

**SPATIO-TEMPORAL ANALYSIS OF GENDER DISPARITY IN LITERACY IN  
SANGLI DISTRICT, MAHARASHTRA**

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**Abstract**

Literacy, being one of the most important demographic elements, is a crucial indicator to measure human progress towards development. Literacy significantly impacts human capital, employment and social equality. Both genders contribute to development, yet benefits are not equitably shared. There is a slow rate of growth in female literacy as compared to male literacy. The existence of gender disparity in literacy brings sluggish and lop-sided development of the country. Despite the number of efforts made at national and international levels, there exist a significant number of illiterate women in the society, which is a disturbing factor for all development efforts. The present study attempts to identify the Spatio-temporal pattern of literacy rate and variation in gender disparity in literacy in the study area from 2001 to 2011. For this purpose, a simple percentage method for literacy rate and the modified disparity index as put forward by David Sopher, 1980 for gender disparity in literacy has been used. The analysis reveals that Gender Disparity Index (GDI).

**Keywords:** Literacy, Gender Disparity Index, tahsils, Development, Spatio-temporal

**Introduction**

Literacy is considered one of the foremost indicators of socio-economic advancement and human progress. It is essential for eradicating poverty and for permitting the free play of demographic processes (Chandna and Sidhu, 1980). It plays a crucial role in the social and economic development of any country. Higher literacy rates are associated with healthier populations, lower crime, greater economic growth, and higher employment rates. Illiteracy in a society is primarily an obstacle to peaceful and friendly international relations and to the demographic processes within a country (Murphy, 1970). Literacy reflects the socio-economic and cultural set up of a nation, group or community. It is essential not only for eradication of various evils but also for mental isolation and for permitting free play of demographic processes (Hussain, 2004). Literacy plays a vital role in empowering women and combating societal inequalities and injustices (Patel and Dighe, 1997). Literacy is vital to change people's attitudes, ethical awareness, values, skills and behaviour towards building a more sustainable society. It equips people to participate in decision-making that adequately and success fully addresses environment and development issues around them. Therefore, the government of India has prioritized universalizing elementary education and reducing educational inequalities (Mallik, 2014). Literacy is considered as a fairly relevant index of the socio-economic development of a region. The variations in literacy, indicate, the pace at

which a society is getting transformed. The level of literacy influences to a significant extent, the socio-economic development of a region. Batul et al. (2019) have studied the relationship between literacy rate and poverty in Pakistan and found a long-run relationship between economic growth and the education status when poverty serves as a dependent variable measuring economic growth. Therefore, a study of the population geography of a region is not complete without an analysis of literacy pattern (Ghatage et al., 2013). Literacy leads to education, which ultimately enables people to take decision, participate in developmental activities and build their own future (De, 2015). Literacy influences and determines not only the quality of human resources but also other attributes of population like fertility, mortality, age of marriage and economic participation (Choubey and Rai, 2019).

### Objectives

To study the Tahsil-wise variations in literacy rate and gender disparity in literacy in district Sangli from 2001, 2011 and to analyze the Spatio-temporal pattern of literacy rate and variation in gender disparity in Sangli District from 2001 and 2011, district Sangli.

### Database and Methodology

The present study is based on secondary data taken from the Directorate of Census Operations, Sangli, for the decades of 2001 and 2011. Data have been tabulated, calculated and presented in the form of figures and tables with the help of Word processing and MS Excel. All these maps have been vectorized in Arc GIS, and the cartographic work has been done using the GIS platform. The total, male and female rates of literacy have been calculated for the population above the six years of age. The gender disparity in literacy has been calculated with the help of gender disparity index devised by Sopher, (1980) and modified by Rao and Kundu (1986)) as under:

$$\text{GDI} = \text{Log} (X_2/X_1) + \text{Log} (200-X_1/200-X_2)$$

Where GDI is the gender disparity index,  $X_1$  is the percentage of female literates and  $X_2$  is the percentage of male literates. The value of index varies between +1 and -1, higher the value of the index greater is disparity.

### Study Area

Sangli district is a part of the southern districts of the state of Maharashtra and the Deccan plateau. Geographically, it is located between  $16^{\circ} 45'$  and  $17^{\circ} 33'$  N latitude and  $73^{\circ} 42'$  and  $75^{\circ} 40'$  E longitude. The average elevation of the district is 553 m above sea level. It is bounded on the north by Satara and Solapur districts, on the east and south by the state of Karnataka, on the south-west by Kolhapur district and on the west by Ratnagiri district. Sangli district is 205 km long and 96 km wide north-south direction from east to west. The geographical area of Sangli district is 8572 sq. km. and its total population is 28, 22,143 according to the 2011 census, where 14, 35,728 Male and 13, 86,415 female population was observed. The total literacy rate of Sangli district is 82.62 percent and the population density is 329 per sq. km. Administratively Sangli district divided in to three sub-divisions mainly i.e. Walwa, Miraj and Khanapur and the district has ten tehsils such as Walwa, Shirala, Miraj, Jat, Atpadi, Khanapur, Palus, Kavathe-Mahankal, Tasgaon and Kadegaon.

