

## Role of Women Education in Health in India with Special Reference to Northeast India

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### **Abstract:**

Education seeks to nourish the good qualities and draw out the best in an individual. Education is a main driver of development. The sustainable Development Goal number 5: Gender Equality, recognizes that ending all discrimination against women and girls is not only a basic human right, it is crucial for sustainable future. The Incheon Declaration and Framework for Action for the implementation of Sustainable Development Goal 4 (Education 2030) ensure inclusive and equitable quality education and promote lifelong learning opportunities for all by 2030. The paper aims to find the role of women education in health in India with special reference to its Northeast Region. To find the role of women education on health, the paper investigates the impact of women education on Maternal Mortality Ratio (MMR), Life Expectancy (LE), Death Rate (DR) and Infant Mortality Rate (IMR) in India and, DR and IMR in Northeast India using secondary data. Using female literacy rate as a proxy for women education and linear regression analysis, the impacts of female literacy rate on MMR, LE, DR and IMR are analysed for India and the impacts of female literacy rate on DR and IMR are analysed for the Northeast India. The regression results reveal that the impact of female literacy on MMR and IMR are significantly negative in India. In the Northeast region the regression results reveal that the impact of female literacy on IMR and DR are significantly negative.

**Key words:** Role, Women, Education, Health

### **INTRODUCTION**

The word Education has been derived from the Latin terms Educatum, Educare and Educere according to different groups of educationists. The words Educatum, Educare and Educere mean

the act of teaching or training, to bring up or to raise and to lead forth or to come out respectively. All the meanings indicate that education seeks to nourish the good qualities and draw out the best in an individual. Thus, education seeks to develop the innate inner capacities of an individual. Education gives an individual some desirable knowledge, understanding, skills, interests, attitudes and critical thinking.

Women and girls' education is considered as vital for development of an economy. Drew Faust, President, Harvard University says "We educate women because it is smart. We educate women because it changes the world." The sustainable Development Goal number 5: Gender Equality, recognizes that ending all discrimination against women and girls is not only a basic human right, it is crucial for sustainable future. The Incheon Declaration and Framework for Action for the implementation of Sustainable Development Goal 4 (Education 2030) ensure inclusive and equitable quality education and promote lifelong learning opportunities for all by 2030.

Although various international treaties have affirmed the right to education and non – discrimination, in many countries of the world still females lag behind males in education. The pervasive denial of the Human Right to Education experienced by women and girls across the globe by the fact that two thirds of the world's non – literate adults are women is a striking example of gender discrimination and therefore true gender equality in education and beyond remain far from being achieved (Convention on the Elimination of all forms of Discrimination Against Women, 2012). According to the United Nations Educational, Scientific and Cultural Organization Institute for Statistics (UIS), as in June 2014, 758 million adults (aged 15 years and older) in the world are illiterates, out of which 279 million are men and 479 are women that makes 63 per cent of the global illiterate population.

According to the World Health Organisation (WHO), health is a state of complete mental, physical and social well-being and not merely the absence of disease or infirmity. It also mentions that one of the fundamental rights of every human being irrespective of race, religion, political belief, economic or social condition is the enjoyment of the highest attainable standard of health and that, the achievement of any state in the protection and promotion of health is of value to all. Paunovic (2008) divided health indicators into several main domains. They are demographic and socio-economic factors, indicators of health status, health determinants, indicators of health systems and indicators of health policy etc.

List of health indicators include: a) Health indicators that include crude death rate, life expectancy, infant mortality rate and maternal mortality rate, b) Morbidity indicators, c) Health status, d) disability indicators, e) social and mental health indicators, f) health system indicators and g) health determinant. The goal number 3 of the Sustainable Development Goals ensure healthy lives and promote well being for all at all ages. Some of the targets of the Sustainable Development Goal 3 are: i) Reduce the global maternal mortality ratio to less than 70 per 100,000 live births by 2030, ii) End preventable deaths of new born and children under 5 years

of age, with all countries aiming to reduce neonatal mortality to at least as low as 12 per 1000 live births and under 5 mortality to at least as low as 25 per 1000 live births by 2030, iii) Reduce by one third premature mortality from non-communicable diseases through prevention and treatment and promote mental health and well being by 2030, iv) Substantially reduce the number of deaths and illness from hazardous chemicals and air, water and soil pollution and contamination by 2030.

The Human Development Index (HDI) is a summary measure of average achievement in key dimensions of human development: a long and healthy life, being knowledgeable and have a decent standard of living. The health dimension is assessed by life expectancy at birth.

