

punjab geographer



A DOUBLE BLIND PEER REVIEWED JOURNAL OF APG AND KSS-ISPER INDIA

VOLUME 20

ISSN: 0973-3485

OCTOBER 2024



SPATIO-TEMPORAL ANALYSIS OF GENDER DISPARITY IN LITERACY OVER SUB-TEHSIL ANI, DISTRICT KULLU, HIMACHAL PRADESH

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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 1991 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) in literacy has declined from 0.41 in 1991 to 0.16 in 2011. This shows that there still exists a disparity which needs to be reduced.

Keywords: Literacy, Gender Disparity Index, Sub-tehsil Ani, 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 behavior towards building a more sustainable society. It equips people to participate in decision-making that adequately and successfully 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).

The discrepancy in literacy rates between males and females serves as a sensitive indicator of gender bias. In Indian society, women have traditionally been confined to the role of homemakers. They have been typically kept away from education and seen solely as caregivers for the family. Despite the constitution granting equal rights to both genders, males still dominate females in various aspects of society (Pathak and Gupta, 2013). In this context, empowering women is crucial. It is important to note that the level of disparity varies across the country. There is no state in India which has a better female literacy

rate than that of males. Female literacy is important as it is a force multiplier for the social development of a country. There is an inverse relationship between literacy and gender disparity. Gender disparity in rural areas is more than in urban areas. Consequently, there is an urgent need to focus on female literacy particularly in rural areas to address the issue of gender disparity (Katiyar, 2016). Female literacy is an important social attribute that contributes significantly towards socio-cultural and economic progress of any society (Singh et al., 2017). It is important to study the gender gap in literacy to get a clear understanding of literacy landscape in the country and to identify the key challenges for male-female differentials in rate of literacy (Chandra, 2019). Disparity in literacy does exist, but it is not only on account of the existing social system but also because of the economic status of the families (Suba, 2021).

Despite numerous geographical studies focusing on population dynamics, rate of literacy and gender gap in literacy at the state level and district level in India as well as in Himachal Pradesh, a comprehensive examination at the village level remains missing. In the light of this, an attempt has been made in this study to analyse literacy rate and gender disparity in literacy at village level in Sub-tehsil Ani, district Kullu of Himachal Pradesh.

Objectives of the Study

Major Objectives of the Study are:

- to study the block-wise variations in literacy rate and gender disparity in literacy in district Kullu from 1991-2011 and
- to analyze the spatio-temporal pattern of literacy rate and variation in gender disparity in sub-tehsil Ani from 1991-

2011, district Kullu, Himachal Pradesh.

Study Area

The Sub-tehsil Ani is situated in the southernmost region of Kullu district. Geographically, it is positioned between 31°20' 0" to 31°36' 0" North latitudes and 77°8' 0" to 77°40' 0" East longitudes, covering an area of 300 km² (Fig. 1). The Sub-tehsil Ani comprises a total of 17 villages, with a population of 56,917 persons according to the Census 2011. These villages are Beongal, Bishla Dhar, Buchair, Dingi Dhar, Franali, Jaban, Karad, Karana, Karshaigad, Khani, Kohila, Kungash, Lajheri, Manjha Desh, Palehi, Shilhi, and Soidhar. Sub-tehsil Ani, faces unique socio-economic challenges. Despite its picturesque location, the region grapples with limited access to education, with a literacy rate of approximately 78.41 per cent (2011), significantly lower than the state average. Agriculture remains the primary source of livelihood, with 65 per cent of the population engaged in farming activities. Unemployment rates are high, with a significant proportion of the population migrating to urban areas in search of work, leading to a brain drain and strain on family structures. The region's rugged terrain and limited connectivity exacerbate these issues, as only 45 per cent of villages have been connected by roads. Healthcare facilities are scarce, with only a few health centers serving the entire population, resulting in poor health outcomes and high infant mortality rates. Infrastructure development is a significant concern, with inadequate access to safe drinking water, sanitation, and electricity. The region's economy is primarily driven by agriculture, horticulture and tourism, yet the lack of infrastructure and basic amenities hinders sustainable development. Social

inequality and exclusion are prevalent, with marginalized communities facing significant barriers to education, employment, and healthcare.

