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ROLE OF EDUCATION IN DETERMINING FERTILITY LEVEL AMONG MUSLIM WOMEN IN RURAL AREAS OF WEST BENGAL

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Abstract

Among the various socio-economic factors determining human fertility, education is considered as one of the most important factors. In this study, an attempt has been made to examine the impact of level of educational attainment on the fertility behaviour of Muslim women in rural areas of West Bengal. The present Community Development (CD) block level study is mainly based on primary data, supplemented with secondary data acquired from Census of India (2011). The results derived from the study show that although there is a negative relationship between the level of educational attainment of married Muslim women and their fertility rates, yet it is not always linear in nature. The study shows that the impact of female education on fertility is not notable up to the middle school level education. It is only beyond middle school level of educational attainment that a noteworthy negative impact on the fertility rate of married Muslim women has been observed.

Keywords: Fertility rate, Muslim women, Female educational attainment, Post marriage education.

Introduction

Socio-economic development is associated with population growth and fertility (Chandna, 2015). Education is considered to be the most prominent and versatile indicator of socio-economic development and individual wellbeing (Astakhova et al., 2016; Kohoutek et al., 2017; Kayani et al., 2017; Neamtu, 2015). Education is considered as the best virtue of life, because it brings knowledge and awareness (Kaur and Rashmi, 2012). The level of educational attainment is a crucial influential factor to control fertility rate (Khraif et al., 2017; Khatoon and Anwaruzzaman, 2012). Female educational attainment has been found to be a more relevant factor among the factors controlling fertility in a number of studies by population scientists and demographers

(Martin, 1995; Kim, 2010; Khraif et al., 2017; Borkotoky and Unisa, 2014; Mahanta, 2016). The educational improvement seems to be related with lower fertility levels and better health status (Dreze and Murthi, 2001). Basu (2002) in her study on effect of education on fertility has found that higher the level of educational attainment more is the female autonomy to lower down fertility. She has successfully proved that education reduces fertility levels effectively. As far as, indirect control of fertility through their empowerment is concerned, it is often found that educated women have greater control on different domestic affairs and reproductive decision making (Morgan and Niraula, 1995). Educated women are more likely to have access to various medical facilities (Hobcraft, 1993),

contraceptives (Brown, 1982) and possess better hygienic conditions which help to lower down the fertility level among them. Similarly, the studies conducted by Kravdal, 2001; Sleetbos, 2003; Khatoon and Anwaruzzaman, 2012 have also pointed out negative correlation between education level and fertility rate.

On the other hand, low level of educational attainment of women in the developed and underdeveloped countries is also seen, to be associated with comparatively higher fertility rate (Martin, 1995). World Development Report (1984) has also suggested that in poorer countries, women with a few years of primary schooling have slightly higher fertility than women with no education at all, especially in rural areas. Often at low level of education, the relation between education and fertility may not be negative. But, after a critical level of schooling, usually after completing primary level of education, a negative impact of education is observed on fertility (Lesthaeghe et al., 1985). Jensen (2015) has observed that education had to be above a critical level to be able to suppress fertility. Therefore, it seems that focus is needed on examining the relationship between level of education and fertility. In this context, an attempt has been made, in this study, to understand the role of educational attainment of married Muslim women in their fertility behaviour in the rural areas of West Bengal.

Objectives

Major objectives of the study are:

- to assess the impact of the educational attainment on the fertility level of Muslim women and
- to find out the impact of continuation of education by married Muslim women on their fertility behaviour.

Study Area

West Bengal is one of the major states of Eastern Indian region extending from 85° 50' to 89° 50' east longitudes and from 21° 38' to 27° 10' north latitudes (Fig. 1). Barring small segments of northern mountains and adjoining Tarai-Dooars region, western upland and plateau (Jangalmahal) region and a small stretch of active delta with Sundarban-mangrove-tidal region where the concentration of population is quite low, the state is a plain region under the lower Gangetic plain. The state is the twelfth largest in India in terms of geographical area covering approximately 88,752 km². It is the fourth most populous state of India with a population of 9,12,76,115 persons. For administration, the state has been divided into 19 districts and 341 Community Development (CD) blocks. Muslims are the second largest religious community of the state and has a population share of 27.01 per cent. Muslims mostly reside in rural areas as only 22.34 per cent of Muslim population is residing in urban areas as compared to state average of 31.87 per cent. The overall literacy rate and female literacy in the state stand at 76.26 per cent and 70.54 per cent, respectively, whereas the same for the Muslims is 68.75 and 64.77 per cent, respectively. The Census of India (2011) data show that the state's average of gender ratio is 950 females per 1000 males which is slightly better in case of Muslims (951 females per 1000 males). Though the Total Fertility Rate (TFR) in the state is 1.7 which is below the replacement level of 2.1, yet among Muslims it is slightly higher (2.2).

Database and Methodology

The study is based on primary as well as secondary sources of data. Census of India 2011 data have been used as the secondary

