

## Spatio-Temporal Analysis of Female Literacy Rate in Satara District (Ms)

L. B. TONAPE

Department of Geography  
Y. C. Mahavidyalaya, Karmala  
India

B. M. SULE

Department of Geography  
Karmaveer Bhaurao Patil Mahavidyalaya  
Pandharpur, Dist-Solapur (M.S.)  
India

A. J. BARAKADE

Department of Geography  
Karmaveer Bhaurao Patil Mahavidyalaya  
Pandharpur, Dist-Solapur (M.S.)  
India

### Abstract:

*This paper is an attempt to analyze the Trend and Spatio-temporal analysis of Female Literacy Rate in Satara District of Maharashtra. Women education is an important socio-economic variable having strong implication for human development and status of the women. Hence, society and government have paid increasing attention to the women education. Women literacy or education is a part of social and population geography. This is largely attributed to women's lower status in our society, which has contributed to their lower literacy rate in all over India. The relationship between educational attainments and awareness of hygiene improvement in family health, family children and standard of living is well established.*

*The female literacy is affected on the various attributes of the population such as fertility, mortality, migration and also sex ratio. Thus, the analysis of female literacy is immense significant. The*

*fluctuating trend of female literacy rate may be seen from fact that 0.27 per cent in 1901, which was continuously increased and it reaches as 76.29 per cent in 2011. There has been remarkable progress in women literacy in Satara district. The literacy rate of total population increased by more than 20 times and males population increased by more than 11 times, but the literacy rate of female population is increased by more than 260 times during the period of 1901 to 2011. The main objectives of the present research paper are to study the trend of women literacy rate (1901-2011) and to examine the spatial pattern of literacy rate in the study region during 2001 and 2011. The Least Square method is used for analyzes the trend of women literacy rate. It observed that the trend of females' literacy rate is highly skewed and spatial pattern of women literacy rate is wide disparity in tahsil to tahsil of the study area.*

**Key words:** Male-Female, Trend, Remarkable, Awareness, Relationship.

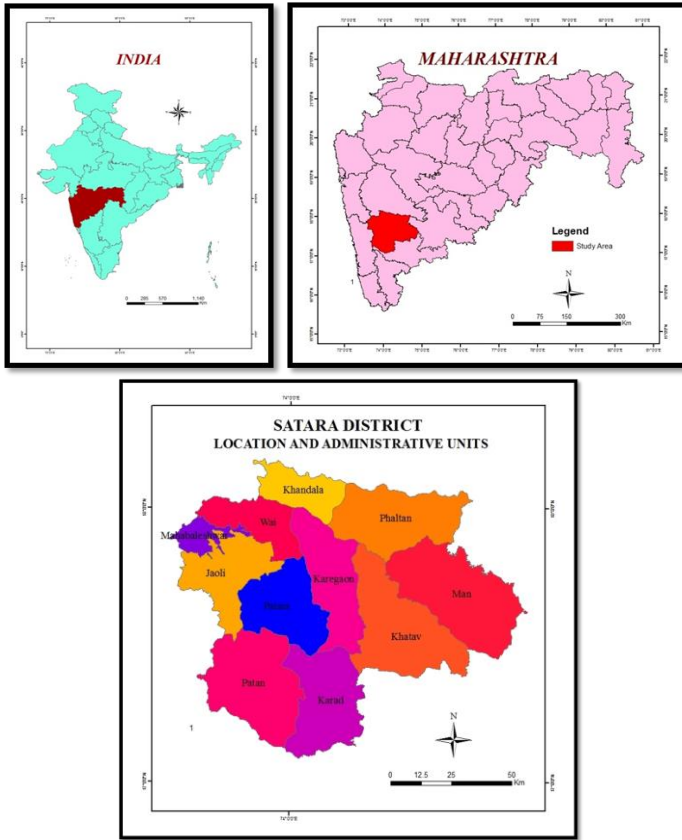
## **Introduction**

Prior to the advent of skills of reading and writing, society could be classified as being in the pre-literate cultural stage. The change from pre-literate to literate society is said to have begun somewhere during the fourth millennium B. C. though a gradual transition from pictography to the use of an alphabet (Golden Hilda). The concept of literacy that varies from country to country generally refers to the minimum level of literacy skills. Trewartha, considers the basis of length of schooling not a valid measurement of educational accomplishments. The Population Commission of United Nations considers, *'the ability to both read and write a simple message with understanding in any language a sufficient basis for classifying a person as literate.'* According to Census of India, *'a person aged more than 6 years and who can both read and write with understanding in any language has taken as literate.'* The literacy rates in any area were determined largely by a variety of historical, social

and economic factors. According to Ghosh, literacy is influenced by as many as 15 different factors. He determines that there is very high correlation between parental income and literacy rate. Literacy brings about fundamental changes in socio-economic development. Disparity in literacy generates number of social, economic and political problems which may threaten the foundation of development. Literacy is essential for eradicating poverty and mental isolation for cultivating peaceful and friendly international relations and for promoting the free play of demographic processes (Chandna).