Database and Methodology

The present study is based on secondary data taken from the Directorate of Census Operations, Shimla, for the decades of 1991, 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 ArcGIS, 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:

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

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.

Results and Discussion

Block-wise Literacy Rate in Kullu District (1991-2011)

The trend of literacy rates in Himachal Pradesh and district Kullu have demonstrated a consistent rise over the previous three decades. Likewise, all the blocks of the district, namely; Naggar, Kullu, Banjar, Ani, and Nermand, have also registered a significant upward trajectory in literacy rates between 1991 and 2011. However, the average literacy rate of Himachal Pradesh remained high as compared

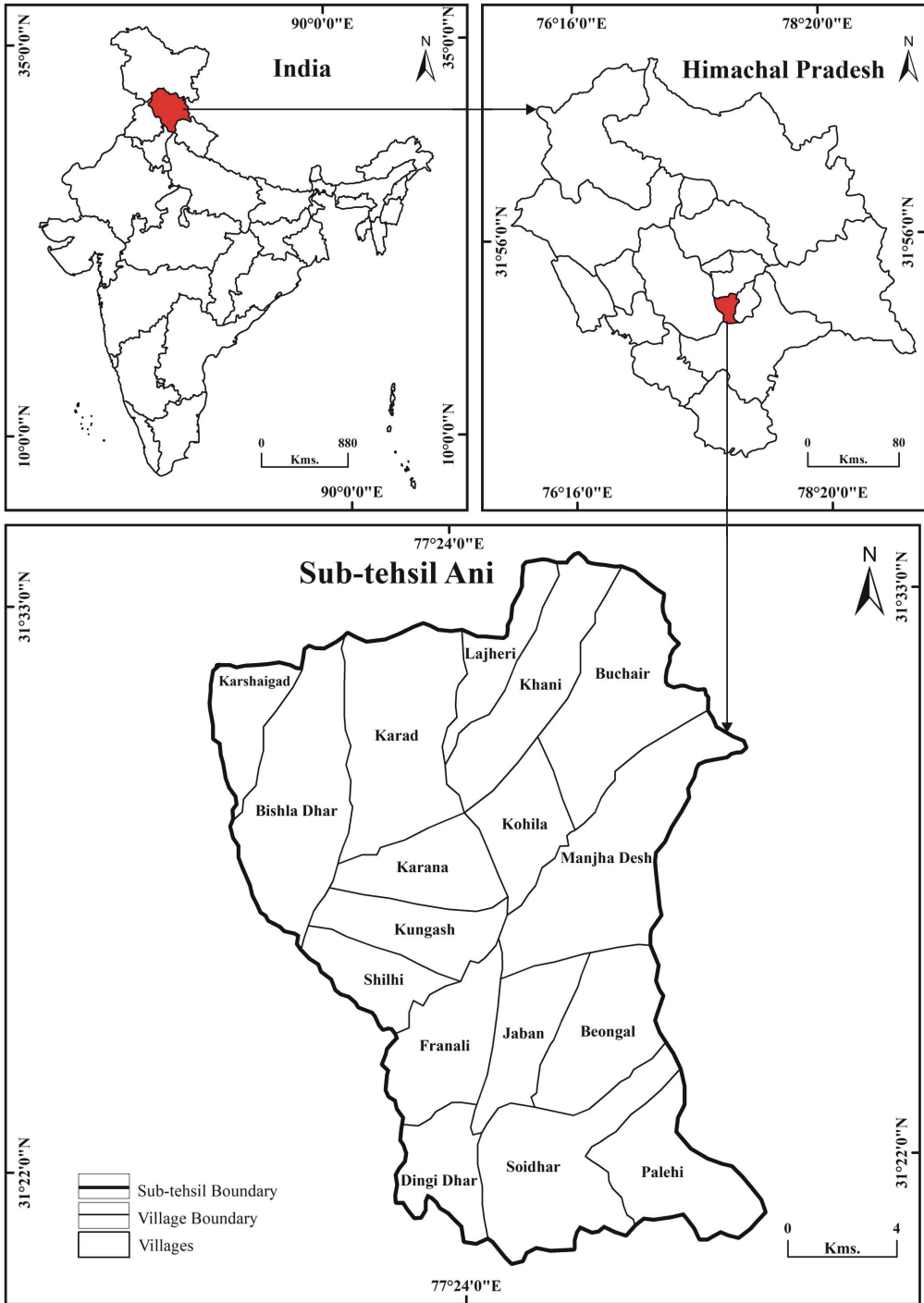


Fig. 1

Table 1

Kullu District: Block-wise Literacy Rate and Gender Disparity in Literacy, (1991-2011)