### Results and Discussion

**Trend of Literacy Rate from National to District Level (2001-2011)**

Table 1 and Fig. 1 shows the trend of inclusive and male-female literacy rate from national to district level during the period of 2001-2011. It has been observed that the total literacy rate in Sangli district is 76.62 per cent, which is a little lower as compared to the state average of 76.88 per cent, while it is higher than the national average literacy rate of 64.84 per cent in 2001. The male literacy rate in the entire study region is 86.36 per cent which is to some extent higher than the state average i.e. 85.97 per cent, and the national average such as 75.26 per cent. In 2001, female literacy rate is 66.73 per cent which is lower than the female literacy rate in the state which is 67.03 per cent, while it is higher than the country i.e. 53.67 per cent.

**Table No.1****Overall Male-Female Literacy Rate in India, Maharashtra and Sangli District (2001-2011)**

Sr. No	Region	2001				2011			
		Total	Male	Female	Gap (M-F)	Total	Male	Female	Gap (M-F)
1	India	64.84	75.26	53.67	21.59	74.04	82.14	65.46	16.68
2	Maharashtra	76.88	85.97	67.03	18.94	82.91	89.82	75.48	14.34
3	Sangli	76.62	86.36	66.73	19.63	81.48	88.22	74.59	13.63

Source: Census Handbook of Sangli District, 2001 and 2011.

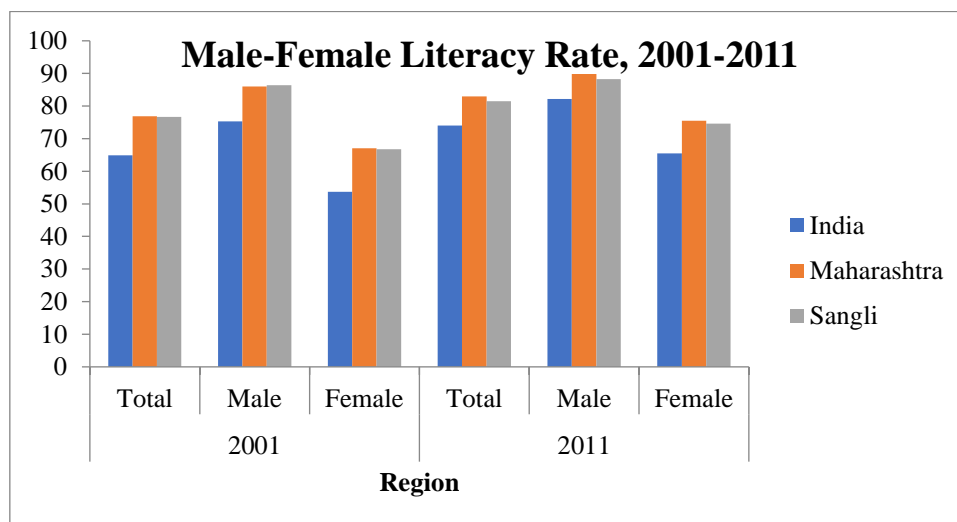
**Fig No.1****Tahsils-wise Literacy Rate in Sangli District (2001-2011):-**

Table No. 2 describes that the tahsil-wise total literacy rate in the period of 2001 and 2011 in the study region. The literacy rate of entire districts 76.62 percent 2001 and 81.48 per cent in 2011, It is absolute change is 4.86 per cent during the period of

investigation. The distribution of literacy rate is not uniform throughout the study region.

As per 2001, the high literacy rate i.e. above 80 per cent was recorded only in Miraj tahsil due to high urbanization, high concentration of educational institutes, as well as Sangli city is the location of the district headquarters. In 2011, the high literacy rate is registered in Walwa, Palus, Kadegaon, Khanapur, Tasgaon and Miraj tahsils.

The moderate literacy rate i.e. ranging from 75 and 80 per cent was found in Shirala, Palus, Kadegaon, Khanapur, and Tasgaon tahsils in 2001 and Shirala and Kavathe-Mahankal tahsils in 2011.

