



## Spatial Distribution of Public Health Care Facilities in Sangli District (Maharashtra)

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### Abstract:

*Medical Geography is concerned with the study of local variations in environmental conditions that are related to human health or illness. The term health is defined as 'a state of complete physical, mental and social well-being of a person and not merely the absence of disease or infirmity'. A health facility is, in general, any place where healthcare is provided. An important aspect of medical geography is healthcare facilities. Good health is essential for human well-being, economic progress and a prosperous society. Therefore, an attempt has been made here to study the development of public health care facilities in Sangli district. Entire study is based on secondary source data source. Shrivastava S. L. (1983) method i.e. "Proportional Standardized Mean and Composite Index has been used to determine the composite index of development of health care facilities. This study has shown that there is an uneven distribution of healthcare facilities in Sangli district.*

**Key words:** Health care facilities, Composite index, Development

### Introduction

The public health care system includes the entire government health care facilities, centres and services. These health care systems are not for earning income but for the welfare of the community. The development of public health care facilities in any region has also improved the quality of human life. Consequently, it is necessary to expand and improve public health services for human welfare. The combined effect of the positive or negative interaction of these factors has contributed to the local pattern of effective demand and the distribution of health facilities responds to this effective demand without taking into account the needs of the people (Mc. Glashan N. D. 1974). In Sangli district, there are 18 hospitals, 03 special hospitals, 03 dispensaries, 77 primary health centres, 345 health sub-centres, 643 available doctors, 1244 available nurses as well as 1311 beds in 2023-24. When considering health services, the number of hospitals, primary health centres, and sub-centres are increasing every year but their rate is not reasonable. Therefore, health workers are a matter of concern, the number of doctors, number of nurses and numbers of beds are also increasing decade by decade but their rate is not satisfactory.

### Study Area:

Sangli district is situated between the latitude of 16o43' north latitude to 17o38' north latitude and 73o41' east longitude to 75o41' east longitude. It is bounded on the north western side by Satara district, on the south by the district of Belgaum and Bijapur in the state of Karnataka, Kolhapur and Ratnagiri district lies on the west of Sangli district. Administratively the Sangli district is divided into ten tehsils comprising 8,572 sq. km. area of supporting 28, 20, 575 population and density of population is 326 person per sq. km. according to 2011 census.

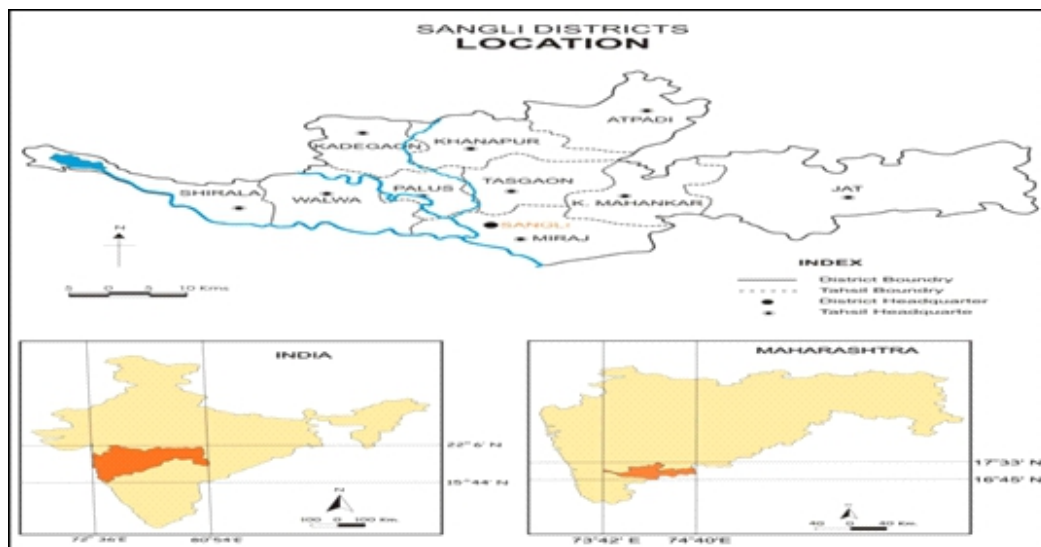


Fig. 01

Monsoon climate dominates the region with little difference in heat and cold. The region receives rainfall mainly from south-west monsoon average between 200 cm. in the west to 50 cm. in the eastern part.

### Objective:

The main objective of the present study is to analyse the development of health care facilities in the Sangli district.

### Data Collection and Methodology:

To fulfil above objective the data regarding to eight indicators of public health care facilities i. e. number of hospitals, number of special hospitals, number of dispensaries, number of primary health centres, number of primary health substations, number of doctors, number of nurses and number of beds is collected from the district statistical department, socio-economic review and statistical abstract of district 2023-24. The collected data through different sources were processed and represented by statistical and cartographic techniques.

