

**A STUDY HEALTH CARE CENTERS INFRASTRUCTURAL FACILITIES  
AVAILABLE IN KOLHAPUR DISTRICT (MAHARASHTRA)**

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**ABSTRACT**

*The health care facility is the integral part of medical Geography. Health care is define therefore a programme of services that should make available all facility of health and affiliate services necessary to promote and maintain the health of mind and body. Those paper researcher has attempted to analyze the spatial distribution pattern of the existing health care facility available in Kolhapur district. In units like Primary Health Centers, Primary Health Sub- Centers, Dispensaries, Rural Hospitals, District Hospitals and Sub-District Hospitals, Beds, Nurses and Doctors available are also considered for this study area.*

*In this present study data used are concerned with Public and Public aided institutions as well as private institutions published in district statistical abstract by government of Maharashtra. There are various norms suggested by different health committees, taking these norms, expected values of Primary Health Centers, Primary Health Sub- Centers, Hospitals beds and doctors have been calculated and percentage of deficiency has been obtained. In the study area deficiency areas of health care facilities have been demarcated.*

**KEY WORDS:** *Primary Health Care, Primary Health Sub- Centers, Dispensaries, Rural Hospitals, Sub District Hospitals and District Hospitals.*

**INTRODUCTION**

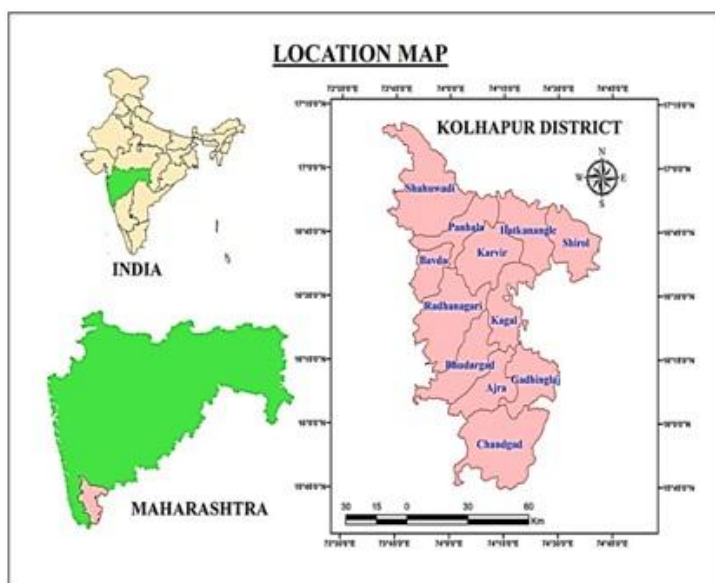
The health care facility is the integral part of medical Geography. Kolhapur District also has been developed a Systematic and effective health care system for its citizens. This organization provided healthcare to all permanent residents of Kolhapur and free medical treatment for the general and economically backward resident.

There are hierarchies of public health care facilities that is. Primary health care, hospital care facilities. It provides an integrated health services to the rural population by different health personnel like doctor, nurses and male-female health worker etc. Public Health Centers are the back bone of the rural health care services in the state or any country. The study of medical facilities may also the focal study of health care system. The government of India fixes various missions for the developed of the nation, in India Health mission is important one of them. The Health Package of primary health care provided more input, which promote the well-being and good health. Well infrastructure is a good sign of best facility or medical services. Hence the primary goal of any public health centers is to organize the health services and optimally utilize the available resources, knowledge, and technology with a vital to preventing diseases, disabilities and suffering of the people.

## **STUDY AREA**

Kolhapur district of South Maharashtra is selected as a study region for the present investigation. It lies between  $15^{\circ} 43'$  and  $17^{\circ} 17'$  North latitudes and  $73^{\circ} 40'$  and  $74^{\circ} 42'$  east longitudes .It covers an area of  $7685.00 \text{ km}^2$  , which is 2.50 percent of the total area of the state and a population of 29,89,457 (19191 census), which is 3.79 percent of the total population of the state. It ranks 24<sup>th</sup> in area and 10<sup>th</sup> in population in the state. The region comprising 1188 inhabited villages, and 12 urban centers, it is administratively subdivided into 12 tahsils. It is bounded on the north by Sangli district, on the west by Ratnagiri and Sindhudurg districts and on the south and east by boundary of Karnataka state. The district has long historical and rich cultural background .It is formed after the merger of Kolhapur Princely state.