### Tahsil-wise Disparity in Male-Female Literacy

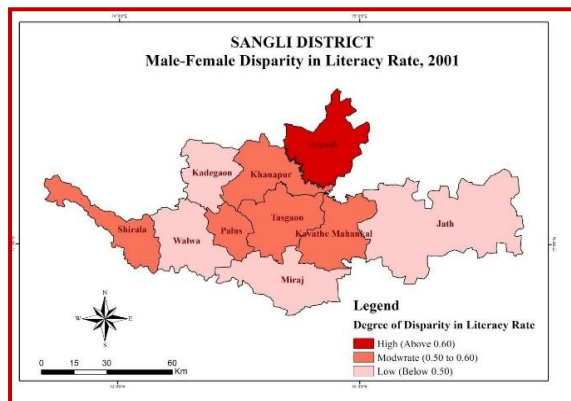
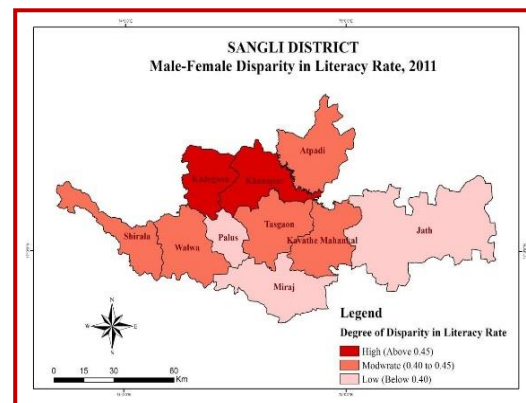
The Table 2 and Figure 2 and 3 Shows that the disparity of male-female literacy in Sangli district. It is recorded as the female literacy level is lower than that male literacy level. The difference between male and female literacy shows in disparity index. The high disparity of literacy rate is recorded in Shirala and Atpadi tahsils, because Shirala tahsils located in hilly area, rugged topography, dense forest, shallow soil and low development of transportation as resulted as low level of economic development consequently low literacy rate female in this tahsil. Whereas, Atpadi tahsils located in dry area, low rainfall, low development of irrigation resulted as low development of agriculture and allied activities so there are also low literacy rate in female. It has been observed that the continuous increase in the complete literacy rate during the last decade i.e. 2001 and 2011 in the study region. The total literacy rate was increased from 76.6 to 81.48 per cent in 2001 to 2011, it is varies from male and female literacy rate as well as tahsil-wise literacy rate in the Sangli district during the period of 2011. The high total literacy rate is recorded i.e. more than 85 per cent is recorded in Walwa and Palus tahsils because these tahsils are located in river basin areas, flat topography, fertile soil, high irrigation resulted as high development of agriculture and agro-based industries therefore high development of educational institutes.

**Table No.2**

**Sangli District: Tahsils -wise Literacy Rate and Gender Disparity in Literacy, (2001-2011)**

Sr. No	Tahsil	2001				2011			
		Total	Male	Female	Disparity Index	Total	Male	Female	Disparity Index
1	Shiral	73.3	86.3	60.9	0.6	78.88	86.36	68.8	0.45
2	Walwa	79.4	88.2	70.2	0.5	85.21	91.34	78.79	0.45
3	Palus	79.7	88.7	70.3	0.52	86.11	90.96	80.96	0.37
4	Kadegaon	79.74	87.32	72.25	0.46	80.98	88.98	73.05	0.47
5	Khanapur	75.9	86.5	65.5	0.52	82.23	89.95	74.68	0.48
6	Atpadi	66.4	78.5	54.3	0.73	72.74	82.34	63.24	0.43
7	Tasgaon	77.8	87.9	67.6	0.54	83.29	89.76	76.66	0.42
8	Miraj	82.1	90	73.7	0.5	84.54	89.81	79.14	0.36
9	K-Mahankal	73	83.5	62.2	0.51	78.57	86.57	70.39	0.43
10	Jat	63	74.3	51.3	0.43	70.37	78.29	62.1	0.34
	<b>Average</b>	<b>76.6</b>	<b>86.3</b>	<b>66.7</b>	<b>0.53</b>	<b>81.48</b>	<b>88.22</b>	<b>74.59</b>	<b>0.42</b>

Source: Calculated By Researcher

**Gender Disparity in Literacy, (2001-2011)****Fig. No 2****Fig. No 3****Conclusions**

The present study has analyzed the tahsils-wise literacy rates in the Sangli district of Maharashtra for the period of two decades from 2001 to 2011. The high total literacy rate is recorded i.e. more than 85 per cent is recorded in Walwa and Palus tahsils because these tahsils are located in river basin areas, flat topography, fertile soil, high irrigation resulted as high development of agriculture and agro-based industries therefore high development of educational institutes. It has been observed that the continuous increase in the complete literacy rate during the last decade i.e. 2001 and 2011 in the study region. The total literacy rate was increased from 76.6 to 81.48 per cent in 2001 to 2011, it varies from male and female literacy rate as well as tahsil-wise literacy rate in the Sangli district during the period of 2011. The disparity index between male-female literacy rate in Sangli district during the period of 2011. The disparity index of entire Sangli district is moderate i.e. 0.42 index. The high disparity of literacy rate i.e. more than 0.45 is recorded in Kadegaon and Khanapur tahsils because both Kadegaon and Khanapur tahsils having rugged topography, shallow soil resulted as low development of agriculture and allied activities so there are economic condition of the people is poor consequently lower the level of female literacy in these tahsils.

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