

## SPATIAL DIMENSION OF WOMEN'S EDUCATION AND GENDER DISPARITY IN EDUCATION OF WEST BENGAL

**Azaz Ahamed**

Senior Research Fellow (PhD), Department of Geography  
Aligarh Muslim University, Aligarh, India  
Email: azazalig@gmail.com

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**Abstract:** *Women, a disadvantaged group, have been deprived of education in India for ages which is a matter of great concern as women's education acts as a catalytic factor for a country's progress and development. In this concern, the present study has focused on investigating the spatial dimension of women's education and gender disparity in education as well across districts of West Bengal (W.B). The regional inequality in the temporal progress of women's education and how many years are needed for a hundred percent literacy of women has been investigated. Data in the study are obtained from National Family and Health Survey (NFHS). The study adopts the Sopher's Disparity Index to depict gender disparity in education. Temporal change in 'woman's schooling years' is shown in percent points. The finding shows the uneven distribution of women literacy in W.B., where it is reported low in the districts of Birbhum, Bankura, Murshidabad, Uttar Dinajpur and Puruliya with less than 70.88 percent. The percentage of women's in ten or more years of schooling is observed low in the districts of Puruliya, Koch Bihar, Paschim Medinipur, Birbhum and Murshidabad with less than 27.20 percent. The gender disparity in education is found highest and lowest in Darjiling and South 24 Parganas respectively. The temporal progress in 'woman's schooling years' between the two time periods of 2015-16 and 2019-20 is observed as highest in Malda district and lowest in the two districts of Murshidabad and Paschim Medinipur. The existing literature supports that parental son preferences, poverty, girl's early marriage, social practices, and lack of sanitation facilities in schools are some of the main factors affecting women's education and hence gender disparity in W.B. The campaign of education for all, scholarships to girls and women, and poverty alleviation programmes have helped enough to bridge such gender disparity at education in India. However, a long way need to go.*

**Key words:** Spatial Dimension, Women, Education, Gender Disparity, West Bengal

## Introduction

From the very beginning, after the independence and implementation of previous National Policies on Education i.e. NPE 1968 and NPE 1986/92, which primarily emphasized on equity and accessibility, tremendous progress has been made in education, especially toward reducing the gender gap in education. Nevertheless, significant disparities “remain at the secondary level particularly for socio-economically disadvantaged groups.” Such “socio-economically disadvantaged groups (SEDGs) can be broadly categorised based on gender identities particularly female” (NPE 2020, p-24). Studies reveal that women are traditionally backward in terms of educational attainment in India. After controlling the variables of religion and caste, the possibility of girls acquiring primary education is about 42 percent lower when compared with boys in the most impoverished districts of India (UN). In ten years of schooling, the gap has been reduced from 2015 to 2019. However, the gap exists where about 41 percent of women compared to about 50 percent of men complete ten years of schooling (NFHS, 2019-21). The census also reports such a gender-based gap in education. In India, 74.04 percent population are literate where the male and female literacy rate is 82.14 percent and 65.46 percent respectively (Census of India, 2011). Besides, there has been observed a gap between the literacy rate of men (84.40 %) and women (71.50 %) in India (NFHS, 2019-21). Keeping in mind the unequal educational attainment between men and women in India, the present study tries to find whether there exists educational disparity in West Bengal. In addition, the schooling years<sup>1</sup> of women across districts are studied in the present paper. The temporal progress of women’s schooling years is additionally analyzed. At last, how many more years it may take for 100 percent literacy of women in West Bengal and the concerned factors for educational backwardness are mentioned in the study.

## Literature Review

Lancaster et al. (2008) have observed the presence of gender biasness in the allocation of family expenses especially for education in India. Such biasness is stronger in economically backward regions of the country and in the regions with a low level of adult literacy. Bose (2012) has investigated gender disparity in education in India based on NFHS-3. It is mentioned that girls are with educational disadvantages compared to their brothers. For so mothers, education level is an important factor in reducing such gender disparity in education. Mothers with no education are more likely to have son preference and consequently educational disadvantage among girls is reported in India. Saha (2013) has studied gender discrimination in household expenditure for education in India using the 64th round of the National Sample Survey data, where there exists a significant gender disparity within the household. Bhat (2015) has observed the importance of education in empowering women in India because education is the first step for reducing inequalities, developing the concept of participation and improving their status in the family. Nahar et al. (2015) argue in their study that Analytical Hierarchy Method is a proven, effective means to rank factors in a complex decision making. Hence, in the present study, the Analytical Hierarchy Method is adopted to rank barriers and factors responsible for women’s educational backwardness. Katiyar (2016) has investigated gender disparity in literacy of India adopting Sopher’s disparity index. As evidences reveal that literacy among women has a multiplier effect on a country’s social progress, it is highly essential to identify regional disparity in education adopting Sopher’s Disparity index methods which is considered as a scientific technique. The study reveals that only about 1/5th of the male population is illiterate in India where it is 1/3rd among the female