### **Study Area:**

The Satara district is situated in western part of Maharashtra. Satara district lies between  $17^{\circ} 5'$  North and  $18^{\circ} 11'$  North latitudes and  $73^{\circ} 33'$  East and  $74^{\circ} 54'$  East longitudes. The total geographical area of Satara district is 10,484 square kilometer, which constitute 3.41 per cent of the Maharashtra state. Satara city is districts headquarter and other major towns are Wai, Karad, Koregaon, Koynanagar, Rahimatpur, Phaltan, Mahabaleshwar, Mahswad and Panchgani. Satara District is characterized by sharp differences in terrain, pattern of settlement and social identity. The physiography of district is typical, altitude is ranging from 600 meters in Nira basin in East to above 1200 meters in the pinnacles and high plateau of the main Sahyadrians in west above mean sea level. The district has Monsoonal type of climate. The annual average rainfall ranges from over 6000 mm in the Western part to 500 mm in Eastern part. As per census 2011, the urban and rural population of district is 5,70,000 and 24,34,000 respectively spread in 15 urban centers and 1739 are villages. The total literacy rate was 84.20 per cent and males and females are as 92.09 per cent and 76.29 per cent respectively in the year 2011.



**Figure 1**

### **Objectives:**

The major objectives of this paper are as under:

1. To examine the trend of females literacy rate in the study area.
2. To analyze the spatio-temporal pattern of females literacy rate in study area.

### **Data Collection and Methodology:**

This paper is based on secondary data sources. To fulfill this objectives data regarding literacy rate of Satara district is

obtained from census of India, Satara district and Socio-economic abstract of Satara District. The data regarding climate and physiography is collected from the Socio-economic abstract and Gazetteer of Satara district.

The collected data are processed. The tahsil is taken as the component unit of investigation. To analyze the pattern of female literacy rate in Satara district, the tahsils of Satara district are grouped into three categories i.e. high, moderate and low literacy on the basis of Mean and Standard Deviation. To find out the trend of women literacy rate with help of Least square method i.e.  $y=a+bx$  is used, and on the basis of statistical techniques the conclusions are drawn.

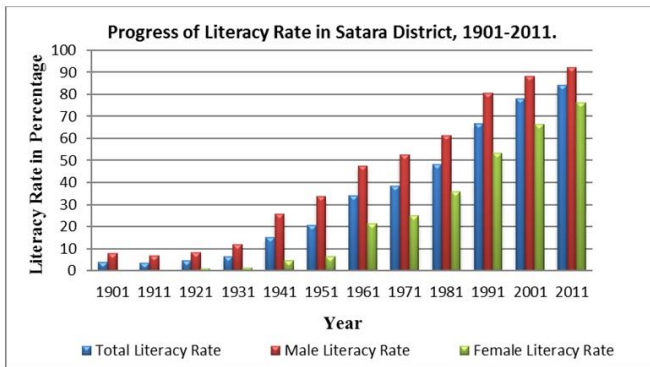
### **Growth of Literacy Rate in Satara District:**

According to census of India, any person who is able to both read and write with understanding in any language is recorded as a literate. The latest 2011 census revealed that 84.20 per cent of the total population in the district is literate against the state average literacy of 82.90 per cent.

**Table 1: Growth of Literacy rate in Satara District, 1901-2011**

Years	Total Literacy Rate	Males Literacy Rate	Females Literacy Rate
1901	3.95	7.75	0.27
1911	3.5	6.7	0.39
1921	4.61	8.32	0.99
1931	6.52	11.79	1.3
1941	15.01	25.68	4.53
1951	20.6	33.5	6.3
1961	33.98	47.41	21.16
1971	38.32	52.38	24.77
1981	48.15	61.39	35.67
1991	66.67	80.61	53.35
2001	78.08	88.23	66.52
2011	84.20	92.09	76.29

Source: Census of India, Satara District and Socio Economic Abstract of Satara District