**Fig No.1.1**



## **OBJECTIVE**

- I. To the study distribution of Health Care Infrastructure facility in the Kolhapur District.
- II. To the health care facility by health personnel in the Kolhapur District.

## **DATA BASE AND METHODOLOGY**

The researcher analyze to the available data at various stages is being calculated by using different statistical methods. The health care infrastructural facilities is to be investigated at study area. The unites like Primary Health Care Centers, Primary Health Sub-Centers, Hospitals, Dispensaries, and number of Hospital Beds, Doctors and Nurses available are also considered for this study. This data used in the present study are concerned with Public and aided institutions there for private institutions published in district statistical abstract by government of Maharashtra. This study spatial distribution of health care facilities, there are number of health institutions per 100000 populations has been calculated foe every health care facility. There are various graphical and distributional methods are used for showing distribution. The various norms suggested by different health committees, taking these norms, expected values of primary health centers, primary health sub- centers, hospital beds, and doctors have been calculated and percentage of deficiency has been obtained. The deficiency areas of health care infrastructural facilities have been demarcated.

This study data collected, has been analyzed by various graphical and distributional methods are used.

## **LAYOUT OF PRIMARY HEALTH CENTER**

The rural public health care system forms as integral part of the national health care system, also provision of primary health care is the foundation of rural health care system. 'For developing vast public health infrastructure and human resource of the country, accelerating the socio-economic development and attaining improved quality of life, the primary health care is accepted as one of the main instrument of action, primary care is the essential health care made universally available and accessible to individuals and acceptable to them through their full participation and at a cost the Community can afford' (Smith, D.M. 1981). Public Health care facility provided by Maharashtra state government to Kolhapur district is as follow.

1. Medical and Public Health Services
2. Health care facility of Civil Hospital, Kolhapur district
3. Health care facility of Sub-district hospitals, rural hospitals in Kolhapur district

4. Health Control Programs conducted in Kolhapur district civil hospital, AIDS Control, STD control, Mental Health control, Cancer Control, blindness control and Oral health control programs are conducted by Kolhapur Civil hospital.
5. Major Healthcare Needs of the Population in Kolhapur district.
6. Population served per RH, PHC or Sub Centre in Kolhapur district.

**Table 1.1**

**Kolhapur District: Public Health Care Infrastructural Facility (1961-2011)**

| Particulars                   | 1961 | 1971 | 1981 | 1991 | 2001 | 2011 | Actual Growth<br>1961-2011 |
|-------------------------------|------|------|------|------|------|------|----------------------------|
| Primary Health Sub<br>Centers | 130  | 184  | 245  | 312  | 391  | 413  | 283                        |
| Primary Health<br>Centers     | 17   | 24   | 39   | 66   | 72   | 73   | 56                         |
| Z.P. Dispensaries             | 16   | 78   | 93   | 76   | 68   | 68   | 52                         |
| Hospitals                     | 04   | 07   | 08   | 22   | 22   | 25   | 21                         |

**Source:** i) Health Status Report Maharashtra, 2017.

ii) -[URL:http://data.gov.in/catalog/rural-health-statisticas-2017](http://data.gov.in/catalog/rural-health-statisticas-2017)

Table 1.1 shows Public health care infrastructural facilities for the Primary health care Sub – Centers is high that is 413 in 2011, because these region are new sub centers established by government. The second is Primary health centers growth is moderately is 73, Z.P. Dispensaries that is 68 and very low facility Hospitals are available that is 25.

## **DISCUSSION AND RESULT**

### **A) ESSENTIAL INFRASTRUCTURAL FACILITIES**

In the Kolhapur district there are seventy three Primary health centers along with the four hundred thirteen sub- centers. PHC does not full –fill facilities and some are adequate infrastructure.