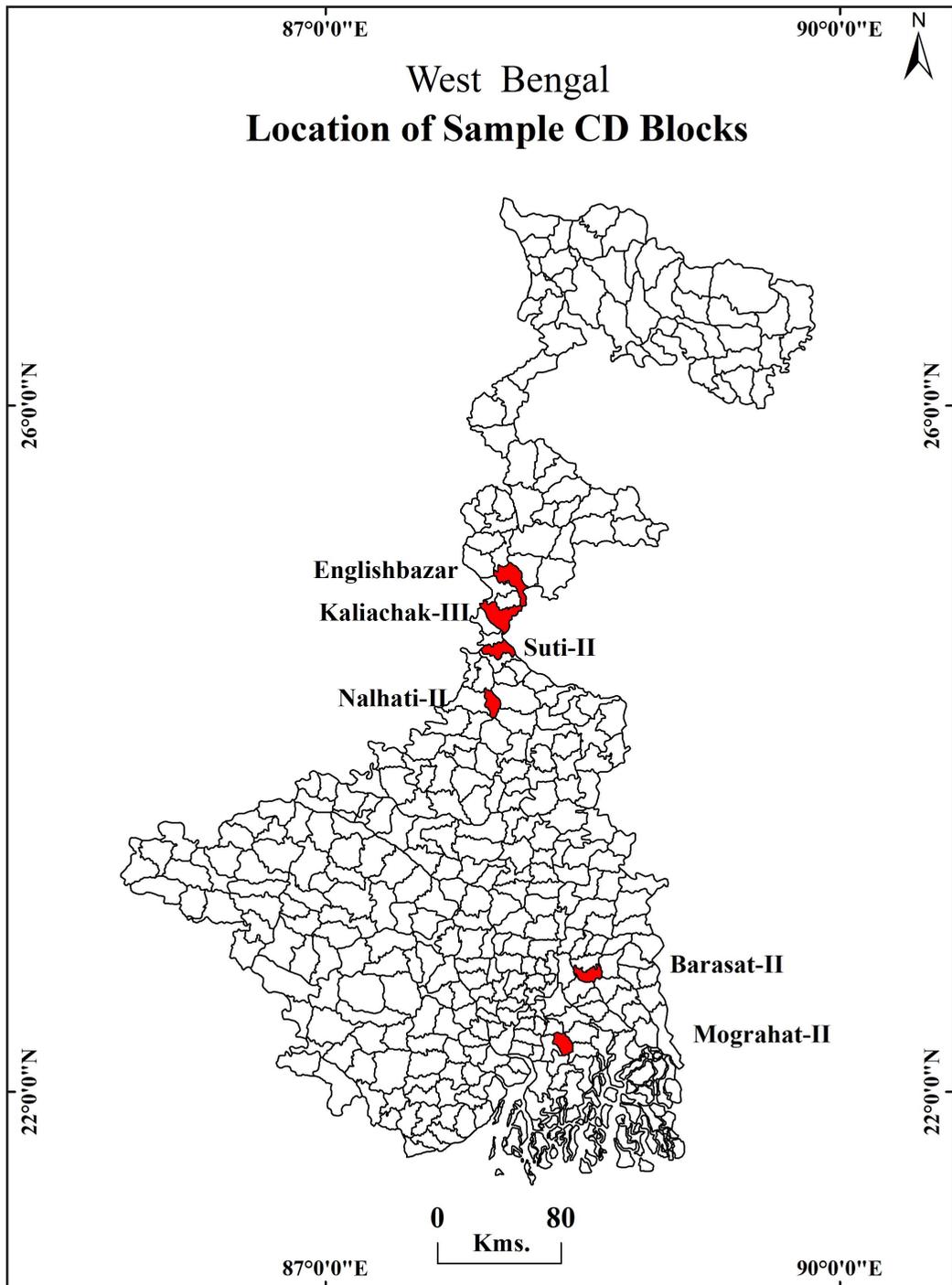


Fig. 1

source of data. While, the primary data have been collected in the year 2018, through field survey by using pre-designed survey schedule. In the present study 600 (100 from each sample CD) Block) married Muslim women in the reproductive age group of 15 to 49 years have been identified as respondents. The respondents, who continued their education even after marriage, have also been asked to tell if their husbands have also continued education after marriage or not. The selection of respondents has been done by following multi-stage random sampling technique. At the first stage, based on Census of India (2011) data (excluding population of statutory towns), Muslim majority CD blocks with at least 50 per cent Muslim population have been identified. To know the levels of socio-economic backwardness of selected households, database required to calculate the indicators related to amenities and services such as percentage of residential houses in good condition (x_1); percentage of households with safe drinking water facilities (x_2); percentage of households using electricity as main source of lighting (x_3); percentage of households with latrine facilities within premises (x_4); ratio of primary (x_5), middle (x_6), secondary (x_7), higher secondary (x_8) and higher studies institutions (college and university) (x_9) to total population; ratio of medical institutions to total population (x_{10}); ratio of doctor and para medical staff strength in medical institutions to total population (x_{11}) and ratio of medicine shops to total population (x_{12}) have been collected from the Census of India, 2011. Based on these indicators, z scores of all the Muslim majority CD blocks have been calculated. The CD blocks have been then arranged in the descending order based on their z scores. Two CD blocks of Barasat-II and Englishbazar have been selected from the top

1/3rd z scoring CD blocks using simple random sampling techniques. Two CD blocks of Mograhat-II and Nalhati-II have been selected from the middle 1/3rd z scoring group of CD blocks and remaining two CD blocks of Kaliachak-III and Suti-II have been selected from the bottom 1/3rd z score ranking CD blocks. At the second stage of sampling, based on same principle of Muslim majority and availability of amenities and services, two villages have been selected from each sample CD blocks for conducting study. While selecting the sample villages from the z score list of villages of respective sample CD blocks, the first village has been selected from the top of the z score list and the second one has been selected from the bottom of the list. At the third stage of sampling, the list of Muslim households with married women in the age group 15 to 49 years has been collected from Integrated Child Development Scheme (ICDS) Centres and from the Accredited Social Health Activist (ASHA) workers. The respondents have been selected randomly using simple random sampling technique with the help of a random table. The sample CD blocks occupy 1.16 per cent of the total geographical area of the state accounting for 2.13 per cent of the total population. Besides, these sample CD blocks account for 3.86 per cent of total Muslim population of the state.

The databases on infrastructure, amenities and services have been taken into consideration to access the socio-economic backwardness of the households selected for survey. The educational attainment of the respondent Muslim women largely depends on the socio-economic advancement of the family which in turn influences fertility. The formula by which z scores have been calculated is as follows:

$$Z = \frac{x - \mu}{\sigma}$$

where, Z = standard score, x = observed value, μ = mean of the sample, and σ = standard deviation of the sample.