C.D Block	Percentage of Literates			Gender Disparity Index		
	1991	2001	2011	1991	2001	2011
Nagar	55.71	73.5	79.14	0.31	0.21	0.15
Kullu	53.37	72.4	78.22	0.39	0.24	0.16
Banjar	50.67	70.5	79.69	0.41	0.24	0.16
Ani	49.55	70.16	78.41	0.41	0.24	0.16
Nermand	49.34	69.1	76.49	0.38	0.23	0.17
Kullu District	54.82	72.9	79.40	0.35	0.13	0.15
Himachal Pradesh	63.9	77.1	82.80	0.21	0.17	0.12

Source: Compiled by Authors.

with all the blocks between 1991 and 2011 (Table 1). The study reveals that, in 1991 and 2001, the Naggar block maintained the highest literacy rate. However, in 2011, the Banjar block had marginally surpassed Naggar and emerged as the block with the highest literacy rate in the district. On the other hand, the Nermand block although recorded the lowest literacy rate across all three decades, yet displayed a consistent upward trend in literacy rates (Table 1). The overall literacy trends in these blocks have shown a significant improvement over the last thirty years. This consistent upward trend in the rate of literacy indicates that continuous efforts to enhance educational opportunities and infrastructure in the area have resulted in positive outcomes.

Block-wise Gender Disparity in Literacy in Kullu District (1991-2011)

Literacy and educational attainment are powerful indicators of social and economic development among the backward groups especially for women in India. The gap between male and female literacy is a sensitive indicator of social discrimination. The gender disparity in literacy rates, has significantly decreased in Himachal Pradesh and Kullu

district between 1991 and 2011. In 1991, the highest gender disparity has been noted in Banjar and Ani blocks, both displaying a Gender Disparity Index (GDI) of 0.41 (Table 1). Subsequently, in 2001, the highest gender disparity has been witnessed in three blocks of Kullu, Banjar, and Ani, all recording an identical GDI of 0.24. Furthermore, these blocks maintained their position on the list of high gender disparity in 2011 also, but with a reduced GDI of 0.16. Notably, Naggar block consistently displayed lowest gender disparity throughout all decades. In general, the trends in gender disparity have significantly decreased from 1991 to 2011 in all blocks, portraying a positive outlook for the district of Kullu.

The analysis of literacy rates and gender disparity in literacy at the district or block level provide a broader picture of these two important indices in the district. However, it fails to provide a precise depiction of the varying degrees of gender inequality and literacy rates at a more detailed micro level within the district. At times, the analysis at block level may present an erroneous scenario as certain values are overemphasized, which may not align with those observed at the village level. Therefore, analysing literacy data at the village

level is crucial for pinpointing specific regions with high or low literacy rates and gender gaps in it. Therefore, comprehending the trends of literacy and gender disparity in literacy at the village level is essential.

Literacy Rate at Village Level

Villages with High Literacy Rate

It has been found that no village fell under this category of literacy rate in 1991. The number of such villages with a high level of literacy increased to five (Soidhar, Jaban, Franali, Shilhi, and Kungash) in 2001 (Table 2). Likewise, the study indicates that by 2011, the number of such villages with high rate of literacy increased to 13 comprising more than three-fourth of the total inhabited villages. These villages are Palehi, Soidhar, Dingi Dhar, Beongal, Jaban, Franali, Manjha Desh, Shilhi, Kungash, Karana, Karad, Buchair, and Khani (Fig. 2).

The presence of educational institutions, improved road connectivity and communication, involvement of individuals in business and government services, and reduced biases against women's mobility and education have been the major factors contributing to high literacy rate in these villages. Various governmental programs like the Mid-Day Meal (2004), Sarva Shiksha Abhiyan (2001), and Kasturba Gandhi Balika Vidyalayas (2004) have also played a significant role in promoting high literacy levels in these villages. Additionally, government efforts, establishment of new elementary schools, enhancement in the status of women, all collectively altered the literacy landscape in these villages.