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<sup>1</sup> Women with 10 or more years of schooling.

population. In addition, the growth rate of female literacy is slower than male literacy in India which raises a serious concern. Bhagavatheeswaran et al. (2016) have conducted a study on the barriers and enablers for the educational achievement of adolescent girls in northern Karnataka where the negative attitude of society towards girl's education, lack of school infrastructure (toilet), child marriage, lack of support from family, girls as an economic burden, poor quality of education altogether have been found as barriers for educational backwardness of women. Jain et al. (2017) have studied women's education in rural India where a number of cultural and economic reasons like financial problems, family responsibility, preference for a son, early marriage, and negative parental attitude have an impact on women's education.

### Objectives

1. To study the spatial pattern of women's education and gender disparity in West Bengal
2. To analyse spatial pattern of the temporal progress and future projection of women's education
3. To investigate causative factors for educational deprivation of women.

### Study Area

West Bengal (W.B) is selected as the study area in the present study. The rationale for selecting W.B. is that it ranks at 20th in terms of literacy rate where Kerala ranks 1st out of 36 states and union territories of India (Census of India, 2011). The W.B. is a state in India which is located in the eastern part of the country. The latitudinal and longitudinal extent is from 21°25'24"N-27°13'15"N and from 85°48'20"E- 89°53'04"E respectively. Area-wise, W.B. ranks at 14th position among Indian states. Several new districts in W.B. were formed after the census year 2011, altogether forming 23 districts in W.B. However, depending upon the availability of data of 19 districts at NFHS-4 and 20 districts at NFHS-5, the study is confined to nineteen districts for comparative reasons. The capital city of W.B. is Kolkata, also known as the 'city of joy' and 'city of palaces.' The river Ganga divides West Bengal into two parts i.e., North and South Bengal. The tropical wet-dry climate and humid subtropical climate are observed in the southern part and northern part respectively. The average annual precipitation is 162 cm. The W.B. in terms of population ranks fourth among states of India having 7.8 percent of India's total population (Census of India, 2011). The population density is 1028 persons per square km. The literacy rate, according to the Census of India, 2011 is 76.26 percent.

### Database and Methodology

The study relies on data obtained from NFHS round four (2015-16) and five (2019-20). The district has been taken as a unit of investigation in the study. As the data were made available for 19 districts in NFHS-4 and 20 districts in NFHS-5, the study is confined to only nineteen districts to compare temporal progress. According to NFHS, any woman or man is considered literate who has completed his or her schooling of standard nine or higher education and is capable of reading a complete sentence or part of it. Following research methods and statistical techniques have been applied in the present study.

- 1) The Sopher's Disparity Index is applied to investigate educational inequalities between men and women in the districts of West Bengal, invented in 1974. It is a well-accepted statistical technique to identify disparity (Kundu & Rao, 1986; Mulimani & Pujar, 2015; Biswas, 2016). The equation of Sopher's Disparity Index is mentioned below.

### Sopher's Disparity Index

$$D.I = \text{Log} \left( \frac{X_2}{X_1} \right) + \text{Log} \frac{(100 - X_1)}{(100 - X_2)}$$

Where, DI denotes disparity index  
 X2 denotes percentage of men literates.  
 X1 denotes percentage of women literates.  
 i.e.  $X2 \geq X1$

In this method, to measure disparities between two variables, the variable with a lower value is denoted as variable 1 and the variable with a higher value is denoted as variable 2. In the present study, as women's literacy is lower than men's, women's literacy is denoted by X1 and literacy of men by X2. The Sopher's Disparity Index is useful for measuring relative inequality between two concerned variables. The value of DI is zero when there is perfect equality between the variables. There is a higher extent of disparity if the DI value is greater and when the DI value is lower, there is a lower disparity.

- 2) To rank districts based on disparity level, Spearman's Correlation Coefficient technique has been applied which is as follows.

### **Spearman's Correlation Coefficient for Ranking**

$$rR = 1 - \frac{6\sum di^2}{n(n^2 - 1)}$$

Where

rR denotes the rank correlation coefficient,

n denotes the number of pairs and

d denotes the difference of ranks between two variables (Goon, Gupta & Dasgupta, 1983, p. 395).

- 3) To rank factors of gender disparity in education based on weight given by respondents, analytical hierarchy process has been adopted.

### **Analytical Hierarchical Method**

The following formula has been used to calculate ranking priorities:

$$C.I = (1/(n-1)) * (\lambda_{max} - n)$$

$$CR = CI/RI$$

Where

C.I denotes Consistency Index

R.I. denotes the random consistency index that shows in table ,

$\lambda_{max}$  denotes the matrix eigen value and

n denotes the matrix size.