Today's Essential infrastructural facilities is very important factors PHC for the freely /without charges to the rural people with lifetime. Structural facilities that were required to be created in the identified PHCs for facilitating the institutional deliveries it included following seven facilities in study region.

A well – equipped operation theater.

- a) Labour room.
- b) Observation ward

- c) Two quarter come for lady health worker and one for auxiliary nurse mid – wife.
- d) Mention of water supply.
- e) One generator.
- f) One ambulance.
- g) Quarter, besides, one post of lady doctor/ ANM is also required to be created by the state Governments in each of the PHCs under the IPHS norms.

**Table 1.2**

**Kolhapur district: Tahsil wise Essential Infrastructural Facilities**

| Sr. No | Tahsil      | No. of PHCs | Operation Theatre in PHC | Labor Room | Observation Ward | Lady Doctor/ANM |
|--------|-------------|-------------|--------------------------|------------|------------------|-----------------|
| 1      | Karveer     | 09          | 09                       | 09         | #                | 09LD/09ANM      |
| 2      | Panhala     | 06          | 06                       | 06         | #                | 04 LD/6ANM      |
| 3      | Hatkanangle | 09          | 09                       | 09         | #                | 06LD/13ANM      |
| 4      | Shirol      | 07          | 07                       | 07         | #                | 03LD/6ANM       |
| 5      | Kagal       | 05          | 05                       | 05         | #                | 01/05ANM        |
| 6      | Gadhinglaj  | 06          | 06                       | 06         | #                | 02LD/06ANM      |
| 7      | Chandgad    | 06          | 06                       | 06         | #                | 03LD/06ANM      |
| 8      | Ajra        | 04          | 04                       | 04         | #                | 01LD/04ANM      |
| 9      | Bhudargad   | 05          | 05                       | 05         | #                | 02LD/02ANM      |
| 10     | Radhanagari | 06          | 06                       | 06         | #                | 04LD/06ANM      |
| 11     | G.Bavada    | 02          | 01                       | 01         | #                | AB-LD/02ANM     |
| 12     | Shahuwadi   | 08          | 06                       | 06         | #                | 02LD/07ANM      |

**Source;** Compiled by the researcher based for the field work, 2019

**Note:**i) # Available Observation Ward in all PHCs

ii) ANM- Ancillary mid-wife, L.D. Lady Doctor, # indicates available facility in all PHC, AB indicate absent there facility.

The Primary health centers has been equipped with combination of all the eight essential facility include the post of lady doctor. Though the labour room operation theater and observation ward are available majority in such twelve tahsils primary health centers in Kolhapur district. As such a facility could not be utilization for attending delivery cases without availability of lady doctor. There are miss – match between man power and essential facilities is a matter of serious concern.

Though in Primary Health Centers Lady Doctor eleven tehsil is available but in Gagan Bavada tahsil Lady Doctor is not available; however ancillary mid- wife replace lady doctor is available in various some centers. Karveer, Chandgad, Radhanagari, Shirol, Panhala, Hatkanangle etc. tahsils are available of lady doctors.

**Table 1.3**

**Kolhapur District: Tahsil wise Essential Infrastructure Facilities in PHCs**

| <b>Sr. No</b>         | <b>Tahsil</b> | <b>No. of PHCs</b> | <b>Quarter</b> | <b>Generator</b> | <b>Availability of Water</b> | <b>Ambulance</b> |
|-----------------------|---------------|--------------------|----------------|------------------|------------------------------|------------------|
| 1                     | Karveer       | 09                 | 09             | 09               | Y                            | 08               |
| 2                     | Panhala       | 06                 | 05             | 06               | Y                            | 06               |
| 3                     | Hatkanangle   | 09                 | 09             | 09               | Y                            | 09               |
| 4                     | Shirol        | 07                 | 07             | 07               | Y                            | 07               |
| 5                     | Kagal         | 05                 | 05             | 04               | Y                            | 05               |
| 6                     | Gadhinglaj    | 06                 | 06             | 06               | Y                            | 06               |
| 7                     | Chandgad      | 06                 | 06             | 06               | Y                            | 06               |
| 8                     | Ajra          | 04                 | 04             | 02               | Y                            | 03               |
| 9                     | Bhudargad     | 05                 | 05             | 05               | Y                            | 05               |
| 10                    | Radhanagari   | 06                 | 06             | 06               | Y                            | 06               |
| 11                    | Gagan Bavada  | 02                 | 02             | 01               | Y                            | 02               |
| 12                    | Shahuwadi     | 08                 | 07             | 06               | Y                            | 06               |
| <b>District Total</b> |               | <b>73</b>          | <b>70</b>      | <b>67</b>        | <b>Y</b>                     | <b>73</b>        |

