

# Gender Disparities in Literacy: A Geographic study of Ahilyanagar District, Maharashtra, India

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**Abstract:** *This study offers geographic insights into the male-female literacy dynamics in Ahilyanagar District (formerly Ahmednagar), Maharashtra, emphasizing spatial variations, disparities, and underlying factors shaping gender differences in literacy across rural and urban landscapes. Using secondary data from the Census of India (2001 to 2011) supplemented by recent estimates, GIS mapping, and socio-economic indicators, the research examines patterns of literacy rates, gender gaps, and their relationship with geographical variables such as proximity to urban centers, accessibility, terrain, and economic activities. The findings reveal notable improvements in overall literacy, with persistent but narrowing male-female disparities. Higher literacy pockets are concentrated in and around major urban nodes like Ahmednagar city and emerging tourism-influenced areas such as Shirdi, while remote rural talukas exhibit lower rates and wider gender gaps influenced by agrarian economies, limited infrastructure, and socio-cultural factors. The analysis highlights how physical accessibility, irrigation development, and non-farm employment opportunities play pivotal roles in reducing gender inequalities in educational attainment. By integrating a spatial perspective, this paper contributes to a deeper understanding of the interplay between geography, gender, and human development in a predominantly rural district undergoing economic transitions. The study concludes with policy recommendations for targeted interventions in low-literacy zones to achieve inclusive and spatially equitable educational outcomes in Ahilyanagar District. It presents literacy rates as percentages and includes a chronological analysis of male and female literacy. The data reveals an increase in literacy rates in Ahilyanagar district between 1961 and 2011. Within the district, Jamkhed Taluka records the lowest literacy rate, followed by Shevgaon and Pathardi Talukas, while Nagar Taluka shows the highest literacy rate. The two primary objectives of this study were to analyze the chronological trends in literacy in Ahilyanagar district and to examine the disparity between male and female literacy.*

**Keywords:** Male, Female, Human Resources, Level., Literacy disparity, Gender gap,

## I. INTRODUCTION

Literacy is a fundamental indicator of socio-economic development and a key driver for human empowerment. It plays a vital role in improving health, economic opportunities, and social participation. However, despite significant progress in global literacy rates, gender disparities in literacy persist as a major challenge, particularly in developing countries. These disparities not only reflect unequal access to education but also perpetuate cycles of poverty, inequality, and limited social mobility. In India, the issue of gender disparity in literacy has historical roots. Although the country has witnessed a steady rise in overall literacy rates since independence, the gap between male and female literacy continues to be a matter of concern. As per the 2011 Census, the national male literacy rate stood at 82.14 percent while the female literacy rate was 65.46 percent, indicating a notable gender gap. Maharashtra, one of the most developed states in India, also exhibits regional variations in literacy patterns despite its relatively higher overall literacy levels. Ahilyanagar District (formerly Ahmednagar), located in the central part of Maharashtra, presents an important case for geographic analysis of gender disparities in literacy. The district, with its diverse physiographic features ranging from the Western Ghats to the Deccan Plateau, displays significant spatial variation in literacy rates across its tehsils. While some tehsils show

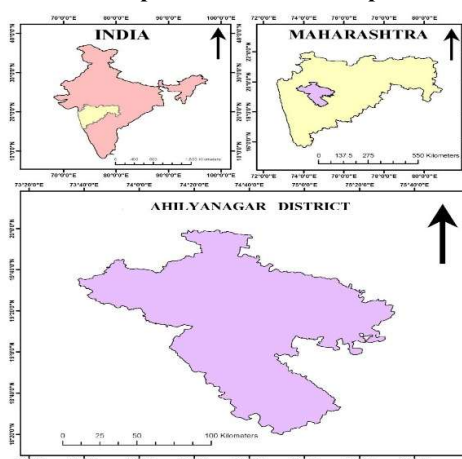
progressive literacy levels with reduced gender gaps, others continue to lag behind, particularly in female literacy. Population is one of the fundamental factors upon which a nation's resources and economic development depend. Aspects such as the geographical distribution of the population, as well as its growth and decline, are closely linked to demographic characteristics and the level of resource development. There is a close relationship between human resources, population growth, and socio-economic development <sup>(1,8)</sup>. Given the immense importance of economic development, it is essential to study the interrelationship between population growth and economic progress. 'Development' is defined by the optimal utilization of a country's resources, an increase in income, and an improvement in the standard of living. If a country lacks sufficient manpower to utilize its available resources, population growth acts as a driving force for economic development. Consequently, it is necessary to study population characteristics; these primarily include distribution, growth, density, and literacy. Among these, literacy is considered a crucial factor and a key criterion for evaluating human resources <sup>(3, 10)</sup>.