- 4) Adopting statistical technique of projection, the number of expected years are assumed based on following equation of population projection which is mentioned as follows.

### **Future Projection**

$$P_n = P_0 \left(1 + \frac{r}{100}\right)^n$$

Where

$P_n$  denotes 100 (literacy to be achieved)

$P_0$  denotes 70.90 (present literacy)

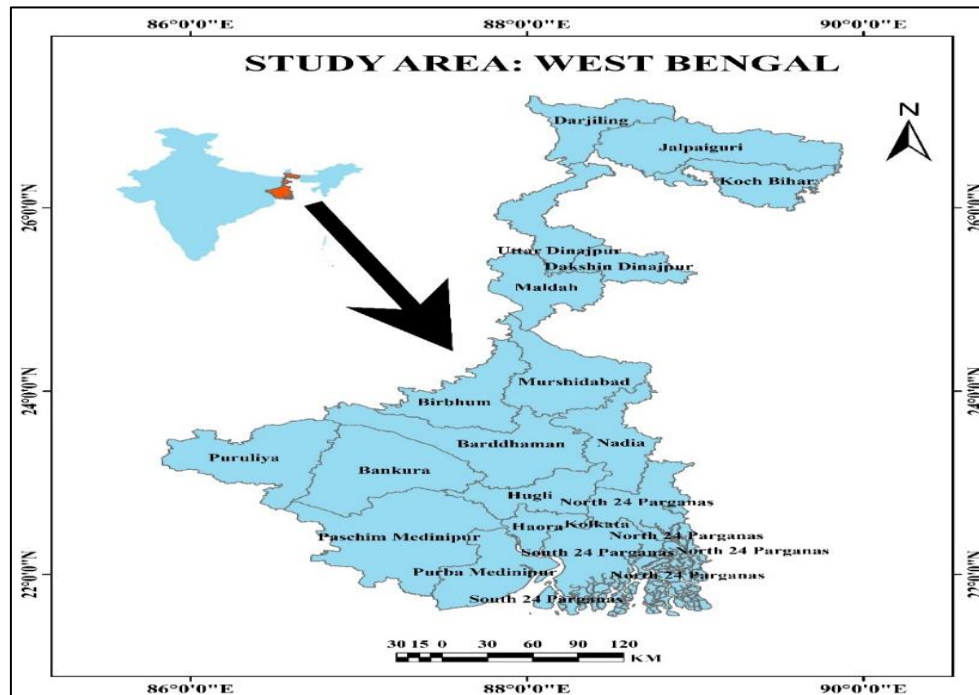
r= rate denotes 12.10 (difference in literacy rates between 2005-06 and 2015-16)/10=1.21

### **Woman's Literacy**

The importance of women's education has been mentioned in that it enables "them to effectively participate in the developmental process as well as in changing their subjugated position in the society" (Devi, 1992). Education to women makes them to empower their status economically, socially and politically (Oyitso et al., 2012). Based on the case studies, it is found that educating women has a positive impact on development, like that practicing more child health-care techniques; more readiness to send their children to school; better nutritional

status of children (Bown, 1990). Meanwhile, the women's literacy in West Bengal was about 70.90 percent in 2015-16 which rose to 76 percent in 2019-20.

**Figure 01: Study Area, West Bengal**



Source: Base-map sourced from Census of India, 2011

The variation across districts of W.B. is observed in the state. The women's literacy in 2015-16 is observed highest in North 24 Parganas with about 83 percent. It is found low in the districts of Puruliya (48.1 percent), Uttar Dinajpur (51.1 percent), Birbhum (62.1 percent), Jalpaiguri (64.2 percent), Malda (64.2 percent), Bankura (65.2 percent) and Murshidabad (66.1 percent). Women literacy is recorded high in the districts of North 24 Parganas, Kolkata, Haora, Darjiling, Hugli and Purba Medinipur. The women's literacy in 2019-20 is found highest in the Kolkata district with about 88 percent. It is observed low in the districts of Puruliya (61 percent). The districts of Kolkata, South and North 24 Parganas, Haora and Koch Bihar are the districts of comparatively high performance in women literacy with >77.85 percent women literacy rate. Conversely, low-performing districts in women's literacy are Birbhum, Bankura, Murshidabad, Uttar Dinajpur and Puruliya with <70.88 percent women literacy rate. The mediumly performed districts of W.B in women literacy are Hugli, Darjiling, Purba Medinipur, Nadia, Dakshin Dinajpur, Jalpaiguri, Paschim Barddhaman, Purba Barddhaman, Malda and Paschim Medinipur.