Villages with Moderate Literacy Rate

Only two villages of Franali and

Soidhar have recorded moderate level of rate of literacy in the year 1991. The number of such villages increased to 12 (Karshaigad, Bishla Dhar, Karad, Lajheri, Khani, Karana, Kohila, Buchair, Manjha Desh, Beongal, Palehi and Dingi Dhar) in 2001, which is six times more than their number in 1991 (Fig. 2). However, the number of such villages has dwindled to four, constituting almost one-fourth of the total villages in the year 2011. These villages have been identified as Karshaigad, Bishla Dhar, Lajheri, and Kohila (Table 2). The relatively limited accessibility to educational institutions, agrarian economy, societal biases against female education, inadequate road and transportation services, are the factors contributing to the moderate level of literacy in these villages.

Villages with Low Literacy Rate

A total of 15 villages, namely Karshaigad, Bishla Dhar, Karad, Lajheri, Khani, Buchair, Kohila, Karana, Kungash, Shilhi, Manjha Desh, Beongal, Jaban, Palehi, and Dingi Dhar, have witnessed low level of literacy rate in 1991. These villages are predominantly situated in the north-western part of the Sub-tehsil Ani (Fig. 2). Various factors such as the lack of educational institutions, economic underdevelopment, prevailing poverty, and inadequate transportation infrastructure have played a role in contributing to the low levels of literacy in these villages during that period. In the year 2001, no village fell in this category of areas. This trend continued in 2011, with no village recording low literacy rates. This development signifies a positive and progressive shift in literacy levels compared to the year 1991. Such findings suggest an encouraging improvement in the overall literacy rates within the region during

Table 2
Sub-tehsil Ani: Decade-wise Villages Falling under Various Levels of Literacy Rate

Levels	Village	No	Per cent
1991			
High	Nil	0	0.00
Moderate	Franali and Soidhar	2	11.77
Low	Karshaigad, Bishla Dhar, Karad, Lajheri, Khani, Buchair, Kohila, Karana, Kungash, Shilhi, Manjha Desh, Beongal, Jaban Palehi and Dingi Dhar.	15	88.23
2001			
High	Soidhar, Jaban, Franali, Shilhi and Kungash	5	29.41
Moderate	Karshaigad, Bishla Dhar, Karad, Lajheri, Khani, Karana, Kohila, Buchair, Manjha Desh, Beongal, Palehi and Dingi Dhar	12	70.59
Low	Nil	0	0.00
2011			
High	Palehi, Soidhar, Dingi Dhar, Beongal, Jaban, Franali, Manjha Desh, Shilhi, Kungash, Karana, Karad, Khani, and Buchair.	13	76.48
Moderate	Karshaigad, Bishla Dhar, Lajheri and Kohila	4	23.52
Low	Nil	0	0.00

Source: Compiled by Authors.