Therefore, this study represents a further step in analyzing literacy among the farming community. It presents a chronological analysis of literacy trends spanning the period from 1961 to 2011. Literacy is a fundamental component of a region's or country's economic and social development. Alongside the socio-economic disparities present in Ahilyanagar district, inequalities regarding literacy are also evident. This topic was selected precisely because studying this social factor is of great importance. This geographic study examines the patterns, magnitude, and underlying factors of gender disparities in literacy across the tehsils of Ahilyanagar District based on 2011 Census data. By analysing spatial variations and associated socio-economic, cultural, and infrastructural determinants, the study aims to highlight the regional imbalances and provide insights for targeted policy interventions. Understanding these disparities is essential for achieving inclusive and equitable educational development in the district.

## II. STUDY AREA:

The present study Ahilyanagar district has been selected as a study area. It extends between 18° 20' and 19° 59' north latitudes and 73° 40' to 75° 43' east longitudes (Map.1) located in part in the upper Godavari basin. The district is very dense in shape and length of 200 km. a width of 210 km. This study region is divided into there are three physical divisions namely, first Sahyadri moutons ranges i.e. Kalsubai, Adula, Baleshwar and Harishchandragad, second Plateau third plains area. The Godavari, Bhima River is the main rivers in this district with the major tributaries are Paravara, Mula, Sina, Dhora, Kukdiect. According to 2011 census average literacy rate in Ahilyanagar district is 77.91 percentage, the male literacy rate is 86.07 percentage and the female literacy rate is 69.35 percentage.

**Map no 01: Location map**



### III. AIM AND OBJECTIVES

The aim of the present study is to analyse the nature and extent of gender disparities in literacy across the tehsils of Ahilyanagar District, Maharashtra, with a geographical perspective.

1. To examine the tehsil-wise spatial variation in total, male, and female literacy rates in Ahilyanagar District as per the 2011 Census.
2. To measure the magnitude of gender disparity in literacy between male and female populations across different tehsils of the district.