### **Gender Disparity in Education**

Bose (2012) has studied gender disparity in education in India and mentions maternal son preference as the reason for it. The spatial pattern of gender disparity in education of W.B. is shown in Table No 1. The districts of West Bengal have been categorized into three regions based on gender disparity in education. Such gender disparity is calculated using Sopher's disparity index. These regions are as follows.

- Region of High Disparity Index (above 0.44)
- Region of Medium Disparity Index (0.43-0.16)
- Region of Low Disparity Index (below 0.15)

**Table 01: Spatial Distribution of Gender Disparity in Education of West Bengal, 2015-16**

#	Districts	Percent literate in the population completed 9 standard or higher				Gender Disparity	
		Men	Rank	Women	Rank	D.I	Rank
1	Darjiling	95.00	1	78.00	4	0.73	1
2	Jalpaiguri	74.50	16	64.20	15	0.21	13
3	Koch Bihar	80.80	12	66.80	11	0.32	9
4	Uttar Dinajpur	65.10	19	51.10	18	0.25	12
5	Dakshin Dinajpur	83.20	9	67.30	10	0.38	7
6	Maldah	71.70	18	64.20	16	0.15	14
7	Murshidabad	85.10	6	66.10	13	0.47	4
8	Birbhum	86.20	4	62.10	17	0.58	2
9	Barddhaman	72.60	17	66.60	12	0.12	16
10	Nadia	79.70	13	73.70	8	0.15	15
11	North 24 Parganas	80.90	11	82.90	1	-0.06	19
12	Hugli	85.80	5	76.30	5	0.27	11
13	Bankura	83.70	8	65.20	14	0.44	5
14	Puruliya	76.50	15	48.10	19	0.55	3
15	Haora	89.00	3	78.40	3	0.35	8
16	Kolkata	84.30	7	80.70	2	0.11	17
17	South 24 Parganas	76.90	14	74.60	7	0.05	18
18	Paschim Medinipur	82.90	10	70.70	9	0.30	10
19	Purba Medinipur	89.30	2	76.10	6	0.42	6

Source: National Family and Health Survey, 2015-16

#### Region of High Disparity Index (above 0.44)

The disparity between men's and women's literacy among districts of West Bengal is reported high in the districts of Darjiling, Birbhum, Puruliya, Murshidabad and Bankura, ranging above 0.44 index value. The highest disparity among all districts of West Bengal is found in the district of Darjiling with a 0.73 index value.

#### Region of Medium Disparity Index (0.43-0.16)

The comparatively medium disparity ranging from 0.43-0.16 index value is recorded in the districts of Purba Medinipur, Dakshin Dinajpur, Haora, Koch Bihar, Paschim Medinipur, Hugli, Uttar Dinajpur and Jalpaiguri.

#### Region of Low Disparity Index (below 0.15)

The lowest gender disparity among all districts of West Bengal is found in the district of South 24 Parganas with a 0.05 index value. The minus index value of North 24 Parganas (-0.06) reveals that women's literacy is higher than men's. The disparity is reported low in the districts of Malda, Nadia, Barddhaman, Kolkata, South 24 Parganas and North 24 Parganas.

#### Spearman's Correlation Coefficient for Ranking

$$rR = 1 - \frac{6\sum di^2}{n(n^2 - 1)}$$

The districts of West Bengal based on gender disparity in education are ranked following spearman's correlation coefficient method is measured where the correlation coefficient value is 0.55 which is considered as a moderately correlated.

#### Women's Schooling Years

Somani (2017) has also observed the importance of education among girls and women for the overall development of Society. An African proverb that may rightly be mentioned for the same is "if you educate a man, you educate an individual, but if you educate a woman, you educate a family (nation)." About 33 percent of women in W.B. are completing 10 or more years of schooling. The spatial pattern of women's 10 or more years of schooling is shown in Fig. 5. It is not uniform across districts of W.B. There has been observed district-wise variation in it. The best-performing district is Kolkata where about 55 percent of women have completed 10 or

more years of schooling. The lowest percentage of women completing 10 or more years of schooling is reported in Murshidabad district with about 24 percent only. The high-performing districts in terms of women's schooling years are Kolkata, Darjiling, North 24 Parganas, Haora and Paschim Barddhaman with >37.03 percent. On the other hand, low-performing districts are Puruliya, Koch Bihar, Paschim Medinipur, Birbhum and Murshidabad with <27.20 percent. The mediumly performed districts are Hugli, South 24 Parganas, Jalpaiguri, Purba Medinipur, Dakshin Dinajpur, Malda, Uttar Dinajpur, Nadia, Bankura and Purba Barddhaman.