The statistical tests of ANOVA and Tukey HSD at 95% confidence level have been applied to measure the statistical difference in TFR among various groups of women having different levels of educational attainment. The study related to women in general is based on secondary data of Census, 2011 while, of Muslim women is based on primary data. In case of women in general, the independent variable of educational attainment of women is categorized into six groups, i.e., 'Illiterate', 'Literate but below primary', 'Primary but below middle', 'Middle but below secondary', 'Secondary but below graduate', and 'Graduate and above'. On the other hand, taking into account the low educational level of the Muslim women, independent variable of educational attainment is categorized into five groups, i.e., 'Illiterate', 'Literate but below primary', 'Primary but below middle', 'Middle but below secondary', and 'Secondary and above'. The test of ANOVA is calculated by following the linear model:

$$X_{ij} = \mu_i + e_{ij}$$

where, X_{ij} denotes the j_{th} observation in the i_{th} group; μ_i denotes mean of the i_{th} population; and e_{ij} denotes error due to many unspecified causes. The ANOVA test indicates only the overall statistical difference in the mean of TFR among various educational groups of women. Besides, for the calculation of the statistical difference in the mean of TFR among those groups of women having different level of educational attainment with respect to each other, Tukey HSD test is conducted. The test

helps to understand where the mean difference of TFR lies actually and where does not. The formula used in the calculation of Tukey's test is very similar to that of t-test. After ANOVA, the Tukey's test is very essential to understand whether the TFR of various groups of women statistically differ from each other or not. After calculating ANOVA, the formula that has been used in the calculation of Tukey's test is as follows:

$$q_s = \frac{Y_{max} - Y_{min}}{SE}$$

where, Y_{max} is the larger of the two means being compared; Y_{min} is the smaller of two means being compared, and SE is the standard error of the sum of the means. The q_s value can then be compared to a q value from the studentized range distribution. If the q_s value is larger than the critical value q_α obtained from the distribution, the two means are said to be statistically different at 95% confidence level. Pearson's product moment correlation coefficient has been conducted to identify the strength of linear correlation between level of educational attainment of Muslim women and number of live births per women.

An independent sample t-test also has been conducted to identify whether there is a mean difference in TFR between the groups of Muslim women who continued education after marriage and who did not continue education after marriage. The formula used in the calculation of student t-test is as follows:

$$t = \frac{\bar{X}_1 - \bar{X}_2}{\sqrt{\frac{S_1^2}{n_1} + \frac{S_2^2}{n_2}}}$$

where, \bar{X}_1 and \bar{X}_2 are sample means; S_1 and S_2 are Standard deviations of the samples, and n_1 and n_2 are the sizes of the samples.

Results and Discussion

Female Educational Attainment and Total Fertility Rate

The study reveals that the fall of TFR is maximum between the groups of females having 'Primary but below middle' level of education and 'Middle but below secondary' level of education. It has been found that districts like Jalpaiguri, Dakshin Dinajpur, Maldah, Murshidabad, Birbhum, Nadia, Burdwan, Hugli, Paschim Medinipur, North 24 Parganas, and South 24 Parganas, comprising about 58 per cent of total districts fall in this category (Fig. 2). Only four districts i.e., Koch Bihar, Puruliya, Bankura, and Kolkata have witnessed maximum fall of TFR between the educational groups of females having 'Middle but below secondary', and 'Secondary but below graduate' level of education. Similarly, the maximum fall of TFR between the educational groups of 'Secondary but below graduate' and 'Graduate and above' has been observed in 16 per cent cases (3 districts out of 19). There is only one district of Darjeeling in which maximum fall in TFR is between the females falling in the category of illiterate to literate but below primary (Fig. 2). The study highlights that the impact of the level of

educational attainment of women in the reduction of fertility is more pronounced for higher level of educational attainment of women i.e., above middle school. It has been noted that middle level of educational attainment among women is playing the role of threshold point, above which there is a remarkable fall of TFR and below which there is no notable fall of TFR.

Table 1 reveals a negative relationship between female educational attainment and TFR, as TFR of illiterate women is 2.10 and it gradually declines to 1.02 in case of women with graduate and above level of education. Further, it has been observed that the difference of TFR between the groups of women having educational attainment of 'Literate but below primary' (1.89) and 'Primary but below middle' (1.78) is very low, i.e., 0.11. But, a noticeable fall of TFR (0.27) is witnessed between the groups of women having educational attainment of 'Primary but below middle' (1.78) and 'Middle but below secondary' (1.51). Similarly, maximum fall in TFR (0.27) has been noticed between the women having educational qualification of secondary but below graduate and graduate and above. Further, it has been observed that the average TFR of the groups of

Table 1
West Bengal: Educational Attainment of Women and Total Fertility Rate (TFR)

Level of Educational Attainment of Women	Ever Married Women (number)	Ever Married Women (per cent)	TFR
Illiterate	1,03,56,035	38.94	2.10
Literate but below primary	40,62,523	15.28	1.89
Primary but below middle	40,73,959	15.32	1.78
Middle but below secondary	37,33,495	14.04	1.51
Secondary but below graduate	30,48,246	11.46	1.29
Graduate and above	13,21,135	4.97	1.02

Source: Compiled by Authors.

