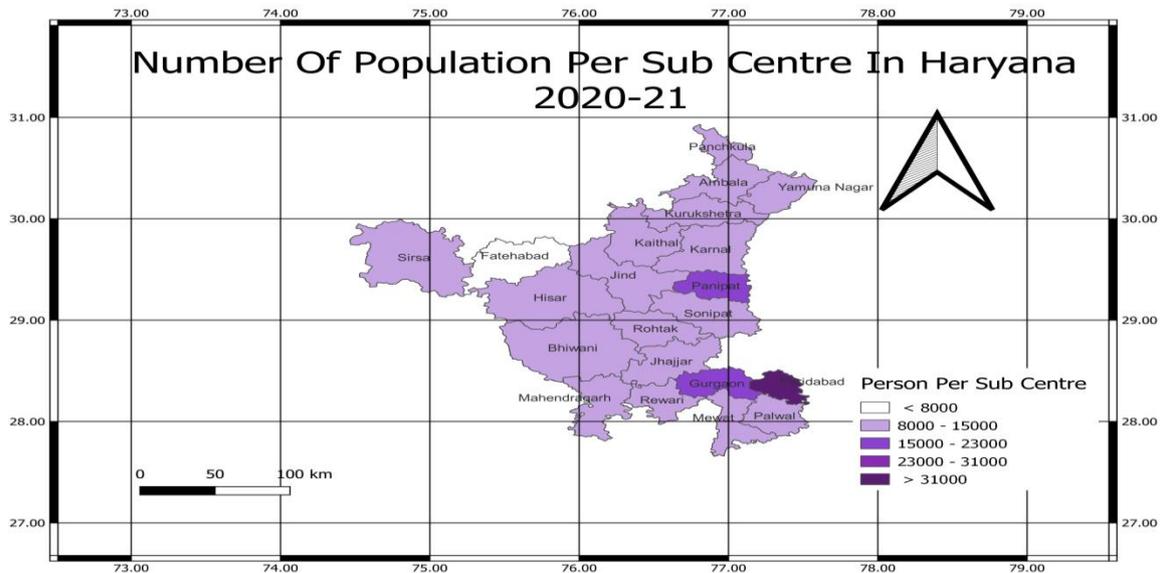
Sub Health Center is the smallest unit in the institutions of health facilities. Which provide health facilities to the rural people. In plain areas, 5000 population is found per sub-health center. Whereas in hilly areas this number is found to be 3000.

Map:7 Number of population per Sub centre In Haryana



Source: Prepared with the help of GIS

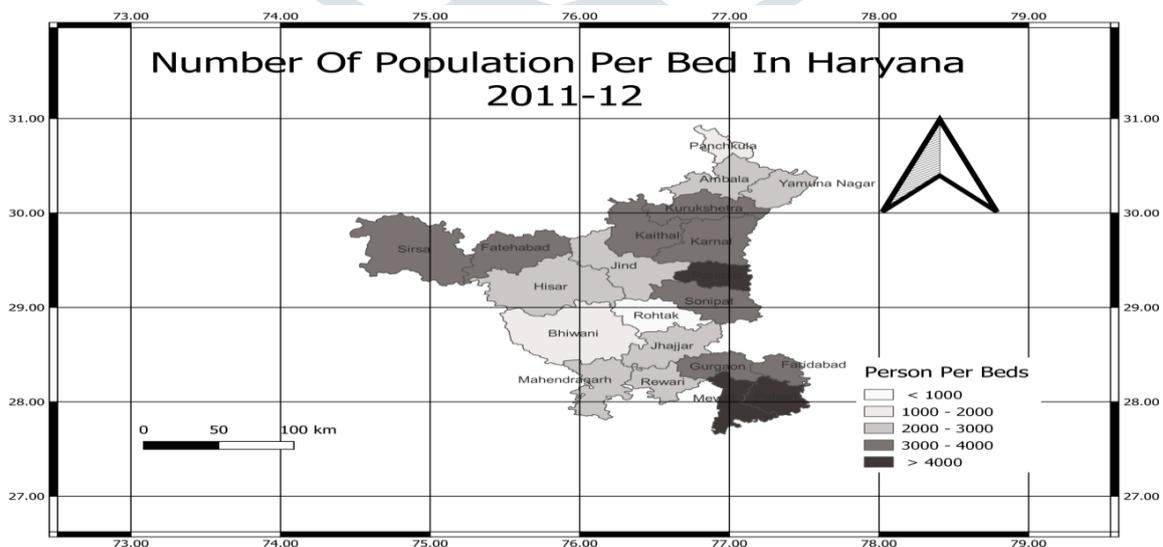
Map: 8 Number of population per Sub centre In Haryana