### Temporal Change in Women's Education

**Table 02: District-wise Temporal Change in Women's Education of West Bengal, 2015-16 to 2019-20**

Districts	Women's Literacy		
	2015-16	2019-20	Temporal Change
Darjiling	78.00	77.00	-1.00
Jalpaiguri	64.20	73.60	9.40
Koch Bihar	66.80	79.20	12.40
Uttar Dinajpur	51.10	65.40	14.30
Dakshin Dinajpur	67.30	74.30	7.00
Maldah	64.20	72.30	8.10
Murshidabad	66.10	67.60	1.50
Birbhum	62.10	70.80	8.70
Barddhaman	66.60	73.35	6.75
Nadia	73.70	76.20	2.50
North 24 Parganas	82.90	85.50	2.60
Hugli	76.30	77.40	1.10
Bankura	65.20	68.30	3.10
Puruliya	48.10	61.00	12.90
Haora	78.40	80.50	2.10
Kolkata	80.70	87.60	6.90
South 24 Parganas	74.60	85.60	11.00
Paschim Medinipur	70.70	70.90	0.20
Purba Medinipur	76.10	77.00	0.90

Source: National Family and Health Survey, 2015-16 to 2019-20

### Regional Distribution of Temporal Progress in Women's Schooling Years

Table 3 presents the temporal progress of women's schooling years. It is observed that 26.50 percent of women in West Bengal (W.B) have completed 10 or more years of schooling during 2015-16, NFHS-4. It has reached about 33 percent during 2019-20, NFHS-5 which suggests an increase in women's schooling year from NFHS-4 to NFHS-5 with 6.40 percent point progress in W.B. But some districts have progressed comparatively well. Malda district has progressed impressively with the highest progressing score of 13.8 percent point. Greater than 11.10 percent point temporal progress of woman's schooling year is reported in the districts of Malda, Uttar Dinajpur, South 24 Parganas, Jalpaiguri and Puruliya. On the other hand, less than 3.95 percent point temporal progress is recorded in the districts of Birbhum, Nadia, Purba Medinipur, Murshidabad and Paschim Medinipur.

### Bengal (2015-16 to 2019-20).

The women's schooling year has improved moderately (11.10-3.95 percent points) in the districts of Hugli, Darjiling, Dakshin Dinajpur, Haora, Kolkata, Koch Bihar, North 24 Parganas and Bankura. The districts of Murshidabad and Paschim Medinipur are such districts where the lowest temporal growth of women's schooling years is found with only 1.90 percent points.

**Table 03: District-wise Temporal Progress of Women Schooling Years in West Bengal.**

Districts	Percentage of Women with 10 or more years of schooling		Temporal Progress (2015-19)
	2015-16	2019-20	in percent point
Darjiling	32.20	41.30	9.10
Jalpaiguri	22.70	33.90	11.20
Koch Bihar	20.90	26.70	5.80
Uttar Dinajpur	17.00	29.30	12.30
Dakshin Dinajpur	21.70	30.50	8.80
Maldah	16.20	30.00	13.80
Murshidabad	22.30	24.20	1.90
Birbhum	22.10	25.80	3.70
Nadia	24.60	28.30	3.70
North 24 Parganas	35.20	40.70	5.50
Hugli	26.20	37.00	10.80
Bankura	23.20	27.90	4.70
Puruliya	15.70	26.90	11.20
Haora	33.10	40.10	7.00
Kolkata	49.50	55.40	5.90
South 24 Parganas	22.80	34.90	12.10
Paschim Medinipur	24.30	26.20	1.90
Purba Medinipur	28.60	30.90	2.30

Source: National Family and Health Survey, 2015-16 to 2019-20

### Programs Promoting Women's Education

Since 1945, India has been one of the founding members of the United Nations (UN). At the Millennium Development Goals Summit in 2000, eight goals, such as eradicating poverty, preventing the spread of AIDS, and ensuring universal primary education by 2015, were established. The UN has established 17 Sustainable Development Goals in 2015 for the subsequent 15 years. Two of the seventeen aims are primarily concerned with improving women's education. Quality education is mentioned in target number four. In addition, target number five mentions gender equality. The objective of quality education is to provide free education up to eight standard and equal quality education to both boys and girls in schools and higher education to eliminate gender disparities from all levels of education. Moreover, the objective of gender equality is to give equal access to social and professional systems, such as politics, good jobs, health care utilization, and education. It includes the laws and policies necessary to advance women's rights and equal opportunities for men and women and eliminate discrimination against women (Nikkhoo, & Jonsson, 2017).