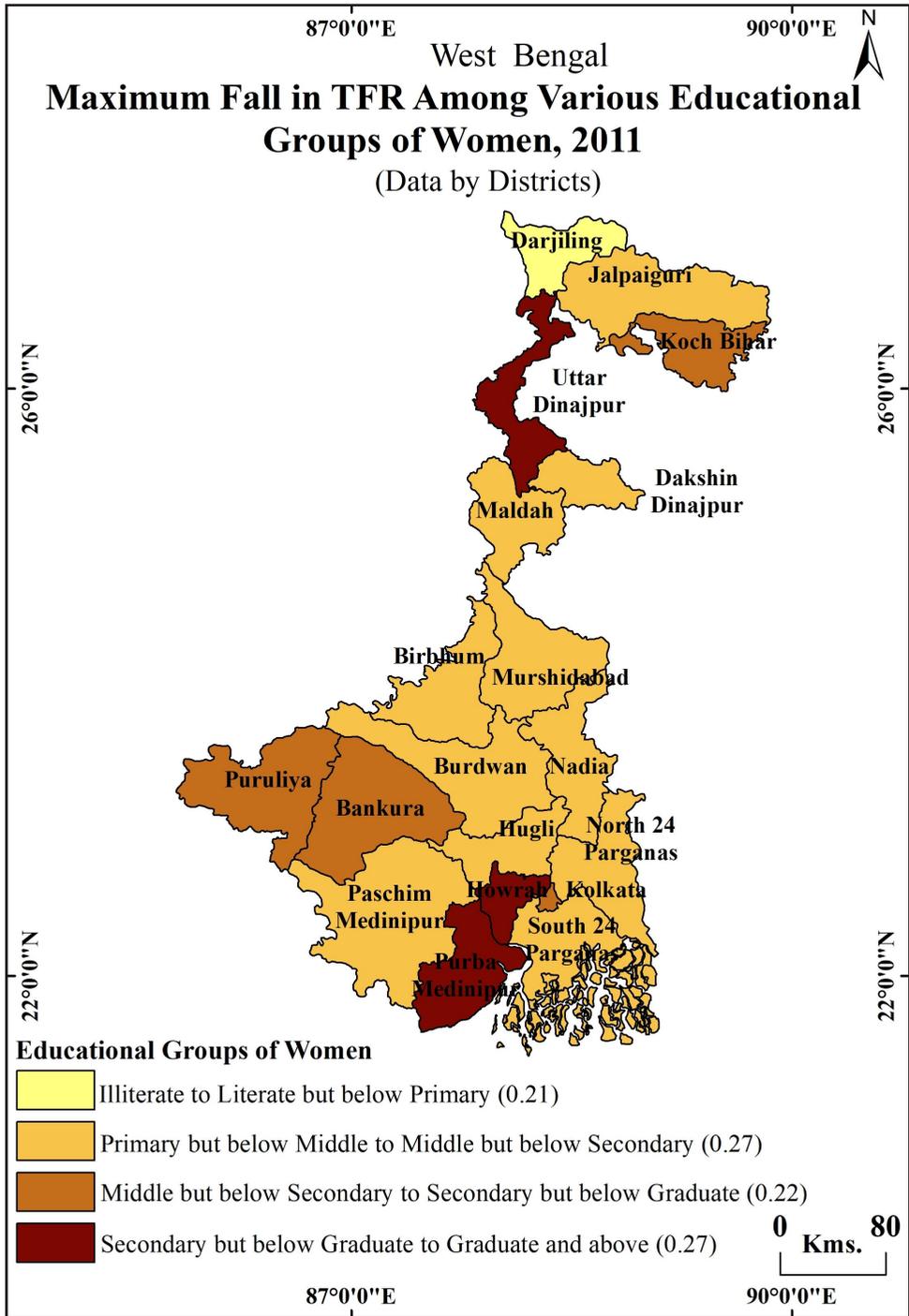


Fig. 2

'Literate but below primary' (TFR 1.89) and 'Primary but below middle' (TFR 1.78) is 1.84. It is notably higher than the average TFR of the groups of 'Middle but below secondary' (TFR 1.51), 'Secondary but below graduate' (TFR 1.29), and 'Graduate and above' (TFR 1.02), which comes to be. 1.27. This suggests that the impact of educational improvement on the fall of TFR is more notable after the attainment of middle and higher level of education by the females. Thus, the study highlights that female educational attainment is an important controlling factor of TFR and up to the educational attainment of middle school level no striking impact of female educational attainment is witnessed on the fall of TFR, but afterwards with improvement in education there is remarkable fall in TFR.

In order to find out whether there is a statistical difference in TFR among various educational groups of women ('Illiterate', 'Literate but below primary', 'Primary but below middle', 'Middle but below secondary', 'Secondary but below graduate', and 'Graduate and above'), a one-way analysis of variance (ANOVA) has been conducted. Table 2 shows a statistically significant difference in TFR among the groups of women having different educational attainment [$F(5, 108) = 33.36, p < .001$ at the $p < .05$ level]. Besides attaining statistical significance, the actual difference in

mean scores (TFR) between the groups is also quite high (2.41).

Table 2 shows the overall statistically significant difference of TFR among various educational groups of women [$F(5, 108) = 33.36, p < .001$ at the $p < .05$ level] while, Table 3 exhibits the statistical significance of the difference in TFR among these educational groups with respect to each other. It has been witnessed from Table 3 that there is no statistically significant mean difference of TFR among different levels of educational attainment like 'Illiterate' ($\mu = 2.05, \sigma = 0.37$), 'Literate but below primary' ($\mu = 1.90, \sigma = 0.30$), and 'Primary but below middle' ($\mu = 1.81, \sigma = 0.28$). This indicates that up to the middle level of educational attainment there is no remarkable impact of education on fertility. On the other hand, above middle level of educational attainment the impact of education on fertility is observed to be crucial. Besides, no statistically significant mean difference of TFR has been seen between 'Middle but below secondary' ($\mu = 1.55, \sigma = 0.24$) and 'Secondary but below graduate' ($\mu = 1.34, \sigma = 0.22$) on the one side and 'Secondary but below graduate' ($\mu = 1.34, \sigma = 0.22$) and 'Graduate and above' ($\mu = 1.12, \sigma = 0.16$) on the other. But statistically significant mean difference of TFR is observed between 'Middle but below secondary' ($\mu = 1.55, \sigma = 0.24$) and 'Graduate and above' ($\mu =$

Table 2
West Bengal: Impact of the Level of Educational Attainment of Women on their Level of Fertility

Sum of Squares	ANOVA			
	df	Mean Square	F	Significance
12.06	5	2.41	33.36	< 0.01
7.81	108	0.07		

Source: Compiled by Authors.