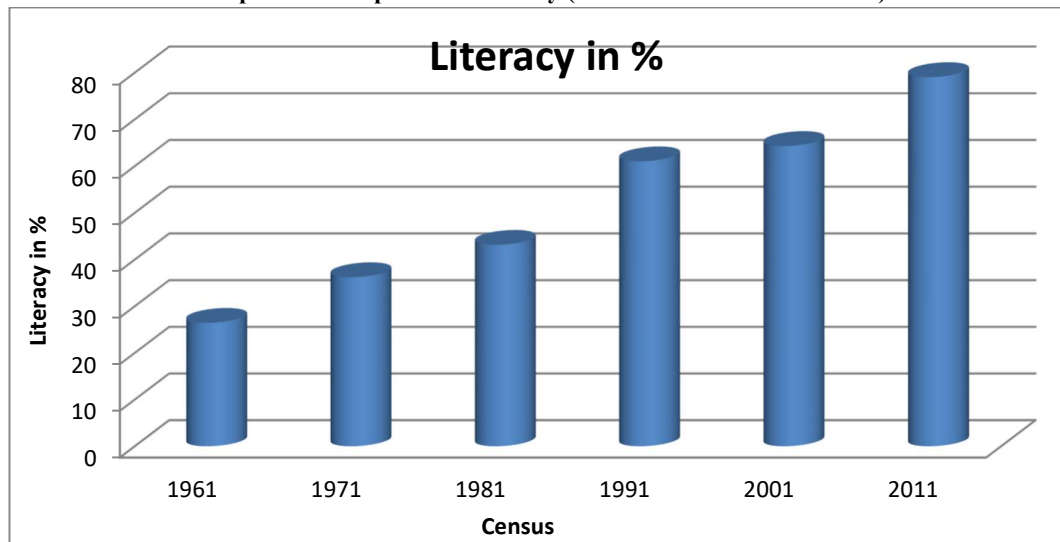
### IV. RESEARCH METHODOLOGY

1. **Study Area** The study area comprises Ahilyanagar District (formerly Ahmednagar) of Maharashtra State, India. It lies between 18° 19' N to 19° 59' N latitude and 73° 37' E to 75° 32' E longitude. The district consists of 14 tehsils and covers a geographical area of approximately 17,412 sq. km.
2. **Data Source** The entire study is based on secondary data. The main source of data is the **Census of India, 2011** (District Census Handbook Ahmednagar). Tehsil-wise data on total population, male population, female population, and literacy rates were collected from official census publications.
3. **Research Design** The present study follows a descriptive and analytical research design with a geographical perspective. It involves mapping, statistical analysis, and interpretation of spatial patterns of literacy

### V. RESULT AND DISCUSSION

Literacy is considered one of the most important factors determining the quality of human resources. Human resources are categorized into quantitative and qualitative components; literacy falls under the qualitative category because it represents the development of skills, knowledge, and reading-writing abilities in individuals. The socio-economic status of women depends on literacy [5, 8]. Graph No. 1 illustrates the overall population literacy rate, as well as the literacy rates for men and women, expressed in percentages. The graph clearly shows a consistent rise in literacy rates across successive censuses. This indicates a continuous expansion of educational facilities in the study area, which is contributing to the improvement of the population's quality. Additionally, Graph No. 5 depicts the disparity in literacy rates between men and women, revealing that female literacy is lower than male literacy. However, it is observed that the female literacy rate recorded in the 2001 census was lower than that of the previous census (1991). Nevertheless, adverse economic or social conditions faced by the people constitute a significant reason for the lower literacy rate among women compared to men. The data also indicates that literacy rates are higher in urban areas than in rural areas. Yet, the rising literacy rate in rural areas signifies an expansion of educational facilities there. The high literacy rate in urban areas is attributed to the availability of educational facilities and the mindset of the people.

**Graph no 01: Population Literacy (1961 to 2011 Census Periods)**



**Table Number 1: Literacy Rate in Ahilyanagar District (Census year 2011)**

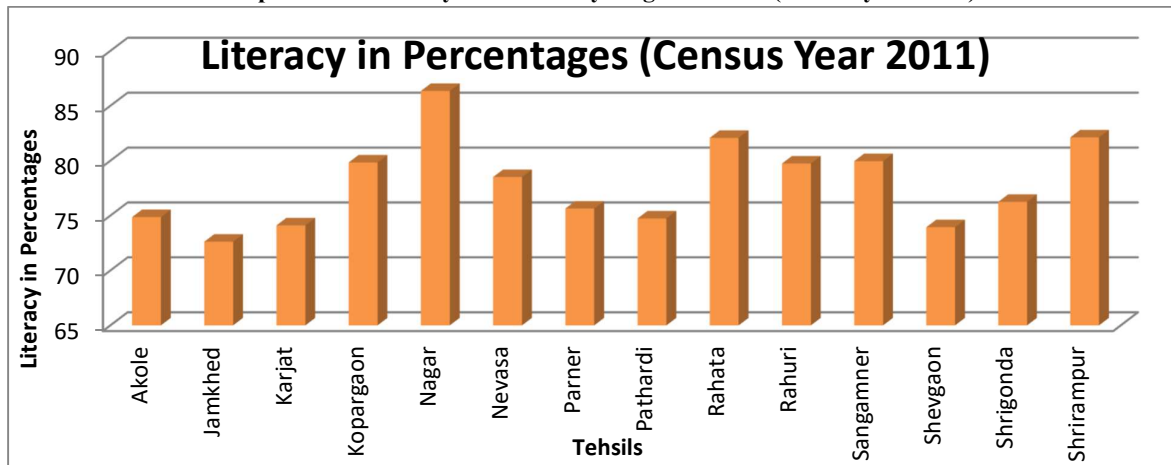
| Sr. No.          | Name of the tehsils | Literacy in Percentages (Census year 2011) |       |        |
|------------------|---------------------|--------------------------------------------|-------|--------|
|                  |                     | Total                                      | Male  | Female |
| 1                | Akole               | 74.86                                      | 84.09 | 65.5   |
| 2                | Sangamner           | 79.96                                      | 87.58 | 71.98  |
| 3                | Kopargaon           | 79.84                                      | 87.58 | 71.68  |
| 4                | Rahata              | 82.08                                      | 88.72 | 75.13  |
| 5                | Shrirampur          | 82.12                                      | 89.27 | 74.8   |
| 6                | Nevasa              | 78.51                                      | 86.53 | 70.05  |
| 7                | Shevgaon            | 73.94                                      | 84.15 | 63.42  |
| 8                | Pathardi            | 74.74                                      | 84.98 | 63.85  |
| 9                | Nagar               | 86.35                                      | 91.47 | 80.9   |
| 10               | Rahuri              | 79.74                                      | 87.42 | 71.65  |
| 11               | Parner              | 75.64                                      | 84.23 | 66.78  |
| 12               | Shrigonda           | 76.25                                      | 84.09 | 67.88  |
| 13               | Karjat              | 74.11                                      | 82.57 | 64.98  |
| 14               | Jamkhed             | 72.62                                      | 82.31 | 62.26  |
| District Average |                     | 77.91                                      | 86.07 | 69.35  |