In India, towards this direction, Sarva Shiksha Abhiyan (SSA) was launched in 2001, and several goals are set to achieve. It includes universalizing elementary education in terms of universal access and retention of children and bridging the gender gap in education. Moreover, the Right to Education (RTE) Act 2009 mentions that there is a right for all children of 6 to 14 years to get free and compulsory education. The optimism regarding RTE is that while SSA had no legal backing, RTE makes it legally binding for state governments to realize and fulfil the dream of SSA (Times of India, 2017). A program of Kasturba Gandhi Balika Vidyalaya was started (KGBV) in 2004 to embed boarding schools for girls of disadvantaged and marginalized segments of society. It is implemented in several regions of the country where the female literacy rate is below average. The majority of school seats are designated for girls belonging to disadvantaged and minority population while the remainder is secured for girls from BPL families. The females are motivated to pursue education by providing them incentives like free textbooks and school uniforms free of cost. In 2009, the Rashtriya Madhyamik Shiksha Abhiyan (RMSA) program was launched to make secondary education accessible to all students of fifteen and sixteen years old. The program aims to enhance educational attainment through the implementation of established norms and standards. It



aspires to guarantee universal access to secondary education by 2017. It intends to improve student retention rates by 2020 and to eradicate disability, socio-economic barriers and gender barriers by giving support and assistance to those from marginalized and socioeconomically backward sections of society (Nikkhoo, & Jonsson, 2017). Another important programme of the Government of India launched in 2015 is Beti Bachao Beti Padhao (BBBP). A joint effort of three ministries-the Ministry of Women and Child Development, the Health and Family Welfare and the Human Resource Development have come together to fulfill the desired objective of this initiative. Later, the Ministry of Skill Development and Entrepreneurship and the Ministry of Minority Affairs have also been involved in the same mission.

### Ranking of Factors of Gender Disparity through Analytical Hierarchy Process

Girls with education have better health and life outcomes, including delaying marriage. Education makes them capable of taking care of their families and participating in decision-making that matters most for economic standing and empowerment. It is obvious that the gender biasness in the education of developed countries is comparatively lower than in developing countries. The school enrollment of females aged 13-15 years was slightly higher in Latin America and Southeast Asia in 2000-06. Conversely, it is lower in South Asia, West Asia/North Africa, South/East Africa and West/Central Africa. Interestingly in all the regions and at almost all ages, the difference between boys and girls in school enrollment has shrunk considerably, but it has not gone away (Grant et al., 2010). India is a country in South Asia where gender disparity in some states is prevalent mainly in West Bengal. The barriers and factors responsible for gender disparity have been ranked through Analytical Hierarchy Process based on the respondent's opinions.

### Collection of Respondent Views

The respondent's opinions are gathered during the field observation. Due to limited resources and time, the survey is confined to the Malda district. To meet the desired objective, randomly selected respondents of one hundred are surveyed to express their opinion on gender disparity which is generalized for the state of West Bengal. To that end, a blank table with factors and a weightage scale is prepared where the factor with utmost importance is represented by nine and the least important factor is presented by one. Hence, a pairwise comparison matrix is prepared to incorporate the average values of respondent's perspectives on parameter selection to carry out an analytic hierarchy process. Saaty created the analytical hierarchy process (AHP) in 1980 in order to make multi-criteria decisions. Based on the opinions of respondents, the factors responsible for gender disparity are ranked. Saaty's pairwise comparison matrix (PCM) has been used to assign relative importance to such factors. Saaty suggested a scale of numerals ranging between one and nine. It is important to note that placing one parameter to its next level will result with the reciprocal value i.e., 1 or 3 will result as 1/2 or 1/3 in a reciprocal value.

**Table 04: Random Consistency Index Values (R.I., Saaty, 1980 )**

N	1	2	3	4	5	6	7	8	9	10
R.I	0	0	0.52	0.89	1.11	1.25	1.35	1.40	1.45	1.49

The following formula has been used to calculate ranking priorities:

$$C.I = (1/(n-1)) * (\lambda_{max} - n)$$

$$CR = CI/RI$$

Where

C.I = Consistency Index

R.I. is the random consistency index that shows in table ,

$\lambda_{max}$  is the matrix eigen value and

n is the matrix size.

**Table 05: Pairwise Comparison Matrix and Ranking of Factors for Gender Disparity in West Bengal**

Factors	A	B	C	D	E	F	G	H	I	Criteria weights	Rank
A	1	9	2	6	2	3	5	2	4	0.247	1
B	0.111	1	0.25	0.125	0.111	0.2	0.2	0.111	0.25	0.019	9
C	0.5	4	1	7	3	2	3	2	3	0.187	2
D	0.166	8	0.142	1	0.142	0.2	0.5	0.25	0.333	0.040	8
E	0.5	9	0.333	7	1	2	3	3	2	0.157	3
F	0.333	5	0.5	5	0.5	1	2	4	2	0.124	4
G	0.2	5	0.333	2	0.333	0.5	1	0.5	3	0.070	6
H	0.5	9	0.5	4	0.333	0.25	2	1	2	0.099	5
I	0.25	4	0.333	3	0.5	0.5	0.333	0.5	1	0.058	7

(i) Consistency Ratio (C.R.)=0.096, Consistency Index (C.I.)=0.140, Random Consistency Index (R.I.)=1.45

(ii) The relative importance to the sub-parameters is considered as acceptable for decision making, as C.R value is  $\leq 0.100$ .