Table 3
West Bengal: Post-hoc Multiple Comparisons Test Using the Tukey HSD Analysis for Levels of Educational Attainment among Women and Fertility

Educational Level (I)	μ	σ	Educational Level (J)	Mean Difference of TFR (I-J)	Significance
Illiterate	2.05	0.37	Literate but below primary	0.15	0.53
			Primary but below middle	0.24	0.08
			Middle but below secondary	0.50*	< 0.01
			Secondary but below graduate	0.71*	< 0.01
			Graduate and above	0.93*	< 0.01
Literate but below primary	1.90	0.30	Illiterate	-0.15	0.53
			Primary but below middle	0.09	0.92
			Middle but below secondary	0.36*	0.01
			Secondary but below graduate	0.57*	<0.01
			Graduate and above	0.78*	<0.01
Primary but below middle	1.81	0.28	Illiterate	-0.24	0.08
			Literate but below primary	-0.09	0.92
			Middle but below secondary	0.27*	0.03
			Secondary but below graduate	0.48*	<0.01
			Graduate and above	0.69*	<0.01
Middle but below secondary	1.55	0.24	Illiterate	-0.50*	<0.01
			Literate but below primary	-0.36*	0.01
			Primary but below middle	-0.27*	0.03
			Secondary but below graduate	0.21	0.16
			Graduate and above	0.43*	<0.01
Secondary but below graduate	1.34	0.22	Illiterate	-0.71*	<0.01
			Literate but below primary	-0.57*	<0.01
			Primary but below middle	-0.48*	<0.01
			Middle but below secondary	-0.21	0.16
			Graduate and above	0.22	0.15
Graduate and above	1.12	0.16	Illiterate	-0.93*	<0.01
			Literate but below primary	-0.78*	<0.01
			Primary but below middle	-0.69*	<0.01
			Middle but below secondary	-0.43*	<0.01
			Secondary but below graduate	-0.22	0.15

Source: Compiled by Authors.

*The mean difference is significant at the 0.05 level.

1.12, $\sigma = 0.16$). This indicates that educational attainment of women is an important controlling factor in reducing TFR, particularly for above middle school level of educational attainment.

Educational Attainment and Fertility Level of Muslim Women

The analysis of female educational attainment by religious groups, i.e., Hindu, Muslim, and other shows that the percentage of Muslim females having educational attainment below primary and primary level is highest at the tune of 34.02 per cent and 30.72 per cent, respectively in West Bengal (Census of India, 2011, Fig. 3). While in case of Hindus 24.68 per cent and 23.80 per cent women respectively have educational attainment below primary and primary level. Again, in middle school, secondary, higher secondary, and graduation

and above levels of education, the percentage of Muslim female is the lowest, i.e., 19.02, 5.84, 5.23, and 1.52, respectively as compared to Hindu (21.51, 8.97, 9.51 and 7.89 per cent) and other religious groups (20.57, 8.99, 8.41 and 6.83 per cent). It is evident from Fig. 3 that the share of Muslim female having above middle school level of education considerably decreases in the state as the level of educational attainment goes up. Thus, the study highlights that at the primary and below primary level of education, the share of Muslim women is higher, while their share gradually declines in all the above primary levels of education. In other words, Muslim women are still lagging behind in education with respect to their counterparts among Hindus and other religious groups in West Bengal.

The result derived from the analysis of field survey data of the sample CD blocks