**Figure 2**

The growth of literacy rate was slow till 1931 i.e. only 6.52 per cent population was literate to total population of the district. In 1951, one in every five persons i.e. 20.60 per cent was literate. The ratio narrowed to one in three in 1961, two out of five in 1971, nearly one in two in 1981 and nearly five in four persons were literate in 2011. The same situation is found the males and females literacy rate from the 1901 to 2011. Because to the opening of new schools and adult centers under five year plans in post independence period. The comparatively the total literate and male-females literacy rate of Satara district as the female literacy rate was low, but it was continuously more raised since 1961. This is largely attributed to women's lower status in our society, which has contributed to their lower literacy rate in the study area. Those societies which do not give equal status to males and females suffer from low literacy rates. Similarly, the societies where the females are not allowed mobility or which suffers from the prejudice against female education also display low female literacy and hence low general literacy. Discrimination and prejudice against female also affect adversely the literate rate in a region (Fig.2).

### **Trends of Female Literacy Rate:**

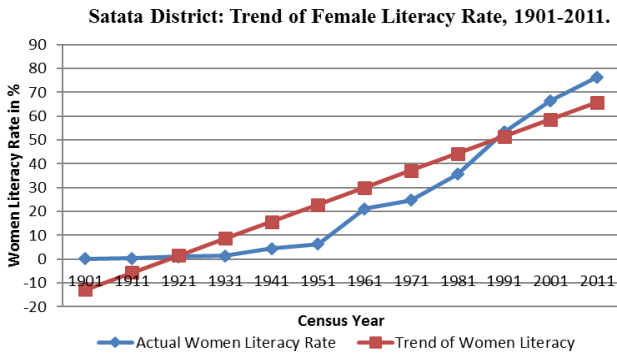
The literacy rate of females in Satara district was highly skewed. The fluctuating trend of literacy i.e. 0.27 per cent of females literate in 1901 to 76.29 per cent in 2011. The general trend of women literacy rate of Satara district is shown in the following table and graph.

**Table 2: Trends of Female Literacy in Satara District, 1901-2011**

Sr. No.	Year	Females	Trend Value
1	1901	0.27	-12.83
2	1911	0.39	-5.68
3	1921	0.99	1.47
4	1931	1.3	8.62
5	1941	4.53	15.78
6	1951	6.3	22.93
7	1961	21.16	30.08
8	1971	24.77	37.23
9	1981	35.67	44.38
10	1991	53.35	51.53
11	2001	66.52	58.69
12	2011	76.29	65.84

Source: Census of India, Satara District and Compiled by Researcher.

The females' literacy rate of Satara district is having continuously grown. The sudden rise of female literacy outcome condition of occurrence in the region, so the female literacy is increased. So many factors are responsible for the increasing female literacy one of them as increasing status of female in our society and availability educational institutes in remote area also nearest to the home and village and government policy of free of cost education is important reasons.



**Figure 3**

### **Spatial Pattern of Female Literacy Rate:**

According to census of 2001, the female literacy rate was 68.14 per cent; it is increased to 76.29 per cent in 2011 in study area, which is more than Maharashtra and India. The spatial distribution of female literacy is uneven throughout the district. During 2001, tehsil level female literacy rate was ranging from 57.5 per cent in Man tehsil to 76.8 per cent in Satara tehsil while in 2011 ranging lies between 84.23 per cent in Satara tehsil and 66.86 per cent in Patan tehsil. The tehsil wise literacy rate has been computed into three categories with the help of statistical techniques. For showing tehsil wise variation in female literacy in study area the table 3 and figure 4 has been prepared. Some of the striking features of this table and map are as below:

**Table 3: Spatial and Temporal Variations of Female Literacy in Satara District, 2001 and 2011 (All figures in percentage)**

Sr. No.	Tehsil Name	Female literacy rate, 2001	Female Literacy rate, 2011	Changes of Female Literacy to Actual Literate persons in 2001-2011
1	Mahabaleshwar	74.8	75.8	4.08
2	Wai	70.8	79.57	18.13
3	Khandala	70.6	79.05	27.55
4	Phaltan	65.8	74.74	23.43