**Table 06: Ranking of Factors for Gender Disparity in West Bengal in Education**

Ranking	Factors
1	A – Poverty
2	C – Patriarchy and Social Attitude for Son Preference
3	E – Expectations of Domesticity for Girls
4	F – Child and Early Marriage
5	H – Lack of Sanitation and Toilet Facility in Schools
6	G – Educational Status of Mothers
7	I – Dowry System
8	D – Old Age Support from Son due to Patrilocality
9	B – Community and Social Stereotype

### Causative Factors of Gender Disparity in Education

Despite the manifold importance of education and its little achievement by women over the past decades, women in India continue to comprise a large proportion of underprivileged groups. Several scholars have acknowledged its importance in the development of humankind. Higher levels of education are linked to stronger bargaining power and hence greater resource control (Sen, 1990). In addition, it is expected to improve women's capability to deal with and interact with the world at large (Amin, 1996). Studies find that a higher rate of women's education may improve their status providing the decision-making authority to overcome conventions and prejudices specific to a culture (Amin, 1996; Mukhopadhyay & Garimella, 1998). The discrimination towards women is lessened by influences (Dreze & Sen, 1995). Education is one such influence through which women raise voices and authority within the household. Hence, there is a reduction rate in discrimination towards women. Thus, education affects not only the women whose education is denied but also on future generations of their daughters. Keeping in mind, the importance of women education and its limited achievement, the study tries to gauge the causative factors for gender disparity in education in West Bengal.

### Poverty

A girl's chance of obtaining education is greatly affected by her family's financial situation. Girls with poor family income lag the most in terms of accessibility to education and completion of it, according to numerous studies. The high rates of withdrawal of girls from school found in the poor regions of China reflect poverty as a vital factor for gender disparity in education (Qiang et al., 2015). To gauge the factors of gender disparity in education in sub-Saharan Africa, it has been observed that the primary barrier to equal educational enrolment and attainment is the economic status (Dube, 2015). Poverty plays a vital role in gender disparity in education (Haan et al., 2005).

### **Patriarchy and Social Attitude for Son Preference**

It is commonly observed that discrimination against daughters is a direct result of son preference. Particularly for women, sons are an immediate and future source of power and wealth. Sons are favored in many cultures for religious and societal reasons. Sons are required for many Hindu rituals, especially those that ensure the soul's well-being after death (Kishor, 1995). Sons are socially favoured because they maintain the patriline. Sons are desired because they support their parents in old age, are heirs of property, and receive dowry upon marriage (Arnold, 1997; Das Gupta, 1998; Dube, 1997). In addition, greater value is placed on sons in a society where women rely heavily on men for financial support, as women are barred from major economic activity (Desai, 1998). To safeguard the future well-being of the family, greater education and training to sons rather than daughters is extended.

### **Expectations of Domesticity for Girls**

Girls are expected to help out in domestic activities more than boys and much earlier than boys due to the perception to treat girls as a wife, mothers and daughters-in-law. Conversely, boys are being prepared for a job (Bala, 2014).

### **Child and Early Marriage**

One of the most critical barriers to gender disparity in education is associated with child and early marriage (McCleary-Sills et al., 2015). Child marriage is triggered by the insecurity of the daughter's future, society's pressure, and the dowry system. Child marriage is comparatively higher in rural areas than in urban areas. In this way, child and early marriage become an important barrier to gender disparity in education (ARA et al., 2012). Both urban and rural areas of West Bengal have a higher rate of child marriages with 27.7 percent and 46.3 percent respectively might be associated with gender disparity in education.

### **Lack of Sanitation and Toilet Facility in Schools**

Several findings support that the school enrolment of females is linked with the availability of toilets and sanitation facilities at schools. A direct linkage between adequate toilets and sanitation in schools and the educational advancement of girls is found in a study in Zambia (Agol et al., 2017). Many schools in India are failed to set up such infrastructure and consequently, possible drop out and the gender disparity in education is found in different states, especially in West Bengal. In rural Gambia, poor menstrual hygiene management has potentially caused school dropout, withdrawal and disengagement in school (Shah et al., 2022).

### **Educational Status of Mothers**

The mother's educational status positively impacts girls' education in terms of their enrolment and schooling years (Kingdon, 2002; Unni, 1998). Based on this, it is expected that enhancing mother education levels is beneficial for equal attitudes towards both sons and daughters and hence, lowering gender discrimination in education.