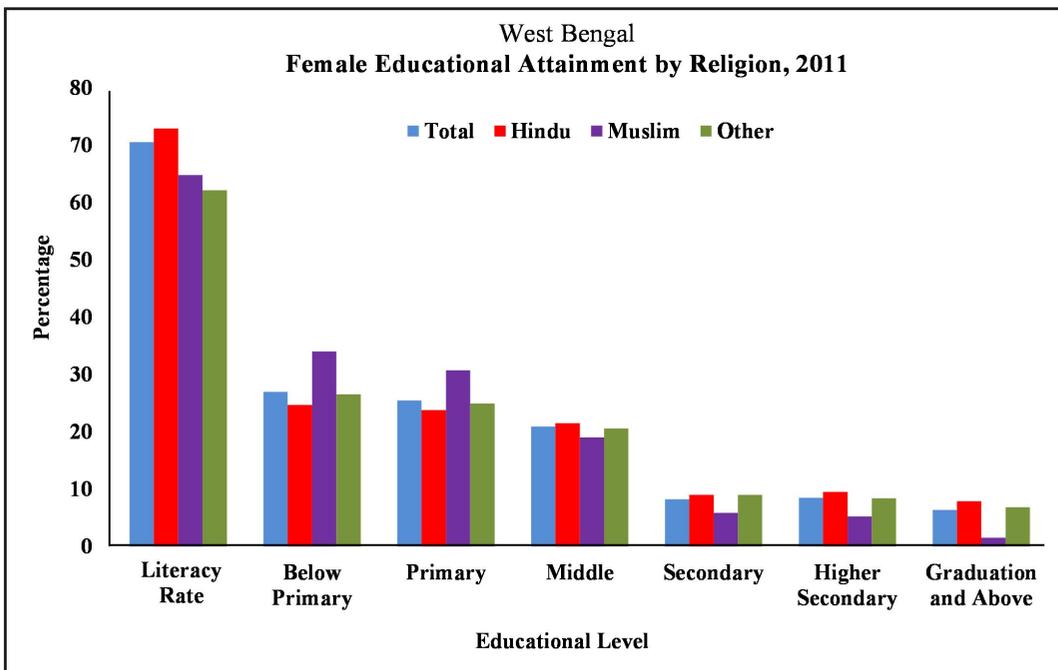


Fig. 3

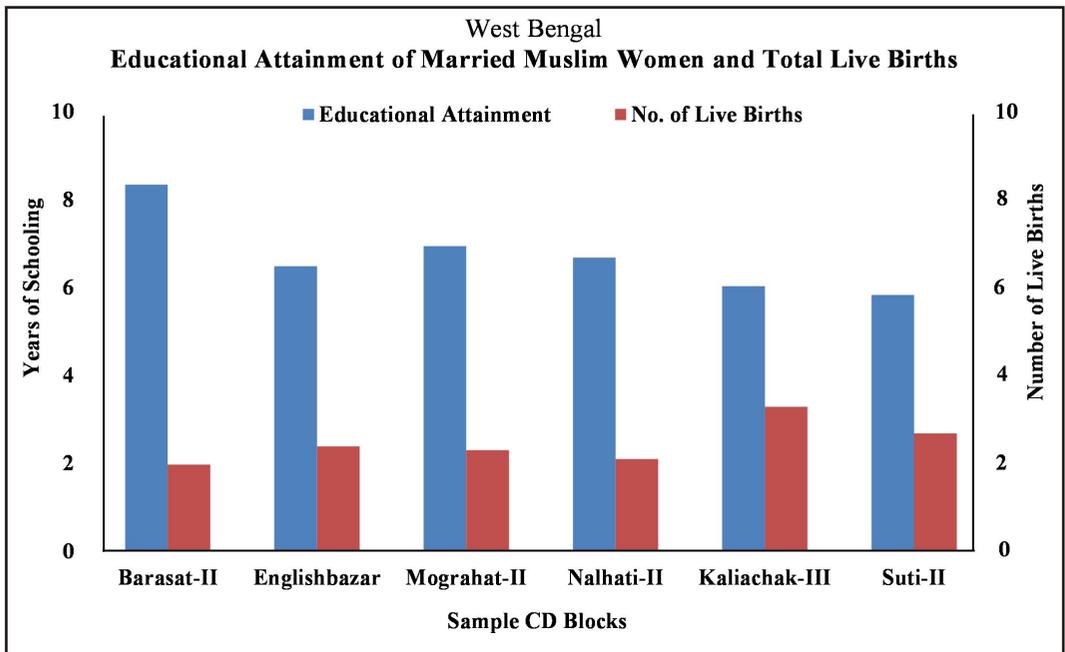


Fig. 4

reveals that the level of educational attainment of the married Muslim women is a crucial controlling factor of fertility rate of the community under study. Fig. 4 exhibits the block-wise relationship between average levels of educational attainment of married Muslim women and their total live births. It is observed that the CD block of Barasat-II has the highest average educational attainment of the married Muslim women (8.34 years of schooling) and has recorded the lowest average number of live births per women (TFR 1.97).

On the other hand, Muslim majority CD blocks, such as, Suti-II and Kaliachak-III have recorded very low level of educational attainment of 5.83 years and 6.03 years of schooling, respectively of married Muslim women. Married Muslim women of these blocks have also witnessed high number of 2.68 and 3.28 live births per woman respectively. The Fig. 5 exhibits correlation between the average level

of educational attainment of the Muslim women and total live births per woman which also indicates a prevalence of negative relationship between them. The calculated correlation coefficient (r) is found to be $r = -0.51$, where $p < 0.001$.

Based on the field survey data, a one-way analysis of variance (ANOVA) test between-groups with different levels of educational attainment is conducted to find out if there is a statistical difference in fertility level of Muslims across different levels of educational attainment of women (Table 4). For this purpose, the level of educational attainment of married Muslim women is divided into five groups such as 'Illiterate', 'Literate but below primary', 'Primary but below middle', 'Middle but below secondary', and 'Secondary and above'. The total number of live births per married Muslim woman is taken as the dependent variable in this analysis. Table

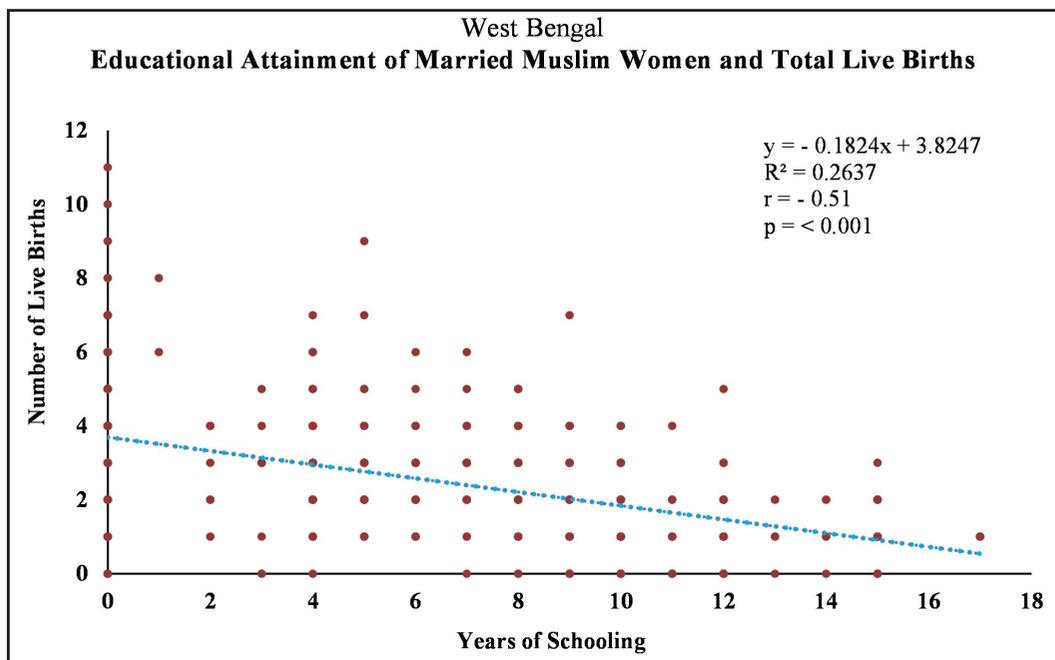


Fig. 5

4 exhibits statistically significant difference [F (4, 595) = 51.55, p < .001 at the p < .05 level] in total number of live births per married Muslim woman among the groups of women having different levels of educational attainment.