**Source:** Compiled by the research, based on the field work, 2019

**Note:** ‘Y’ Available Water Facilities in all PHCs

The table 1.3 shows infrastructure facility in PHCs centers of Kolhapur district during 2018-2019. Quarter facility is all seventy nine of PHCs, Generator facility is not sufficient over all seventy nine PHC Centers. Availability of water in all PHC centers but sources are different i.e. tank, well tube well and river pipeline etc. Ambulance is not each PHCs available is very low in relation to population.

**Table No.1.4**

**Kolhapur District: Tahsil wise Availability of Beds in PHCs,**

| Sr. No                | Tahsil       | No. of PHCs | Beds       |            | Total Beds | PHC Bed Ratio |
|-----------------------|--------------|-------------|------------|------------|------------|---------------|
|                       |              |             | Male       | Female     |            |               |
| 1                     | Karveer      | 09          | 30         | 51         | 81         | 1:9           |
| 2                     | Panhala      | 06          | 25         | 32         | 57         | 1:9           |
| 3                     | Hatkanangle  | 09          | 55         | 80         | 135        | 1:9           |
| 4                     | Shirol       | 07          | 20         | 36         | 56         | 1:8           |
| 5                     | Kagal        | 05          | 15         | 20         | 35         | 1:7           |
| 6                     | Gadhinglaj   | 06          | 20         | 34         | 54         | 1:9           |
| 7                     | Chandgad     | 06          | 18         | 24         | 42         | 1:7           |
| 8                     | Ajra         | 04          | 10         | 18         | 28         | 1:7           |
| 9                     | Bhudargad    | 05          | 15         | 20         | 35         | 1:7           |
| 10                    | Radhanagari  | 06          | 24         | 30         | 54         | 1:9           |
| 11                    | Gagan Bavada | 02          | 5          | 7          | 12         | 1:6           |
| 12                    | Shahuwadi    | 08          | 30         | 42         | 72         | 1:9           |
| <b>District Total</b> |              | <b>73</b>   | <b>267</b> | <b>394</b> | <b>661</b> | <b>1:08</b>   |

Source: Compiled by the researcher Z.P. Kolhapur, 2019.

The table 1.4.shows tahsil wise sufficient bed facility available in study region. The nomenclature of a PHC varies from state to state that include block level PHCs. The standards prescribed in this documents are for a PHC covering 20,000 to 30,000 populations with 6 beds. All PHCs in the entire district should have at least 6 beds as per the norms of IPHS (Govt. of India, 2012).This areas are great variation in-service provide mainly bed. According the following table analysis the PHCs bed ratio in the Kolhapur district.

According to the PHC bed high ratio in the Karveer, Panhala, Hatkanangle, Gadhinglaj, Radhanagari and Shahuwadi tahsils are average 09 beds per PHC. Moderate PHCs in Shirol, an average are 08 beds per PHCs. low bed ratio 07 beds tahsils which Kagal, Chandgad, Ajra, and Bhudargad, very low bed ratio only Gagan Bavada tahsil as per 06 beds in per PHC.