*Source: District Census Handbook of Ahmadnagar District 2011.*

Table No. 01 presents the literacy rates in Ahilyanagar district based on the 2011 Census. It provides detailed data on male and female literacy, as well as the overall literacy rate, for each taluka. According to the 2011 Census, the overall literacy rate of Ahilyanagar district is 77.91%, with male literacy at 86.07% and female literacy at 69.35%. Graph No. 02 and Table No. 01 indicate that the lowest literacy rates in the district are found in the Akole, Karjat, Parner, Pathardi,

and Shevgaon talukas, in these talukas, less than 75% of the total population is literate. The primary reasons identified for these low literacy rates are as follows: a lack of socio-economic development in these talukas, limited agricultural development due to their status as drought-prone areas; and rising unemployment resulting from the lack of socio-economic progress. Akole is the only tribal taluka in Ahilyanagar district; its tribal status has hindered the economic and social development of the agricultural sector within the taluka. Consequently, literacy rates here are low, and there appears to be limited participation in or inclination towards education.

**Graph no 02: Literacy Rate in Ahilyanagar District (Census year 2011)**



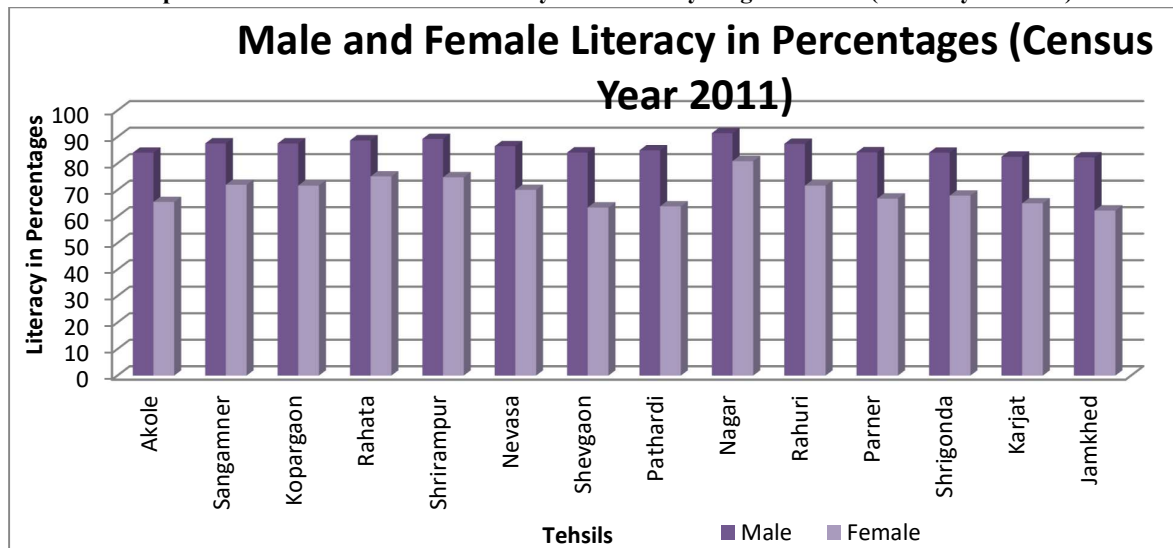
**Table Number 2: Ranking of Tehsils by Total Literacy**