Several studies that shows the importance of female education were made. Some of them are presented below:

Dreze and Murthi (1999) found that women's education was the most important factor explaining fertility differences across the country India and overtime. They also found that modernisation and development such as urbanization, poverty reduction and male literacy did not bear significant association with fertility. In 2002, Knowles, Lorgelly and Owen, for a cross section of countries found the importance of female education in raising labour productivity. Coulombe and Tremblay (2006) in their study entitled "Literacy and Growth" found that investment in the human capital of women was more important for growth than investment in the human capital of men and that increasing the average literacy skills over all individuals had a greater effect on growth than increasing the percentage of individuals that achieved high levels of literacy skills. Ackah, Ahiadeke and Fenny (2009) found that women's educational attainment determines women's labour force participation and women with primary school education or above were found more economically active than those with no education in Ghana. In 2012, Aysit Tansel and Nil Demat Gungor observed that female education positively and significantly affected the steady state level of labour productivity while the effect of male education was in general either positive or insignificant in Turkey. Becker, Cinnirella and Woessmann (2013) found a negative residual effect of women's education on fertility, despite controlling for several demand and supply factors for Prussia. Oztunc, Oo and Serin in 2015 examined the extent to which women's education affected long-term economic growth in the Asia Pacific region. They found that fertility rate, female labour force participation rate and female primary school enrolment were significant factors for annual per capita income growth. Karoui and Feki (2018) mentions that, raising the level of education of women can affect the level of education of the next generation positively. The empirical results show that there is a long-term relationship between these variables.

## OBJECTIVES

The paper aims to investigate the role of women education in health in India with special reference to its Northeast region. The paper aims to:

- i) Find the impact of women education on Maternal Mortality Ratio (MMR), Life Expectancy (LE), Death Rate (DR) and Infant Mortality Rate (IMR) in India.
- ii) Find the impact of women education on DR and IMR in Northeast India.

## MATERIALS AND METHODS

The paper aims to examine the role of women education on health in India with special reference to its Northeast region by investigating the impact of female literacy rate on MMR, LE, DR and IMR in India and, DR and IMR in Northeast India.

Infant mortality rate is the probability of a child born in a specific year or period dying before reaching the age of one, if subject to age-specific mortality rates of that period. Infant mortality rate is strictly speaking not a rate (i.e. the number of deaths divided by the number of population at risk during a certain period of time) but a probability of death derived from a life table and expressed as rate per 1000 live births. The unit of measure of IMR is cases per 1000 live births.

The maternal mortality ratio is defined as the number of maternal deaths during a given time period per 100,000 live births during the same time period. It depicts the risk of maternal death relative to the number of live births and essentially captures the risk of death in a single pregnancy or a single live birth. The unit of measure of MMR is deaths per 100 000 live births.

Life Expectancy is the average number of years that a newborn could expect to live, if he or she were to pass through life exposed to the sex- and age-specific death rates prevailing at the time of his or her birth, for a specific year, in a given country, territory, or geographic area. The unit of measure of LE is years.

Crude death rate indicates the number of deaths occurring during the year, per 1,000 population. The unit of measure of crude death rate is cases per 1000 population.

The impact of female literacy rate on MMR, LE, DR and IMR in India is investigated using secondary data on female literacy rate of 2011, MMR of 2016-18, IMR of 2018, LE of 2013-17 and DR of 2016. The impact of female literacy rate on DR and IMR in the Northeast India is investigated using secondary data on female literacy rate of 2011, IMR of 2018 and DR of 2016. The impacts are investigated using simple regression as follows:

$$\text{MMR} = \alpha + \beta \text{ female LR} + \epsilon$$

$$\text{LE} = \alpha + \beta \text{ female LR} + \epsilon$$

$$DR = \alpha + \beta \text{ female LR} + \epsilon$$

$$IMR = \alpha + \beta \text{ female LR} + \epsilon$$

In all the above, female LR is the independent variable and MMR, LE, DR and IMR are dependent variables. Female literacy rate is used as a proxy for women education.

## RESULTS AND DISCUSSION

The paper examines the role of women education on health in India with special reference to its Northeast region by investigating the impact of female literacy on MMR, LE, DR and IMR in India and DR and IMR in Northeast India.

The impact of women education on MMR, LE, IMR and DR in India being analysed with simple regression analysis are presented in table 1, table 2, table 3 and table 4 respectively. The impact of women education on IMR and DR in Assam being analysed with simple regression analysis are presented in table 5 and table 6 respectively.

As shown in the table 1, the impact of female literacy rate on MMR in India is significantly negative. The coefficient of the independent variable came out to be statistically significant at one per cent. If female literacy rate increased by one per cent, MMR decreased by 3.669.