To determine the development of public health care facilities Shrivastava S. L. (1983) method 'Proportional Standardized Mean and Composite Index' has been utilized. This is as following -

$$W = \frac{\text{Mean}}{\text{SD}}$$

Where,

W = Weight of one particular indicator

Mean = The average of the series of one particular indicator

SD = Standard deviation of the same series

After calculating the weightage for different variables or indicators, we have calculated the composite index (C. I.) of development by using following formula -

$$C.I. = \frac{X_1W_1 + X_2W_2 + X_3W_3 + X_4W_4 + \dots}{W_1 + W_2 + W_3 + W_4 + \dots}$$

Where,

C.I. = Composite Index

X = Particular Indicator

W = Weight of series of one particular indicator

Depend upon Composite index, the Indices have been calculated by taking whole region as 100 (for average composite index) by using following formula -

$$\text{Indices} = \frac{\text{Composite Index of Any Unit}}{\text{Average of Composite Index}} \times 100$$

Then on the basis of mean and standard deviation has been used for the categories of high, moderate and low development of health care facilities. On the basis of these statistical techniques result and conclusion are drawn.

### **Health Care Facilities in Sangli District:**

To determine the development of public health care facilities eight indicators of health care facilities i.e. number of hospitals, number of special hospitals, number of dispensaries, number of primary health centres, number of primary health substations, number of doctors, number of nurses and number of beds are taken into consideration.

#### **Number of Hospitals:**

The high number of hospitals found in Miraj tehsil with four hospitals in 2023-24. Two hospitals found in Shirala, Walwa, Kadegaon, Khanapur and Jath tehsils. Lowest hospitals found in remaining four tehsils of Palus, Atpadi, Tasgaon and Kavathe Mahankal tehsils.

#### **Number of Special Hospitals and Dispensaries:**

Special hospitals include hospitals that treat cancer and tuberculosis. In 2023-24, three special hospitals and three clinics are available in Sangli district which is all found only in Miraj tehsil. There are no special hospitals and dispensaries in any other tehsils except Miraj tehsil.

#### **Number of Primary Health Centres:**

High numbers of primary health centres are found in Miraj and Walwa tehsil with eighteen and thirteen primary health centres respectively. In Shirala and Jath tehsils each nine primary health centres are observed. Lowest primary health centres are found in Palus, Atpadi and Khanapur tehsils.

#### **Number of Primary Health Substations:**

Highest numbers of primary health substations are observed in Walwa and Miraj tehsils with fifty four and fifty one primary health substations respectively. Followed by Jath, Shirala and Tasgaon tehsils found forty eight, thirty nine and thirty eight primary health substations respectively. Lowest primary health substations are observed in Palus, Kadegaon and Atpadi tehsils.

#### **Number of Doctors:**

High number of doctors is recorded in Miraj tehsil with four hundred and fifty seven doctors. The moderate number of doctors is recorded in Walwa, Khanapur, Jath and Shirala tehsils, while low number of doctors is noticed in Atpadi tehsil.

#### **Number of Nurses:**

In 2023-24, high number of nurses recorded in only in Miraj tehsil with nine hundred and twenty eight nurses. Shirala, Walwa, Kavathemahankal, Tasgaon and Jath tehsils has moderate number of nurses, while lowest numbers of nurses are available in Atpadi tehsil with thirteen nurses.

Number of Beds:

Above hundreds beds are found only in Miraj, Walwa, Shirala and Jath tehsils. Lowest beds are available in Palus and Atpadi tehsils with forty two and fifty four beds.

**Development of Health Care Facilities in Sangli District in 2023-24:**

Table number 01 indicates composite index and indices value of each tehsil. The indices value of all tehsil ranging from mean minus half standard deviation to mean plus half standard deviation. Therefore all the tehsils are grouped into three categories.

**High Development of Public Health Care Facilities:**

Tehsils which have above mean plus half standard deviation indices value i. e. above 151.66 are included in high development category. The high development of public health care facilities is found only in Miraj tehsil with 403.01 indices. Since Miraj tehsil is located on border of Karnataka and Maharashtra state, many patients from Karnataka come to Miraj for treatment. It is also adjacent to Sangli district place. Therefore, Miraj tehsil is the high developed in term of health care facilities.

**Table No. 01**  
**Sangli District: Public Health Care Facilities (2023 - 24)**

Sr. No.	Name of Tehsils	Composite Index	Indices
1	Shirala	31.36	85.33
2	Walwa	40.63	110.55
3	Palus	12.86	34.99
4	Kadegaon	19.4	52.79
5	Khanapur	22.95	62.45
6	Atpadi	14.18	38.58
7	Tasgaon	24.89	67.73
8	Miraj	148.11	403.01
9	Kavathe Mahankal	21.28	57.90
10	Jath	31.85	86.66
<b>District Average</b>		36.75	100

Source: Computed by researcher based on Socio-Economic Review of Sangli District, 2024

**Moderate Development of Public Health Care Facilities:**

Tehsils which have mean minus half standard to mean plus half standard deviation indices value i. e. 48.34 to 151.66 are included in this category. The moderate development of public health care facilities is observed in seven tehsils namely Walwa, Jath, Shirala, Tasgaon, Khanapur, Kavathemahankal and Kadegaon tehsils.