As increase in the rural population by every years there is need of increase in the available of bed. Therefore almost in all the PHCs there will have some extra beds for inpatients. All PHC centers have marble table top for platform and wash basin. Laboratory

services like stool and blood test, routine urine Blood examination for malarial parasite, rapid test for pregnancy or malaria, rapid test kit for fecal contamination of water. In all PHCs of all tahsils have separate area for storage sterile and common lineal and other some materials/drugs etc. facilities available in this region. Residential accommodation with all amenities like 24 hour water supply, electricity, is available in medical officer head quarter. Electricity with generator back up, water supply and telephone amenities at least one direct line to ward room.

### **Hospitalcare Facility:**

The hospital care facility is second tier known as health facility, health care infrastructure in district hospitals and urban hospitals helps people to get first aid in the areas where they are currently located and benefits peoples. The third tier last two decades a majority of the tertiary care institutions in the governmental sector have been facing a resource crunch and have not been able to obtain funds for equipment maintenance, replacement of obsolete equipment's, supply of consumables and upgrading the infrastructure to meet the rapidly growing demand for increasingly complex diagnostic and therapeutic modalities.

The tertiary care institutions are in need of optimize facilities available in enhance the quality of services and strengthen linkages with secondary care institutions. Due to the lack of a dual referral system with primary secondary care level, there is more congestion in tertiary care hospitals and specialist doctors care.

**TABLE NO.1.6**

#### **Kolhapur District: Hospital Health Care Infrastructures 1961-2011**

| <b>Year</b>           | <b>1961</b> | <b>1971</b> | <b>1981</b> | <b>1991</b> | <b>2001</b> | <b>2011</b> |
|-----------------------|-------------|-------------|-------------|-------------|-------------|-------------|
| Civil Hospital        | -           | -           | -           | 1           | 1           | 1           |
| Sub District Hospital | -           | -           | -           | 04          | 04          | 04          |
| Rural Hospital        | -           | -           | -           | 13          | 13          | 16          |

Source: Data conducted by Z.P. office Kolhapur District 2019

### **I. District Hospital**

In 1849 the first hospital was established in Kolhapur district, The Public Health Department, was established in 1858 by British government. In 1941, the posts of "District Health Officers" were created. In 1946, the concept of comprehensive health care system was advocated by Bhore Committee and urban oriented approach of health services were replaced



By rural oriented one now this hospital name is Pramilaraje hospital. The C.P.R. Hospital, Kolhapur, is the 'Civil Hospital' at headquarters, it is owned, financed and controlled by government.

It is a large and commodity building which can accommodate 665 beds. It is mainly classified as over 25 wards, e.g. accident, outdoor patient, outdoor patient, maternity and after maternity, gynaecia, pediatric, eye, epidemic, orthopedic, prenatal, x-ray and ultrasound, blood bank, heart surgery, etc. except to this so many facilities are available the hospital. Recently the hospital started the new ward for heart patients where patients can get the modern and expensive angiography treatment in rational fees, as well as 113 the ultra-modern facilities like C.T. scan also available in the hospital in affordable fees. In the hierarchical health care system of the government of India. The district hospital is the apex body, which provides specialized health care services to people on subsidized rates.

#### **A. Electricity and Water supply**

Electricity and Generator Tap water and other sources available of facility in district hospital.

#### **B. Operation theatre for gynecological purposes**

Kolhapur district hospital has one operation theatre (OT). This district hospital is for the gynecological purpose. Critical operation operated in this hospital.

#### **C. Vehicle and Telephones**

In this district hospital more functional vehicles are available. For the Patients communication facility like Telephone is available in this hospital.

#### **D. Laboratory**

In the district hospital there is laboratory to test the blood, urine of women seeking antenatal care as well as for the diagnosis of Reproductive tract infections (RTI) /sexually transmitted infections (ST)

#### **E. Outpatient department (OPD) for gynecology and Reproductive tract infections (RTI) /sexually transmitted infections (ST)**

OPD facility for gynecology is available in this hospital.

#### **F. Linkage with district blood bank**

District hospital Kolhapur has a linkage with district blood banks.

### **II. Sub- District Hospital**

Study area there wear four sub district hospital available in over all the Kolhapur district. Kasba Bavada, Gandhinagar, Kodoli and Gadhinglaj. The distribution of sub- district hospitals shows close correspondence with the distribution of urban population.