| Literacy in Percentages (Census year 2011) |            |                |       |        |            |
|--------------------------------------------|------------|----------------|-------|--------|------------|
| Rank                                       | Tehsil     | Total Literacy | Male  | Female | Gender Gap |
| 1                                          | Nagar      | 86.35          | 91.47 | 80.90  | 10.57      |
| 2                                          | Rahata     | 82.08          | 88.72 | 75.13  | 13.59      |
| 3                                          | Shrirampur | 82.12          | 89.27 | 74.80  | 14.47      |
| 4                                          | Sangamner  | 79.96          | 87.58 | 71.98  | 15.60      |
| 5                                          | Kopargaon  | 79.84          | 87.58 | 71.68  | 15.90      |
| 6                                          | Rahuri     | 79.74          | 87.42 | 71.65  | 15.77      |
| 7                                          | Nevasa     | 78.51          | 86.53 | 70.05  | 16.48      |
| 8                                          | Shrigonda  | 76.25          | 84.09 | 67.88  | 16.21      |
| 9                                          | Parner     | 75.64          | 84.23 | 66.78  | 17.45      |
| 10                                         | Pathardi   | 74.74          | 84.98 | 63.85  | 21.13      |
| 11                                         | Akole      | 74.86          | 84.09 | 65.50  | 18.59      |
| 12                                         | Karjat     | 74.11          | 82.57 | 64.98  | 17.59      |
| 13                                         | Shevgaon   | 73.94          | 84.15 | 63.42  | 20.73      |
| 14                                         | Jamkhed    | 72.62          | 82.31 | 62.26  | 20.05      |

Graph No. 3 presents a comparative analysis of male and female literacy rates in Ahilyanagar district. It reveals that in every taluka, the female literacy rate is significantly lower than the male literacy rate. Female literacy is particularly low in the Jamkhed, Pathardi, Shevgaon, Akole, Parner, and Shrigonda talukas, in these areas, the female literacy rate falls below the district average. Just as these talukas lag behind in overall literacy, a similar trend is observed regarding female

literacy. Key factors contributing to this situation include a lack of education among the local population, socio-economic disparities, unemployment, water scarcity, and underdeveloped agriculture. In contrast, the Nagar taluka records the highest female literacy rate. It is followed by the Sangamner, Kopargaon, Rahata-Shrirampur, Nevasa, and Rahuri talukas, all these talukas exhibit female literacy rates above the district average. Several significant factors account for the high literacy rate in Nagar taluka as the administrative headquarters of the district, it offers extensive educational facilities. Furthermore, other talukas also possess educational infrastructure and have experienced agricultural development. A crucial factor here is the availability of irrigation facilities, which has improved the socio-economic status of these regions. These favorable conditions and the ready availability of educational facilities have encouraged the local population to pursue education.