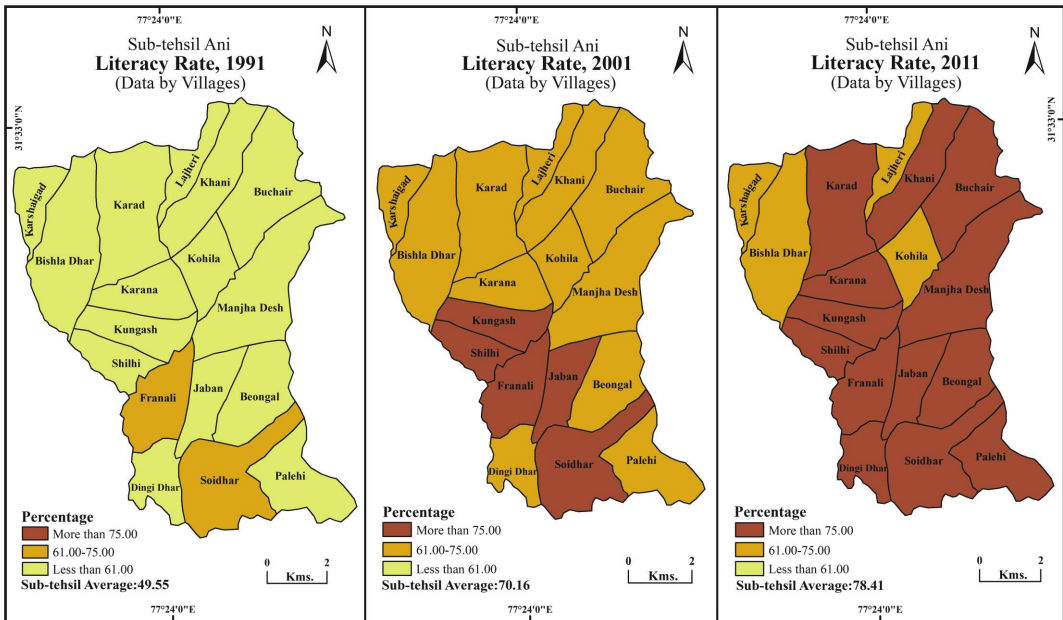


Fig. 2

the study period.

Gender Disparity in Literacy at Village Level

Villages with High Gender Disparity

Thirteen villages namely Karshaigad, Karad, Khani, Lajheri, Buchair, Kohila, Karana, Kungash, Shilhi, Franali, Dingi Dhar, Beongal and Manjha Desh situated in north-western part of the study area have recorded high gender disparity in literacy in 1991 (Table 3, Fig. 3). The factors like lack of educational facilities such as schools within villages, inadequate teaching staff, classrooms, teaching-learning materials and social factors such as early marriages of girls, preferences to male children for education and long distances to travel to reach schools attributed to high gender disparity in literacy in these villages. High cost of education and girls' assistance to their parents in cattle rearing and fetching firewood and other domestic chores are some other factors for higher gender disparity in literacy in 1991. However, none of the village fell in this category of areas in 2001 and 2011 (Table 3) suggesting declining trends in gender disparity with time. Remarkable improvement in female literacy rate has been narrowing down the gender disparity in study area. Some other factors responsible for decrease in gender disparity in literacy are; increase in accessibility, increase in provision of educational facilities, incentives to females for education, restrictions on early marriage of girls etc.

Villages with Moderate Gender Disparity

Only three villages namely; Palehi, Soidhar and Bishla Dhar located in north-eastern, middle, and south-western part of Sub-tehsil Ani witnessed moderate gender disparity (0.26-0.35) in literacy in 1991 (Fig. 3). The

number of such villages increased to 4 (Karshaigad, Karad, Karana and Lajheri) in 2011. Unwillingness of parents towards education of daughters, limited availability of educational institutions in nearby villages, rigid social customs regarding female education, early marriage of girls and abject poverty have attributed to medium gender disparity in these villages of Sub-tehsil Ani. However, none of the villages fell in this category in 2011. It is a positive development because low gender disparity in literacy is crucial for achieving gender equality and empowering the women.

Villages with Low Gender Disparity

This study brings out that there has been only one village namely Jaban constituting about 5.88 per cent of total inhabited villages, falling in this category 1991. In 2001, 12 new villages namely Bishla Dhar, Khani, Buchair, Kohila, Kungash, Shilhi, Franali, Dingi Dhar, Soidhar, Palehi, Beongal, Jaban and Manjha Desh joined this category of areas. These villages spread in the north-eastern, middle, western, south-western and south-eastern parts of the Sub-tehsil Ani (Fig. 3). However, by the year 2011 all the villages of Sub-tehsil Ani joined this category of areas (Table 3). It has happened because of the availability of educational institutions, low gender-based discrimination and awareness among residents about girl's education resulting high level of literacy among females.

Conclusions

The present study has analyzed the block-wise literacy rates in the Kullu district of Himachal Pradesh for the period of three decades from 1991 to 2011. The analysis reveals a consistent trend of improvement in

Table 3

Sub-tehsil Ani: Decade-wise Villages Falling under Various Levels Gender Disparity in Literacy

Levels	Village	No	Per cent
1991			
High	Karshaigad, Karad, Khani, Lajheri, Buchair, Kohila, Karana, Kungash, Shilhi, Franali, Dingi Dhar, Beongal and Manjha Desh	13	76.27
Moderate	Palehi, Soidhar and Bishla Dhar	3	17.74
Low	Jaban.	1	5.99
2001			
High	Nil	0	0.00
Moderate	Karshaigad, Karad, Karana and Lajheri.	4	23.52
Low	Palehi, Soidhar, Dingi Dhar, Franali, Jaban, Beongal, Manjha Desh, Shilhi, Kungash, Bishla Dhar, Kohila, Buchair and Khani.	13	76.48
2011			
High	Nil	0	0.00
Moderate	Nil	0	0.00
Low	Palehi, Soidhar, Dingi Dhar, Franali, Jaban, Beongal, Manjha Desh, Shilhi, Kungash, Bishla Dhar, Kohila, Buchair, Khani, Karshaigad, Karad, Karana and Lajheri.	17	100

Source: Compiled by Authors.