Table 2 presents the impact of female literacy rate on LE in India. As presented in the table, the impact of female literacy rate on LE is significantly negative. The coefficient of the independent variable came out to be statistically significant at one per cent. If female literacy rate increased by one per cent, LE decreased by 1.541.

The impact of female literacy rate on IMR in India is shown in table 3. As can be seen from the table, the impact of female literacy rate on IMR is significantly negative. The coefficient of the independent variable came out to be statistically significant at one per cent. If female literacy rate increased by one per cent, IMR decreased by 0.858.

Impact of female literacy rate on DR in India is presented in table 4. The impact of female literacy rate on DR came out to be insignificantly negative.

Table-1 : Impact of Female Literacy Rate on MMR in India

Dependent Variable	Independent Variable/ constant	Co-efficient	S.E.	t-value	Sig.	R <sup>2</sup>	Adj. R <sup>2</sup>	F
MMR, 2016-2018	Constant	318.416	64.617	4.928	0.000	0.327	0.307	16.509
	Female LR, 2011	-3.669	0.903	-4.063	0.000			

**Source:** Sample Registration System, Special Bulletin on Maternal Mortality in India 2016-18 (July 2020), Office of the Registrar General, India.

Table-2 : Impact of Female Literacy Rate on LE in India

Dependent Variable	Independent Variable/ constant	Co-efficient	S.E.	t-value	Sig.	R <sup>2</sup>	Adj. R <sup>2</sup>	F
LE, 2013-2017	Constant	151.809	34.285	4.428	0.000	0.233	0.211	0.003 (a)
	Female LR, 2011	-1.541	0.479	-3.217	0.003			

**Sources:** 1. Sample Registration System, Bulletin, various issues, Office of the Registrar General and Census Commissioner, Ministry of Home Affairs, Government of India.

2. Economic Survey, various issues for data prior to 1995-99.

Table-3 : Impact of Female Literacy Rate on IMR in India

Dependent Variable	Independent Variable/ constant	Co-efficient	S.E.	t-value	Sig.	R <sup>2</sup>	Adj. R <sup>2</sup>	F
IMR, 2018	Constant	83.729	9.129	9.172	0.000	0.571	0.558	45.227
	Female LR, 2011	-0.858	0.128	-6.725	0.000			

**Source:** Sample Registration System, Bulletin, various issues, Office of the Registrar General and Census Commissioner, Ministry of Home Affairs, Government of India.

Table-4 : Impact of Female Literacy Rate on DR in India

Dependent Variable	Independent Variable/ constant	Co-efficient	S.E.	t-value	Sig.	R <sup>2</sup>	Adj. R <sup>2</sup>	F
DR, 2016	Constant	7.477	1.161	6.440	0.000	0.050	0.022	1.783
	Female LR, 2011	-0.022	0.016	-1.335	0.191			

**Source:** Sample Registration System, Bulletin, various issues, Office of the Registrar General and Census Commissioner, Ministry of Home Affairs, Government of India.

Table 5 shows the impact of female literacy rate on IMR in Northeast India. It is found that the impact of female literacy rate on IMR in Northeast India is significantly negative. The coefficient of the independent variable came out to be statistically significant at ten per cent. If female literacy rate increased by one per cent, IMR decreased by 1.064.

The impact of female literacy rate on DR in Northeast India is shown in table 6. The regression result reveals that the impact of female literacy rate on DR in Northeast India is significantly negative. The coefficient of the independent variable came out to be statistically significant at ten per cent. If female literacy rate increased by one per cent, DR decreased by 0.072.

Table-5 : Impact of Female Literacy Rate on IMR in North East India

Dependent Variable	Independent Variable/ constant	Co-efficient	S.E.	t-value	Sig.	R <sup>2</sup>	Adj. R <sup>2</sup>	F
IMR, 2018	Constant	99.384	34.372	2.891	0.023	0.426	0.344	5.203
	Female LR, 2011	-1.064	0.466	-2.281	0.057			

**Source:** Sample Registration System, Bulletin, various issues, Office of the Registrar General and Census Commissioner, Ministry of Home Affairs, Government of India.

Table-6 : Impact of Female Literacy Rate on DR in North East India

Dependent Variable	Independent Variable/ constant	Co-efficient	S.E.	t-value	Sig.	R <sup>2</sup>	Adj. R <sup>2</sup>	F
DR, 2016	Constant	10.758	2.233	4.818	0.002	0.448	0.369	0.049 (a)
	Female LR, 2011	-0.072	0.030	-2.382	0.049			

**Source:** Sample Registration System, Bulletin, various issues, Office of the Registrar General and Census Commissioner, Ministry of Home Affairs, Government of India.