**Graph no 03: Male and Female Literacy Rate in Ahilyanagar District (Census year 2011)**

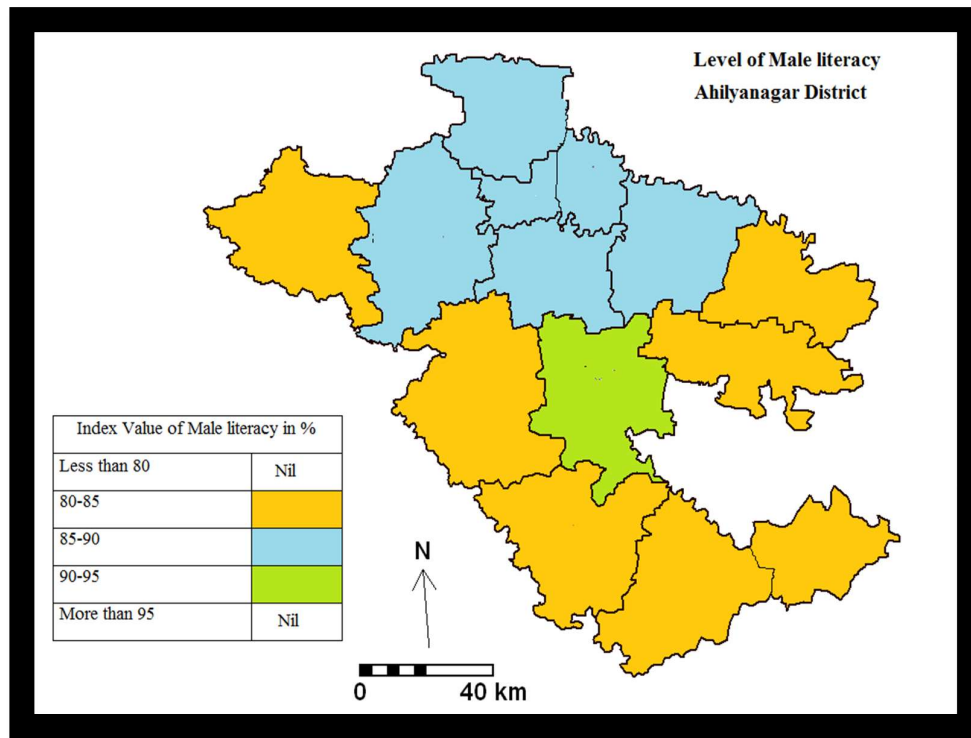


Maps 02 and 03 illustrate the spatial distribution of male and female literacy in Ahilyanagar district. These maps are based on Tables 02 and 03. Five categories have been established to determine the levels of male and female literacy in the district. The literacy levels are defined as follows: less than 80% 'poor' level, 80% to 85% 'moderate' level; 85% to 90% 'progressive' level; 90% to 95% 'high' level; and above 95% 'very high' level. Male literacy levels vary across Ahilyanagar district. Seven talukas fall into the 80% to 85% (moderate level) category: Akole, Shrigonda, Shevgaon, Jamkhed, Parner, Karjat, and Pathardi. Six talukas fall into the 85% to 90% (progressive level) category, Sangamner, Kopargaon, Rahata, Shirampur, Nevasa, and Rahuri; whereas only Nagar taluka falls into the 90% to 95% (high level) category. The reasons for the low literacy rates in these talukas are similar to those mentioned earlier. Map 03 depicts the distribution of female literacy rates. It is evident from this that female literacy in Ahilyanagar district is quite low. Thirteen talukas fall into the 'poor' level category (less than 80%), Akole, Shrigonda, Shevgaon, Jamkhed, Parner, Karjat, Pathardi, Sangamner, Kopargaon, Rahata, Shirampur, Nevasa, and Rahuri. Additionally, Nagar taluka falls into the 'moderate' level category. The reasons behind the low literacy rates in these talukas are the same as those mentioned above.

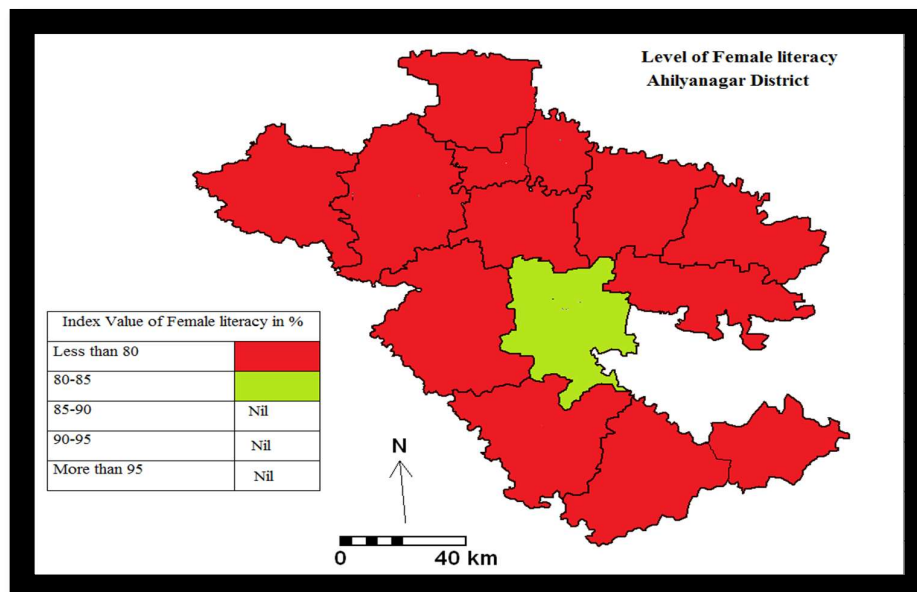
Nagar Tehsil is the clear leader with 86.35% total literacy. It has the highest female literacy (80.90%) and the smallest gender gap (only 10.57 points). Being the district headquarters, it likely benefits from better urban infrastructure, educational institutions, and access to schools or colleges. Low level literacy rate in Jamkhed has the lowest literacy rate (72.62%), with particularly low female literacy (62.26%). Shevgaon and Pathardi also show weak performance, especially among females. Above District Average (77.91%), Nagar, Rahata, Shirampur, Sangamner, Kopargaon, Rahuri (6 tehsils) Below District Average, Nevasa, Shrigonda, Parner, Pathardi, Akole, Karjat, Shevgaon, Jamkhed (8 tehsils).