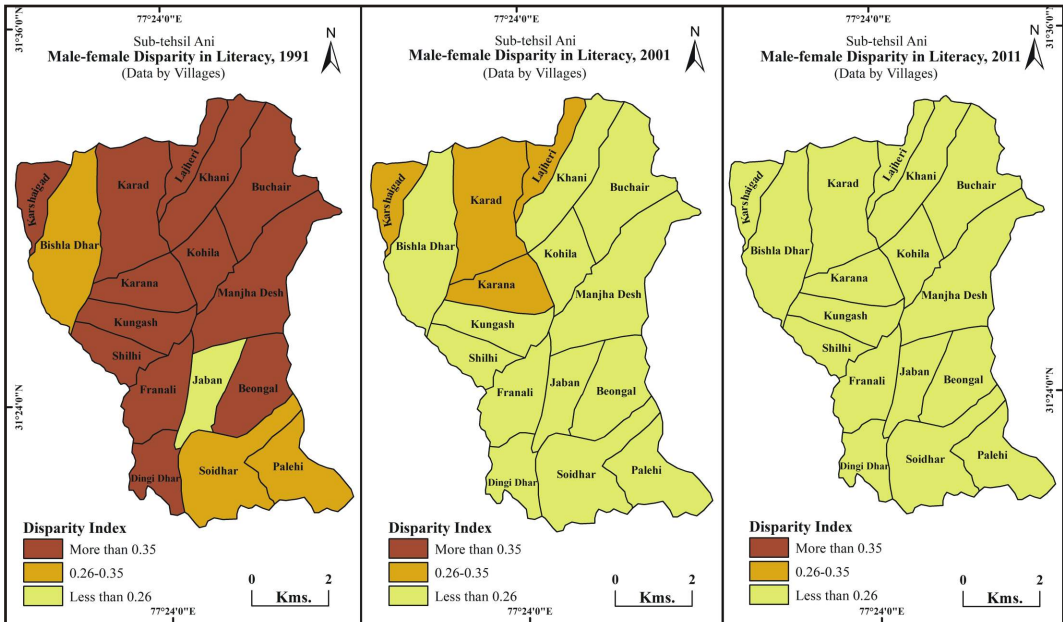


Fig. 3

literacy rates across all blocks, with varying degrees of progress. The study indicates a significant improvement in literacy rate which has reduced gender disparity in literacy over the past three decades in Kullu district. Also, this study has analysed the trends in literacy rate at village level in Sub-tehsil Ani from 1991 to 2011. The study reveals significant improvements in literacy rates during the study period. There has been an increase of highly literate villages, reflecting better access to educational institutions. The spatio-temporal literacy trend reveals that in 1991, no village has been in the high literacy rate category, but in 2001, their number increased to five. By the year 2011, this count has surged to thirteen, accounting for over three-fourth per cent of all inhabited villages with high literacy rates.

The level of gender disparities in literacy also decreased from 1991 to 2011. The study reveals that there have been 13 villages with high level of gender disparity, while only one village has recorded the low level of gender disparity in 1991. In 2001, there has not been a single village in the category of high gender disparity, but the number of villages with low level of gender disparity increased from one in 1991 to thirteen in 2001. By the year 2011 all the villages of the study area fell in the category of low level of gender disparity in literacy. Such improvement in the rates of literacy is largely attributed to increased access to educational resources, reduced biases, and increasing awareness regarding the significance of girls' education. The transformation from high to low gender disparity in villages highlights the progress towards gender equality. These findings emphasize the importance of continuous efforts to promote literacy, empower women, and reduce gender disparities for overall social and economic

development. Although, the gender disparity in literacy has decreased over the years, yet large numbers of females are not in the fold of education that requires targeted efforts on the part of the policy makers to bring them in the educational institutions.

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