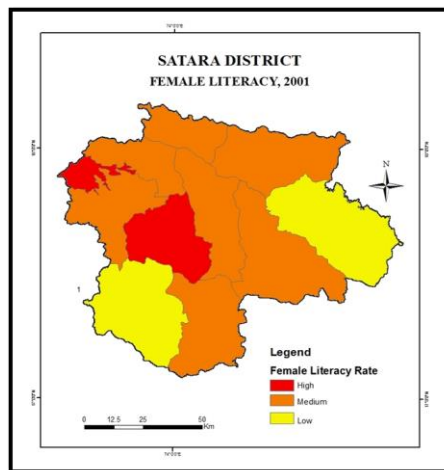


L. B. Tonape, B. M. Sule, A. J. Barakade- **Spatio-Temporal Analysis of Female Literacy Rate in Satara District (Ms)**

5	Man	57.5	64.06	24.46
6	Khatav	67.4	73.25	13.78
7	Koregaon	72.6	80.89	12.83
8	Satara	76.8	84.23	22.10
9	Jaoli	64.2	71.57	8.80
10	Patan	59.7	66.86	11.38
11	Karad	69.3	78.60	22.39
12	<b>Satara District</b>	<b>68.14</b>	<b>76.29</b>	<b>19.21</b>

Source: Computed by researcher and Socio-economic Abstract of Satara District, 2012.

During 2001, the tehsil wise female literacy is ranging between mean minus one standard deviation and mean plus one standard deviation. All eleven tehsils of district are divided into three categories as high literacy (Mean+1 standard deviation), Moderateliteracy (mean+1 standard deviation up to mean), and low literacy (below mean-1 standard deviation).

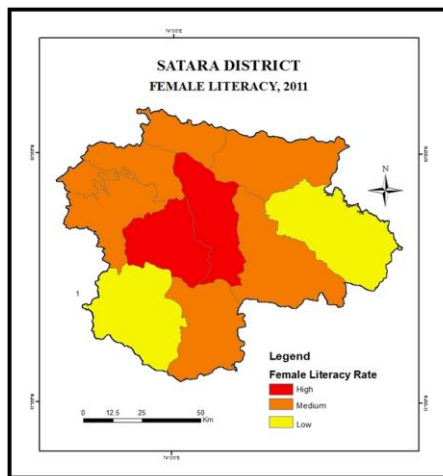


**Figure 4**

**Areas with High Female Literacy Rate:**

The tehsils which have literacy above mean plus one standard deviation are included in this category. The following figure exhibits those high females literacy rate was recorded in the tehsils of Satara and Mahabaleshwar tehsil in 2001 and Satara

and Koregaon tehsils during 2011. Because Satara is district headquarter of the district, there level of urbanization is high and number of educational institutes are high and as compare to other tehsil, development of secondary and tertiary activities are also high which lead to higher parental income, while Koregaon is a vicinity of Satara city and Mahabaleshwar is a famous tourism center in India so high availability of educational facilities and recently changed attitude of the female.



**Figure 5**

### **Areas with Moderate Female Literacy Rate:**

The tehsils which have literacy rate lies between mean plus minus one standard deviation and up to mean i.e. 64.3 to 72.6 per cent and 68.94 to 80.60 per cent are included in this category during the 2001 and 2011 respectively. The moderate literacy rate was recorded in the tahsils of Wai, Khandala, Phaltan, Khatva, Karad and Jaoli tehsils in 2001, while in 2011, the tehsils of Wai, Karad, Mahabaleshwar, Phaltan, Khandala, Khatav, Jaoli. Because Wai, Karad, Khandala lies in Krishna, Koyana, and Nira basin respectively, where agricultural practices are developed, while Wai and Khandala

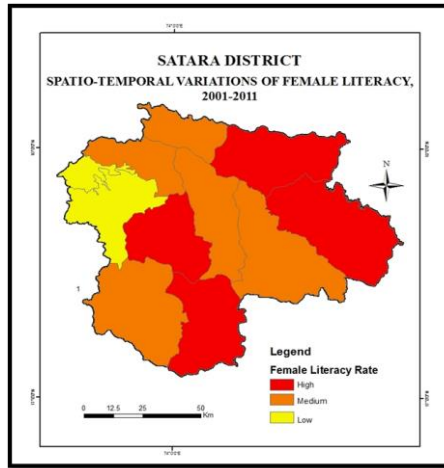
are tourist centers, which leads to high standard of living, good development of educational facilities, high degree of development means of transportation and communication.

### **Areas with Low Female Literacy Rate:**

The tehsils which have literacy rate below mean minus one standard deviation i.e.  $< 64.20$  per cent and  $< 68.94$  per cent are recorded in 2001 and 2011 respectively in this category. In this category includes the tehsils of Man and Patan in 2001 and same these two tehsils included in 2011 also. Man tehsil have low rainfall and comes under drought prone area, lower development of irrigation facility, its economy depending on nomadic herding which leads toward low standard of living and low parental income. Patan tehsil have hilly region and low degree of development means transportation and communication, less development of education facilities and social backwardness etc.