Map no 02: Spatial Variation of Male Literacy (2011)



Map no 03: Spatial Variation of Female Literacy (2011)



**1. Reasons for Highest Literacy in Nagar Tehsil (86.35%)**

- District headquarters with maximum urban population
- High degree of urbanization and industrialization
- Better access to educational institutions (schools, colleges)
- Superior infrastructure and transportation facilities
- Higher socio-economic development and awareness

**2. Reasons for Strong Performance in Rahata, Shrirampur & Nearby Tehsils**

- Good irrigation facilities supporting commercial agriculture
- Agricultural prosperity leading to economic stability
- Better development of educational facilities
- Proximity to urban centres and transport routes
- Industrial and cooperative movement influence

**3. Reasons for Lowest Literacy in Jamkhed Tehsil (72.62%)**

- Lack of sufficient educational facilities
- Remote and drought-prone geographical location
- Predominantly rural and agrarian economy with low productivity
- Hilly or plateau terrain affecting access to schools
- Chronic water scarcity and economic backwardness

**4. Reasons for Low Literacy in Other Tehsils (Shevgaon, Pathardi, Akole, Karjat etc.)**

- Lower development of educational infrastructure
- High proportion of rural population
- Hilly or remote topography (especially Akole)
- Limited irrigation and agricultural productivity
- Socio-economic constraints and lower awareness

**5. Reasons for Persistent Gender Gap (16.72% District Average)**

- Traditional social attitudes prioritizing male education
- Early marriage practices affecting girls' education
- Higher female participation in household and agricultural work
- Limited mobility and safety concerns for girls in rural areas
- Lower number of female teachers and girls' schools in backward tehsils

**6. General Factors Influencing Overall Pattern**

- Urban vs Rural divide: Urban areas (Nagar) show higher rates
- Economic development: Prosperous irrigated tehsils perform better
- Infrastructure availability: Direct correlation with schools and roads
- Geographical constraints: Drought-prone and hilly areas lag behind
- Government & social awareness programs: Gradual improvement but uneven

**7. Theoretical Implications**

- Literacy strongly linked with urbanization and economic opportunities
- Female literacy more sensitive to social and cultural factors
- Regional disparities reflect uneven development within the district



- Backward tehsils need targeted interventions in education access

## VI. CONCLUSION

Literacy levels are classified in five types as follows, below 80% low level; 80% to 85% medium level, 85% to 90% advanced level 90% to 95% high level; and above 95% very high level. Female literacy rates in Ahilyanagar district are quite low. The group with less than 80% literacy (low level) comprises 13 talukas: Akole, Shrigonda, Shevgaon, Jamkhed, Parner, Karjat, Pathardi, Sangamner, Kopargaon, Rahata, Shrirampur, Nevasa, and Rahuri. Additionally, Nagar taluka falls into the medium level category. Male literacy levels in Ahilyanagardistrict are not uniform. Seven talukas Akole, Shrigonda, Shevgaon, Jamkhed, Parner, Karjat, and Pathardi fall into the 80% to 85% group (medium level). Six talukas Sangamner, Kopargaon, Rahata, Shrirampur, Nevasa, and Rahuri fall into the 85% to 90% group (advanced level), while Nagar taluka falls into the 90% to 95% group (high level). The primary reason for this situation is the impact of various factors on literacy among the local population, such as a lack of education, socio-economic disparities, unemployment rates, water scarcity, and inadequate development in the agricultural sector.

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