### **Dowry System**

Girls are perceived as an economic burden as a huge amount of dowry is extended to the grooms in their marriage. Despite anti-dowry law, the dowry system is in practice in different states of India including in West Bengal. In this regard, parents save money for dowry instead of wasting money on a girl's education.

### **Old Age Support from Son due to Patrilocality**

Patrilocality is a practice where the wife lives in father in law's house which is common in many cultures. Parents may benefit more from sons as long as a son remains with their parents. Consequently, more investment in the health and education of sons is observed than in

daughters because, after marriage, daughters move away from home. Such patrilocality is very common in Asia, North Africa and the Middle East than Europe, America and sub-Saharan Africa to have adult sons and elderly parents living with them (Ebenstein, 2014; Jayachandran, 2015).

### **Community and Social Stereotype**

The negative attitude of society and community towards girls' education is one of the most crucial barriers to gender equality in education. Beyond individual characteristics, their attitudes influence the practices in a society and community (Kravdal, 2004; Parashar, 2005). Society at large believes no use of girls' education impacts gender disparity in education (Bhagavatheeswaran et al., 2016). It is reasonable to observe gender discrimination in education as social and community attitudes are important for educational attainment.

### **Future Projections and Consequences**

As per National Family and Health Survey, 2015-16, the women's literacy rate is 70.90 percent where it was 58.80 percent during 2005-06. A time series analysis is adopted to determine how long it will take to achieve a hundred percent women's literacy in W.B.

$$P_n = P_0 \left(1 + \frac{r}{100}\right)^n$$

Where

$P_n$  denotes 100 (literacy to be achieved)

$P_0$  denotes 70.90 (present literacy)

$r$  = rate = 12.10 (difference in literacy rates between 2005-06 and 2015-16)/10 = 1.21

Putting values in the equation mentioned above, it is observed that for achieving a hundred percent female literacy, there is a need of nearly 29 years ( $n = 28.59$ ) to go from 2015-16 if the current set of circumstances continues in the future. Hence, with the current progress rate, all women of W.B. will be utterly literate in 2044. In other words, W.B. will take about a hundred years after gaining independence to achieve a hundred percent literacy where there will be no gender disparity in education.

### **Conclusion and Suggestion**

It is found that women's literacy during 2015-16 was high in the districts of North 24 Parganas, Kolkata, Haora, Darjiling, Hugli and Purba Medinipur. On the other hand, it is recorded low in the districts of Puruliya (48.1 percent), Uttar Dinajpur (51.1 percent), Birbhum (62.1 percent), Jalpaiguri (64.2 percent), Malda (64.2 percent), Bankura (65.2 percent) and Murshidabad (66.1 percent). In a nutshell, women's literacy is found highest in North 24 Parganas (83 percent) and lowest in Puruliya (48.1 percent). As far as the schooling years are concerned during 2019-20, the most negligible share of women in ten or more years of schooling is found in Puruliya, Koch Bihar, Paschim Medinipur, Birbhum and Murshidabad. Besides, Malda is a district with the highest performance in temporal progress in women's schooling years from 2015-16 to 2019-20. On the other hand, the lowest performance is observed in the districts of Murshidabad and Paschim Medinipur. In gender disparity, the district of Darjiling ranked first followed by Birbhum, Puruliya, Murshidabad and so on while the lowest disparity is found in South 24 Parganas ranking in 19th position. From 2015-16, it is projected that about 29 more years are needed to reach 100 percent women's literacy in W.B.

Regarding the causative factors for gender inequality in education in W.B., it is found that maternal son preference is a reason for gender disparity in education (Bose, 2012). In addition, the United Nations Children's Fund (UNICEF) has mentioned that gender disparity in access to education is largely caused by poverty and traditional cultural norms. The lack of sanitation in schools also plays a vital role as an obstacle in the country. From the existing

literature, the factors of poverty, child marriage, mother's educational status, community stereotypes, and the dowry system impact gender disparity in education. Based on the respondent's opinions putting weightage on the factors resulting in gender disparity in education, factors are ranked. It is found that poverty ranks first, followed by patriarchy and social attitudes toward son preference, expectations of domesticity for girls, child and early marriage, inadequate sanitation and toilet facility in schools, educational status of mothers, dowry system, old age support from son due to patrilocality, community and social stereotypes towards gender disparity in the education of West Bengal. Districts performing poorly in women's education posit a need to evaluate the efficiency of educational programmes and schemes at the district level concerned with education and especially with female education. Despite Government's determination and efforts to reduce gender disparity in education, societal attitudes toward girl's education must be changed. State government schemes like that of 'Kanyashree Prakalpa' and 'Sabooj Sathi' are already working in W.B. to promote girl's education. The allocation of funds for scholarships to girls may also attract more students to schools. Dropouts of school education must be stopped at any cost, especially for female students. To stop child marriage and the dowry system, Government needs to implement already present acts successfully.

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