On the other hand, Table 5 exhibits that there is no statistically significant difference in total number of live births (0.27) between the groups having 'Literate but below primary' ($\mu = 2.90, \sigma = 1.58$) and 'Primary but below middle'

($\mu = 2.63, \sigma = 1.26$) school level of education. However, in the case of other levels of educational attainment, statistically significant differences in total number of live births have been witnessed (0.80, 1.07, 1.93, 2.47, 1.13, 1.67, 0.87, 1.40, and 0.54). Thus, the study reveals that up to the middle school level of educational attainment of married Muslim women, there is no exceptionally remarkable difference in the level of fertility.

It has been observed from the field

Table 4

West Bengal: Relationship between Levels of Educational Attainment of Married Muslim Women and Number of Live Births

Sum of Squares	ANOVA			
	df	Mean Square	F	Significance
425.694	4	106.42	51.55	< 0.01
1228.380	595	2.07		

Source: Compiled by Authors.

Table 5
West Bengal: Post-hoc Multiple Comparisons Test Using the Tukey HSD Analysis for Levels of Educational Attainment among Muslim Women and Number of Live Births

Educational Level (I)	μ	σ	Educational Level (J)	Mean Difference in the No. of Live Births (I-J)	Significance
Illiterate	3.70	2.15	Literate but below primary	0.80*	<0.01
			Primary but below middle	1.07*	<0.01
			Middle but below secondary	1.93*	<0.01
			Secondary and above	2.47*	<0.01
Literate but below primary	2.90	1.58	Illiterate	-0.80*	<0.01
			Primary but below middle	0.27	0.71
			Middle but below secondary	1.13*	<0.01
			Secondary and above	1.67*	<0.01
Primary but below middle	2.63	1.26	Illiterate	-1.07*	<0.01
			Literate but below primary	-0.27	0.71
			Middle but below secondary	0.87*	<0.01
			Secondary and above	1.40*	<0.01
Middle but below secondary	1.77	1.07	Illiterate	-1.93*	<0.01
			Literate but below primary	-1.13*	<0.01
			Primary but below middle	-0.87*	<0.01
			Secondary and above	0.54*	0.04
Secondary and above	1.23	0.89	Illiterate	-2.47*	<0.01
			Literate but below primary	-1.67*	<0.01
			Primary but below middle	-1.40*	<0.01
			Middle but below secondary	-0.54*	0.04

Source: Compiled by Authors. *The mean difference is significant at the 0.05 level.

survey data that the married Muslim women with educational attainment of below middle school have comparatively low decision-making power regarding the number of children desired by them. During the field survey, 5.67 per cent respondents informed that they have been compelled to give birth to more children which has increased their fertility

level. Among these, 73.53 per cent respondents have educational attainment below middle school level, while rest have educational attainment of middle school and above levels (Table 6). Further, it has been observed that among 295 respondents of Muslim women having educational attainment below middle school, 70.85 per cent of them started using

Table 6

West Bengal: Fertility Level of the Muslim Women having Educational Attainment of Below Middle and Middle and Above

Educational Attainment of Respondents	Respondents (No.)	Respondents (per cent)	Percentage of Respondents Who have ever Used Modern Contraceptives	No. of Live Births per Respondent
Below Middle	295	49.17	70.85	3.17
Middle and above	305	50.83	77.48	1.75

Source: Compiled by Authors.

contraceptive after giving birth to 3 or 4 or 5 children. Therefore, their fertility rate is as high as 3.17 live births per woman. On the other hand, among 305 respondents having educational attainment above middle school, 77.48 per cent of them start using contraceptives after the birth of 1 child or immediately after marriage. Therefore, their fertility rate is as low as 1.75 live births per respondent (Table 6). Thus, the study highlights that above middle school of educational attainment, the fertility level of Muslim women is notably less compared to the women having below middle level of education.

Continuation of Education and Fertility Behaviour of Muslim Women

The study reveals that the Muslim women who continue education even after

marriage have a smaller number of live births (1.56) than the women who terminate their education after marriage (2.16). The study further exhibits that the continuation of education of Muslim women is more effective in the reduction of average number of live births (1.56) in comparison to men (1.57) who have also continued their education after marriage (Table 7). However, the number of live births has been lowest when both the partners have continued their education after marriage (1.29). The women continuing their education after marriage have responded that they are well aware of family planning and adopting suitable birth control measures. Through adoption of birth control measures, they are increasing the gap between marriage and first conception. This practice encourages them for limiting their family size too. Thus,

Table 7

West Bengal: Continuation and Termination of Education after Marriage and Fertility among Muslim Women

Category	Continuation of Education (per cent)	Average No. of Live Births (Who Continue Education)	Termination of Education (per cent)	Average No. of Live Births (Who Terminated Education)
Married Men	1.17	1.57	2.68	2.56
Married Women	7.2	1.56	33.5	2.16
Both	2.35	1.29	12.56	2.19

Source: Compiled by Authors.

Table 8

West Bengal: Mean Difference of Total Number of Live Births between Married Muslim Women Who Continued Education after Marriage and Who did not Continue Education after Marriage

Continuation of Education after Marriage	N	Mean	s	t
Yes	64	1.41	0.90	5.30*
No	237	2.24	1.31	

Source: Compiled by Authors. *p<0.001

continuation of education of Muslim women after marriage has more impact in reduction of fertility than the continuation of education by men. The fertility rate further decreases when both husband and wife continue their education after marriage.

Based on the field survey data, an independent sample t-test is conducted to find out whether there is a statistical difference in fertility level between the Muslim women who have been married and have continued or discontinued their education after marriage. The illiterate women or the women who have discontinued education before marriage have not been considered in this analysis. Out of the 301 women coming in this category, 64 continued their education, while 237 discontinued their education after marriage. The result shows (Table 8) that the t-test is statistically significant (t = 5.30, 95% CI) which means that there is a statistically significant difference in terms of the total number of live births per married Muslim woman who has continued education after marriage (\bar{x} = 1.41, σ = 0.90) and those who did not (\bar{x} = 2.24, σ = 1.31). The mean difference of the number of live births between the groups is also quite high (0.83).