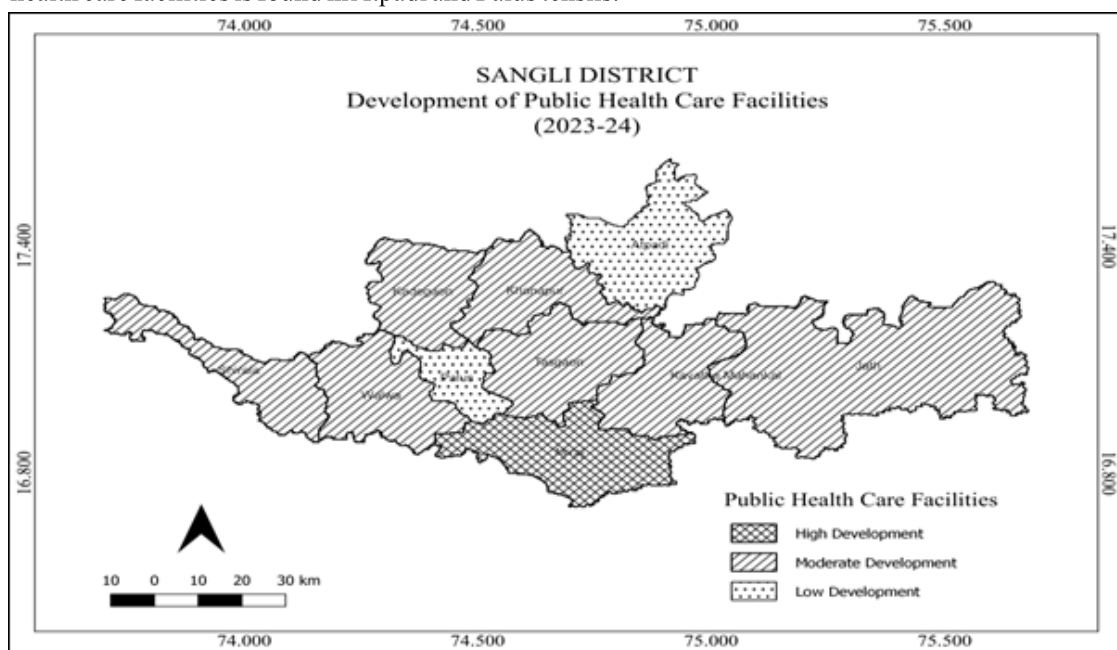
**Table No. 02**  
**Sangli District: Development of Public Health Care Facilities (2023 - 24)**

Category	Index Value	No. of Tehsils	Name of Tehsils
High	Above 151.66	01	Miraj
Moderate	48.34 to 151.66	07	Walwa, Jath, Shirala, Tasgaon, Khanapur, K. Mahankal, Kadegaon
Low	Below 48.34	02	Atpadi, Palus

Source: Computed by researcher based on Socio-Economic Review of Sangli District, 2024

#### **Low Development of Public Health Care Facilities:**

Tehsils which have below mean minus half standard deviation indices value i. e. below 48.34 are included in low development of public health care facilities category. The low development of health care facilities is found in Atpadi and Palus tehsils.



**Fig. 02**

#### **Conclusion:**

This research paper presents important findings on the tehsil-wise distribution of public health care facilities in Sangli district. High number of hospitals found in Miraj tehsil whereas, lowest hospitals found in four tehsils of Palus, Atpadi, Tasgaon and Kavathe Mahankal tehsils. Three special hospitals and three dispensaries are observed only in Miraj tehsil. High numbers of primary health centres are found in Miraj and Walwa tehsils and lowest primary health centres are found in Palus, Atpadi and Khanapur tehsils. Numbers of primary health substations are observed in Walwa and Miraj tehsils. Highest number of doctors is recorded in Miraj tehsil, while low number of doctors is noticed in Atpadi tehsil. Also, high number of nurses recorded in only in Miraj tehsil and above hundreds beds are found only in Miraj, Walwa, Shirala and Jath tehsils.

High development of public health care facilities is found only in Miraj tehsil because of

Miraj tehsil is located on border of Karnataka and Maharashtra state and many patients from Karnataka come to Miraj for treatment. Moderate development of public health care facilities is observed in seven tehsils namely Walwa, Jath, Shirala, Tasgaon, Khanapur, Kavathemahankal and Kadegaon tehsils. Low development of public health care facilities is observed in Atpadi and Palus tehsils. In Sangli district, the geographical and social conditions of the district as well as political problems, economic condition of the state lead to uneven distribution of public health care facilities.

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