## CONCLUSION

It is found that women education plays an important role on health in India as a whole and in the Northeast region of India. In India, female literacy rate is found to have a significant negative impact on MMR and IMR. In the Northeast region of India also, the impact of female literacy rate on IMR and DR is found to be significantly negative. However, the fact is that across India, still many females are not literate. Although literacy rate increased and, gender inequality in literacy rate where females lag behind males decreased over the years in almost all the states and union territories, still females lag behind males in literacy in almost all the states and union territories. Female illiteracy rate across India can also be seen to be increasing with age. It means that as we look in to the higher and higher age group we find increasing number of female illiterates across India. Therefore, the government should look into that all females irrespective of caste, creed, religion, age, place, socio-economic condition etc. have access to education. Moreover, the importance of education, lifelong learning and, education and women

empowerment should be widely communicated to the people. Motivation and awareness are important for the success of any policy adopted.

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## Appendix 1

### Female Literacy Rate (FLR), DR, MMR, IMR and LE in the Indian States and Union Territories

Sl No.	States/Union Territories	2011	2016	2016-18	2017/2018	2013-17
		<i>FLR</i>	<i>DR</i>	<i>MMR</i>	<i>IMR</i>	<i>LE</i>
1	Andaman & Nicobar Islands	82.40	5.2	NA	14/9	NA
2	Andhra Pradesh	59.10	6.8	65	32/29	69.7
3	Arunachal Pradesh	57.70	6.2	NA	42/37	NA
4	Assam	66.30	6.7	215	44/41	66.2
5	Bihar	51.50	6.0	149	35/32	68.9
6	Chandigarh	81.20	4.5	NA	14/13	NA
7	Chhattisgarh	60.20	7.4	159	38/41	65.2
8	Dadra & Nagar Haveli	64.30	4.0	NA	13/13	NA
9	Daman & Diu	79.50	4.6	NA	17/16	NA
10	Delhi	80.80	4.0	NA	16/13	74.7
11	Goa	84.70	6.7	NA	9/7	NA
12	Gujarat	69.70	6.1	75	30/28	69.7
13	Haryana	65.90	5.9	91	30/30	69.7
14	Himachal Pradesh	75.90	6.8	NA	22/19	72.6
15	Jammu & Kashmir	56.40	5.0	NA	23/22	74.1
16	Jharkhand	55.40	5.5	71	29/30	68.6
17	Karnataka	68.10	6.7	92	25/23	69.2

18	Kerala	92.10	7.6	43	10/7	75.2
19	Lakshadweep	87.90	6.0	NA	20/14	NA
20	Madhya Pradesh	59.20	7.1	173	47/48	66.0
21	Maharashtra	75.90	5.9	46	19/19	72.5
22	Manipur	72.40	4.5	NA	12/11	NA
23	Meghalaya	72.90	6.6	NA	39/33	NA
24	Mizoram	89.30	4.2	NA	15/5	NA
25	Nagaland	76.10	4.5	NA	7/4	NA
26	Odisha	64.00	7.8	150	41/40	68.4
27	Puducherry	80.70	7.2	NA	11/11	NA
28	Punjab	70.70	6.0	129	21/20	72.4
29	Rajasthan	52.10	6.1	164	38/37	68.5
30	Sikkim	75.60	4.7	NA	12/7	NA
31	Tamil Nadu	73.40	6.4	60	16/15	71.7
32	Tripura	82.70	5.5	NA	29/27	NA
33	Uttar Pradesh	57.20	6.9	197	41/43	65.0
34	Uttarakhand	70.00	6.7	99	32/31	71.0
35	West Bengal	70.50	5.8	98	24/22	71.2
<b>36</b>	<b>All India</b>	<b>65.50</b>	<b>6.4</b>	<b>113</b>	<b>33/32</b>	<b>69.0</b>

**Sources:** 1. Government of India, *Census Report, 2011*

2. Sample Registration System, Bulletin, various issues, Office of the Registrar General and Census Commissioner, Ministry of Home Affairs, Government of India.
3. Economic Survey, various issues for data prior to 1995-99.
4. Sample Registration System, Special Bulletin on Maternal Mortality in India 2016-18 (July 2020), Office of the Registrar General, India.

**Note:** 1. NA represents not available

2. IMR (total) is per thousand
3. DR (total) is per thousand
4. LE (Life Expectancy total) is in years
5. For LE, data relating to Bihar, Madhya Pradesh and Uttar Pradesh includes Jharkhand, Chhattisgarh and Uttarakhand respectively.