Conclusions

The results of the study reveal that female educational attainment is a decisive

controlling factor of fertility. A negative relationship prevails between female education and fertility i.e., higher the level of education lower is the rate of fertility. The maximum fall in TFR is observed when educational attainment of women improves from 'Primary but below middle' to 'Middle but below secondary' level. The impact of the level of educational attainment of women in the reduction of fertility is witnessed to be more pronounced after higher level of educational attainment. Further, in case of Muslim women, educational attainment also plays important role in controlling their fertility rate in the state. It is derived from the study that for the married Muslim women with above middle school level of educational attainment, there is noteworthy fall in TFR. But for the women having educational attainment below middle school level, the fall of TFR with the increase of educational attainment is quite low. Thus, middle school level educational attainment among Muslim women is found to be a distinctive threshold point above which the fertility rate reduces remarkably. However, the share of Muslim women having above middle school level of education (secondary, higher secondary, and graduation and above) is considerably low (5.84, 5.23, and 1.52 per cent) as compared to their counterparts of Hindus (8.97, 9.51 and 7.89 per cent) and other religious groups (8.99,

8.41 and 6.83 per cent) in West Bengal. Low level of education among Muslim women has been witnessed as a major factor responsible for their higher level of fertility. The prevalence of higher number of unwanted births, low contraceptive use rate, and use of contraceptive after giving birth to 3-5 children, is due to low level of education. The study also reveals that the continuation of education among Muslim women after marriage leads to an increase in the interval between marriage and birth of first baby, higher accessibility to contraceptives, better health and family planning awareness, which successfully reduces their fertility level. Thus, to reduce the fertility rate of Muslims in the state it is very crucial to check female drop-out rate at school level and promote higher education among them. It is also important to encourage Muslim women to continue their education even after marriage, along with increasing the age at marriage to reduce their rate of fertility.

References

- Astakhova, K. V., Korobeev, A. I., Prokhorova, V. V., Kolupaev, A. A., Vorotnoy, M. V. and Kucheryavaya, E. R. 2016. The role of education in economic and social development of the country. *International Review of Management and Marketing*, 6 (SI): 53-58.
- Basu, A. 2002. Why does education lead to lower fertility. A critical review of some of the possibilities. *World Development*, 30 (10): 1779-1790.
- Borkotoky, K. and Unisa, S. 2014. Femal education and its association with changes in socio-demographic behaviour: evidence from India. *Journal of Biosocial Science*, 47 (5): 687-706.
- Brown, R. 1982. Breast-feeding and family planning: a review of the relationships between breastfeeding and family planning. *The American journal of clinical nutrition*, 30 (10): 162-171.
- Census of India, 2011. https://censusindia.gov.in/2011census/population_enumeration.html. Accessed on Nov. 12, 2020.
- Chandna, R. C. 2015. Punjab-Haryana region: growth of population: 2001-11. *Punjab Geographer*, 11: 103-106.
- Dreze, J. and Murthi, M. 2001. Fertility, education, and development: evidence from India. *Population and Development Review*, 27 (1): 33-63.
- Hobcraft, J. 1993. Women's education, child welfare and child survival: a review of the evidence. *Health Transition Review*, 3 (2): 159-175
- Jensen, A. M. 2015. Poverty, gender and fertility in rural Kenya. *Forum for Development Studies*, 42 (2): 311-332.
- Kaur, G. and Rashmi 2010. Sex composition in Punjab: the role of son preference. *Punjab Geographer*, 8: 76-84.
- Kayani, M. M., Akbar, R. A., Faisal, S., Kayani, A. and Ghuman, M. A. 2017. Analysis of socio-economic benefits of education in developing countries: a example of Pakistan. *Bulletin of Education and Research*, 39 (3): 75-92.
- Khatoun, N. and Anwaruzzaman, A. K. M. 2012. Educational attainment as determinant of fertility: a comparative study of two minority groups in rural Darjeeling, West Bengal. *Indian Journal of Spatial Science*, 3 (2): 11-17
- Khraif, R. M., Salam, A. A., Al-Mutairi, A., Elsegaey, I. and Jumaah, A. 2017. Education's impact on fertility: the case

- of King Saud University Women, Riyadh. *Middle East Fertility Society Journal*, 22 (2): 125-131.
- Kim, J. 2010. Women's education and fertility: an analysis of the relationship between education and birth spacing in Indonesia. *Economic Development and Cultural Change*, 58 (4): 739-774.
- Kohoutek, J., Pinheiro, R., Čábelková, I. and Šmídová, M. 2017. The role of higher education in the socio-economic development of peripheral regions. *Higher Education Policy*, 30: 401-403.
- Kravdal, O. 2001. The high fertility of college educated women in Norway: an artefact of the separate modeling of each parity transition. *Demographic Research*, 5 (6): 187-216
- Lesthaeghe, R., Vanderhoeft, C., Becker, S. and Kibet, M. 1985. Individual and contextual effects of education on proximate fertility determinants and on life-time fertility in Kenya. In *The Collection and Analysis of Community Data*, eds., Casterline, J. B., International Statistical Institute, Voorbur: 31-63.
- Mahanta, A. 2016. Impact of education on fertility: evidence from a tribal society in Assam, India. *International Journal of Population Research*, 2016(1): 1-7.
- Martin, T. C. 1995. Women's education and fertility: results from 26 demographic and health surveys. *Studies in Family Planning*, 26 (4): 187-202.
- Morgan, S. and Niraula, B. 1995. Gender inequality and fertility in two Nepali villages. *Population and Development Review*, 21 (3): 541-561
- Neamtu, D. M. 2015. Education, the economic development pillar. *Procedia-Social and Behavioral Sciences*, 180: 413-420.
- Sleeboos, J. 2003. Low fertility rates in OECD countries: facts and policy responses. *OECD Labour Market and Social Policy Occasional Papers*, No. 15, OECD Publishing, Paris: 1-62.
- World Development Report (WDR). 1984. *Population Change and Development*. Oxford University Press, New York. 106-116.
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