### **Spatio-Temporal Variations of Female Literacy Rate in 2001 and 2011:**

According to census of 2001 and 2011, the female literacy rate was 68.14 per cent in 2001; it was increased to 76.29 per cent in 2011. Overall the growth rate of female literacy rate was 19.21 per cent in this decade. The changes of spatial distribution of female literacy are uneven throughout the district. It varies lies between lowest in Mahabaleshwar as 4.08 per cent and highest in the tehsils of Khandala as 27.55 per cent. The growth rate of female literacy rate was divided into three categories i.e. high, medium and low. High growth of female literacy obtains in the tehsil of Khandala, Phaltan, Man, Karad and Satara. There are the growth rate of female literacy rate more than 20 per cent to the total female literate persons during the 2001 and 2011.



**Figure 6**

During this decade the medium growth of female literacy rate was found in the tehsils of Wai, Khataav, Koregaon and Patan. The tehsils level of growth rate female literacy was ranging from 10 to 20 per cent. The low growth of literacy rate it includes the tehsils of Mahabaleshwar and Jaoli. The growth of female literacy of this category observed that the less than 10 per cent.

### **Conclusion:**

The study reveals that the district as a whole has 76.29 per cent of female literacy rate during 2011, which is little more than Maharashtra state. Very high female literacy rate in the tehsils of Satara and Koregaon is mainly due to its location, high urbanization and higher parental income, highest density of primary schools. The Man and Patan are identified as tehsils of very low literacy rate mainly due to adverse climate and physiography that need attention for promotion of various education programs and poor type of economy. Above mentioned reasons are responsible for the growth rate of the female literacy rate in the district. Therefore, there is uneven distribution of growth rate in the district. In the district overall

the growth rate of female literacy rate was 19.21 per cent. It is also uneven through the district. It lies between the 4.08 per cent and 27.55 per cent in tehsils of Mahabaleshwar and Khandala respectively.

## **REFERENCES:**

- Agarwal S.N. (1973): India's Population Problem. Tata McGraw Hill Publishing New Delhi.
- Barakade A. J. (2012): Declining Sex Ratio: An Analysis with Special Reference to Maharashtra State. Geoscience Research. Vol. III, Issue. I, pp. 92-95.
- Barakade A. J. and Todkari G. U. (2011): A Study of Urbanization in Satara District of Maharashtra. Geoscience Research. Vol. II, Issue. I, pp- 38-44.
- Barakade A. J. (2011): Changing Pattern of Population Density in Satara District of Maharashtra. Review of Research. Vol. I, Issue. I, pp- 1-4.
- Barakade A. J. (2012): Growth of Population in Satara District of Maharashtra. World Research Journal of Geoinformatics. Vol. I, Issue. II, pp- 17-20.
- Bhende A.A. and Kanitkar T. (2010): Principles of Population Studies. Himalaya Publishing House, Mumbai, pp. 579.
- Census of India (2001): Final Population Totals, Series, 1: India Registrar General and Census Commissioner; India.
- Gill Mehar Sing (1992): Literacy in Punjab. The Geographer, Vol. XXXIX No.1, pp. 41-53.
- Golden Hilda H. (1981): Literacy and Social Changes in under Developed Countries, Mc. Graw Hill Book Company, New York.
- Gosal G. S. (1979): Spatial Perspective of Literacy in India. Population Geography, Vol. 1, pp. 41.
- [http:// www. censusindia.gov.in](http://www.censusindia.gov.in)

- Kumar R., Kumar S. and Anurag (2007): Regional Dimensions of Disparities in slum Literacy in India, *Research and Practice in Social Science*, Vol. 2, pp. 103-123.
- Mukul Chand Patra (2010): The Pattern of Literacy - A Case Study of Kolkata. *Indian Journal of Regional Science*, Vol. XXXXII, No. 1, pp. 79-85.
- Sule B. M. and Barakade A. J. (2011): Growth of Population Change in Maharashtra (India). *Geoscience Research*. Vol. 2, Issue. 2, pp. 70-75.
- Sule B. M. and Barakade A. J. (2012): Literacy in Maharashtra (India). *Geoscience Research*, Vol. 3, Issue. I, pp. 88-91.
- Sule B. M. and Barakade A. J. (2012): Correlation between Literacy and Sex Ratio In Solapur District of Maharashtra: A Geographical Analysis. *Journal of Social Growth*, Vol. I, Issues IV, pp. 37-44.