### **III. Rural Hospital (RHs)**

The table indicating Hospital tahsil wise specialist and paramedical staff is essential in the Kolhapur district. The Rural hospitals are established and maintained by the state Government under minimum programs manned by four specialists i.e. At presently, there are 16 Rural Hospital distributed in all tahsils in Kolhapur district. In addition to this 16 rural hospitals 10 are located in the hilly area and 3 in plains or urban area of the district. If 3 rural hospitals are located in the vicinity of urban area they are providing services to the nearly rural population.

The purpose has been to provide to specialist care and indoor facility for the rural population. In the year 2011 there are sixteen rural hospital are functioning in the Kolhapur district. In the study area it is apparent that, the number of rural hospital in the study area is far less than the number of RHs covers of 1239 villages.

### **B).Health Care Services By Health Personnel**

In Kolhapur public and health care services private played a very important role in promoting and insuring a health of population by reducing premature deaths, minimizing the effects of disease, injuries and disabilities.

Healthcare services is provided by the medical organization of Kolhapur district. These organizations provided healthcare services to all permanent residents of Kolhapur district that to free medical treatment for the general and economically backward residents. In Kolhapur districts presently, especially in the rural areas, the government healthcare system is dominated. Private healthcare services and other variety of alternative treatments are also available for those willing to pay.

### **I. Number of doctors**

The attempt has been made to understand the pressure of population over doctors for the period 1961-2011. There were forty seven doctors in the Kolhapur District in the year 1961. Out of these thirty two doctors were found in only Karveer tahsil. It was followed by Kagal tahsil where three doctors were serving to the population. On the other hand Shirol and Shahuwadi tahsil represented two doctors in 1961. There were eight tahsils namely Panhala, Hatkanangle, Gadhinglaj, Chandgad, Ajra, Bhudargad, Radhanagari, Gagan Bavada representing one doctor was serving in each tahsils.

In the two decades between 2001 and 2011 the common leaf controversy showed a high prevalence of doctors. There are four hundred twenty seven doctor numbers in 2001 and four hundred thirty two in 2011.

### **II. Number of Nurses**

In the recent decade of 2011, number of nurses increased up to thirteen hundred thirty for whole Kolhapur district. In this decade Karveer tahsils still ranks first regarding the number of nurses however there number of nurses has been decreased by 17 nurses due to retirement of some old nurses on the contrary there was no new recruitment of new nurses. However noteworthy fact is observed that in Hatkanangle tahsil numbers of nurses has been increased up to 255 as compared to previous decade (162). Regarding the number of nurses in rest all tahsils position is same as it was in the decade 2001.

### **Conclusion and Suggestions**

In this research paper showing the important finding of tahsil wise distribution of infrastructural facilities in Kolhapur district. Over all analysis is based on population density of health care infrastructural facility available in the district.

These study area found the available of health care facilities in the district. The Karveer, Hatkanangle and Shahuwadi tahsil higher Primary Health Centers available. Gadhinglaj, Radhanagari and Shahuwadi tahsils surplus bed ratio.

The consider is major medical facilities, such as District hospital, Sub district Hospitals, Rural Hospitals, Primary Health centers and Primary Health Sub- Centers, Bed, Doctors, and Nurses. The distribution of health care facility is not same in Kolhapur District. As per the norms one Primary Health Centers per 30,000 persons in rural area and 20,000 persons in tribal area. There wear no ideal situation in any tahsil except Gadhinglaj, Radhanagari and Shahuwadi tahsils. As well as the same situation is found in the distribution of health sub- centers. Hence there is need of establishment of Primary Health Centers and Health Sub- Centers according to the norms in the criteria in the study area.

The infrastructural facilities are mainly concentrate in urban areas serving. Scarcity of specialized treatment facilities and quality of it is a common phenomenon in rural area in the study area. Over all the Kolhapur district uneven distribution of infrastructural health care facilities caused by physiographic and social condition of the district however political issues and economical condition of study area.

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