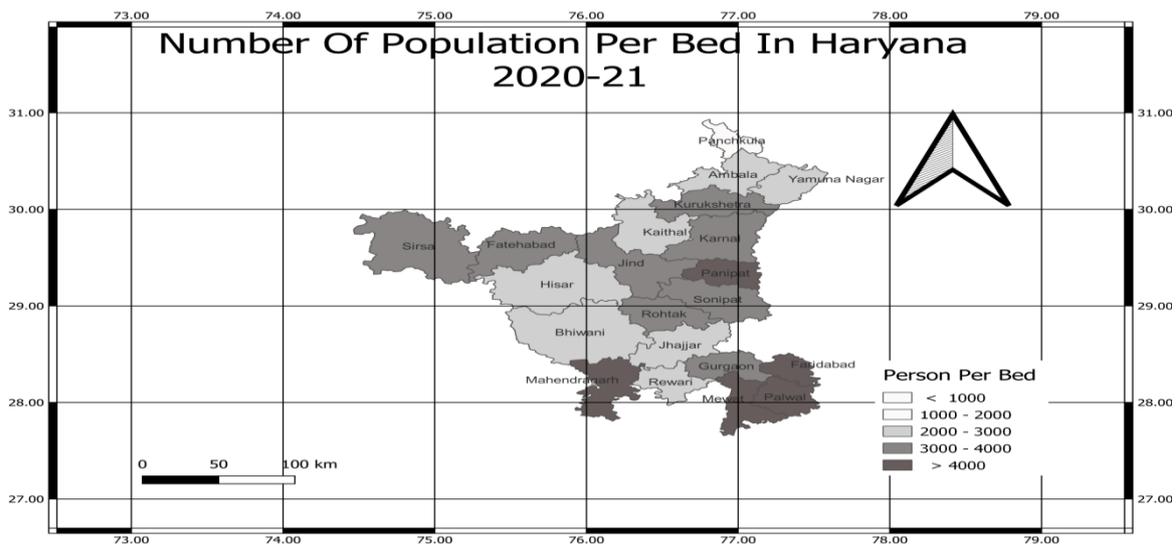
Source: Prepared with the help of GIS

Figure 4 reveals number of population per sub centre. According to year 2011 and 2020 ,it was found that average population per sub centre in Haryana increase 11395 to 12097. In haryana the highest population pressure per sub-health centers in 2011 has been found in Faridabad .On the other hand Bhiwani, Kaithal, Jhajjar although population is not found as per national norms, but its surrounding Sub Health Centers found less than 8000 population is seen which shows better health facilities in these districts. Looking at this ratio in 2022, only Fatehabad district which has less than 8000 population per sub health center has been found. This means that the population pressure is going to be higher in 2020. Most of districts has population pressure less than 15000 at one sub center.

Map:9 Number of population per Bed In Haryana



Source: Prepared with the help of GIS

Map:10 Number of population per Bed In Haryana

Source: Prepared with the help of GIS

Figure 5 describe number of population per Beds. According to year 2011 and 2020, it was found that average population per Beds in Haryana Increase 3069 to 3432. The number of beds plays an important role in the parameter of health facilities. It shows the level of health facilities in a district. If we look at the number of persons per bed in Haryana 2011, Mewat, Palwal, Panipat, Kurukshetra are district where more than 4000 persons are dependent on one bed which shows the bad situation in these districts. This ratio is seen in Rohtak per thousand persons per bed, which shows a better situation as compared to other districts. In 2011 Bhiwani and Panchkula has found 1000 -2000 population per bed and Hisar, Jind, Jhajjar, Mahendragarh, Rewari, Ambala, Yamunanagar in these district has been found 3 -4 thousand population which do not show very good condition. If this ratio is seen in 2020, then the pressure of population is seen more as compared to 2011. Panchkula is the only district which has population less than 2000 per bed, on the other hand all other districts has more than 2000 population depend on per bed . In 2020, there has been an increase in the number of beds in Faridabad and Kaithal. In Rohtak, Jind, Bhiwani, Mahendragarh districts, the population pressure is being seen even more in 2020. Thus we can say that beds are an important facility in health facilities, on which the pressure is more visible in Haryana with increasing pressure population.

Conclusion

Haryana state is one of the prosperous states of India which comes in the economically well developed states of India. Afterthere regional variations in health facilities are more visible in whole state. Although health facilities have improved in 2020 as compared to 2011, but still health facilities are not being provided in Haryana as per the national norms. The average number of persons per hospital in Haryana in 2011 was 535296, which decrease 504946 in 2020 which shows an increase in the number of hospitals. Bhiwani, Hisar, Panchkula, Ambala are those districts which have better health facilities than other districts, this shows more regional variation in Haryana. On the other hand, population pressure is more

visible in Mewat, Faridabad, Sonipat, Kurukshetra. In a comparative study per CHC person in 2011 and 2020, there is an increase in CHCs in 2020. In 2011 there was an average of 415625 persons per CHCs, which decrease 234742 in 2020. Apart from this, at the district level, this ratio is being seen more in Faridabad, Panchkula, Gurgaon. In which more than three lakh population has been found per CHC. Haryana has also seen an increase in PHCs in 2020 as compared to 2011. However, no district in Haryana has primary health centers as per the national norms. However, this population pressure is found to be moderate in most of the districts. Since in 2020 this ratio is more visible in Panchkula, Gurugram, Faridabad. Looking at the sub-health centres, Haryana has seen more pressure on them in 2020 than in 2011. In which the highest pressure has been seen in Faridabad, Gurgaon, Sonapat. Also the number of persons per bed does not reflect the better situation in Haryana. In 2020 state has higher pressure per person per bed. Haryana had an average of 3069 persons per bed in 2011, which has increased to 3432 in 2020. Hence, it can be said that the health facilities in Haryana have improved in 2020 as compared to 2011. Along with this, regional inequality has also increased. This is also seen at the district level.

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