Maternal Education and its Relation with Fertility and Mortality: A Case Study among the Deoris of Assam, with Special Reference to Lakhimpur District

Biren Saikia

Asst. Prof. (Guest) Dept. of Humanities and Social Science, North-Eastern Regional Institute of Science & Technology (NERIST) Nirjuli, Arunachal Pradesh

Abstract

Education is considered to be one of the most important variables affecting fertility behaviour and is believed to be the single most important variable accounting for a large reduction in fertility. It is not only played a historic role in demographic transition but still remains a significant variable affecting fertility behaviour in present times. Therefore, this paper has attempted to study the possible relationship of maternal education with fertility and mortality among the Deori communities and also attempted has been made to study the wife's attitudes towards additional children in relation with different demographic and socio-economic variables for the same communities.

Key wards: - *Education, Fertility, Mortality etc.*

Introduction

Education is considered to be one of the most important variables affecting fertility. It is not only played a historic role in demographic transition but still remains a significant variable affecting fertility behaviour in recent times. The couples with higher educational attainment level are likely to have less desire for additional children. Apart from that, it leads to improved knowledge of and favourable attitude towards birth controlled and make better communication between husband and wife. Educated women are more likely to marry at a late age, postpone childbearing, use family planning methods and seek prenatal care when pregnant. Educated persons are aware of the problems that may result from a big family. P.k.B. Nayar[1] found that women education is the most responsible factor causing fertility decline in recent times in Kerela. Before dwelling at length the education and its relations with fertility and mortality among the Deori communities the present authors considered necessary to give a short description of the origin of the Deoris, their present divisions and the settings.

The Deoris are one of the important social groups of Assam. Ethnically they belong to Indio-Mongolioid race and linguistically to the Tibeto-Burman family Bharali[2]**.** The Deoris are a Scheduled Tribe Plain found mostly in Lakhimpur, Dhemaji, Sonitpur, Jorhat, Sibsagar, Dibrugarh, Tinsukia districts of Assam and some are also found in Lohit and Changlang districts of Arunachal Pradesh. The Deoris are one of the four divisions of Chutiya Bordoloi *etal*.,[3]**.** They were the priest group of the great Chutiya community. These four divisions are-(1) Dibangiya (2) Tenga Paniya (3) Borgoyan and (4) Patrogoyan. According to the 2001 census, the total population of the Deoris are 2, 45,000 in Assam and the Lakhimpur District contributes 53,3,56 numbers of the population. There is a total of 133 numbers of revenue villages in Assam and 43 numbers of villages under Lakhimpur District.

A Deoris woman is of yellow-brown complexion, moderate height, long black hair, straight, medium broad face. She wears colourful traditional artificially woven clothes shows as to how the Deoris women weave traditional fine clothes. Like the other communities, marriage is an indispensable part of the Deoris Society which can be regarded as a social institution. The girls generally marry between the ages of 18 to 24. The tribe endogamous systems, as well as clan exogamy, are strictly adhered to in respect of marriage. Once a girl marries she belongs to her husband's family. The children take their father's clan name. Divorce generally

does not occur in the Deori community.

The present paper studies the possible relationship of maternal education with fertility and mortality among the Deori communities and also focuses the wife's attitudes towards additional children in relation with different demographic and socio-economic variables for the same communities.

Objectives of the Study

The present study has been pursued keeping in view the following objectives-

(a) To study the possible relationship of maternal education with fertility and mortality among the Deori communities and

(b) To study the wife's attitudes towards additional children in relation with different demographic and socio-economic variables for the same communities.

Review of Literature

There is enough literature about the effect of education on fertility. According to **Caldwell and McDonald**[4] education of mother is a tool which helps them in breaking some of the traditional norms and makes them relatively more independent in taking decisions within the family situation. **Palloin**[5] has shown that literacy has a much greater influence on child mortality than on infant mortality. In the case of India, several surveys reveal that the education of women is an important factor for determining the fertility rate. A **Mysore population study**[6] reported that the average number of children born to women in Bangalore city who were illiterate or educated up to middle standard was higher than that of women who were educated up to higher school or more. The **National Sample Survey** [7] reports 1960-61 and 1961-62 rounds, showed a decrease in the average number of children born alive with an increase in women's education. It is well established that the decline of fertility in Kerala is due to the high literacy level of women there. **Borah**[8] found that infant and child mortality as a very significant determinant of fertility among the Adis of Arunachal Pradesh.

Data and Methodology

Relevant data for the study have been collected from both primary and secondary sources of information. The secondary data has been collected from Deori Autonomous Council, Narayanpur, different report of the National Sample Survey, articles in different journals, unpublished research works, newspapers and various websites etc. For the collection of primary data, we have restricted to the Narayanpur revenue circle of Lakhimpur District of Assam where the large numbers of Deoris are found. Out of the 27 Deori villages we have selected five villages for the collection of primary data. The villages are, viz Bordeuri, Kinapather, Kachikata, Pichala and Deotola. About 15% of the total Deori households of each of the five sample villages have been randomly selected for our investigation which works out to a total of 600 households for our detailed study.

The finding out the determinants of fertility differentials the technique of multiple regression and in analyzing the attitude of the couples towards additional children the technique of Binomial Logit Model have been applied. The technique of multiple regression analysis has been applied to examine the influence of various direct and indirect determinants of fertility differentials of the Deori couples under the present study. In the applied model live birth (LB) has been taken as the dependent variable, which depends on the following proximate and distant variables, viz.,

Proximate Variables:

Wife's Age at marriage (AM), Breast feeding (BF), Contraceptive use (CU), (using dummy variable, 1 for using and 0 for not using contraceptives), Abortion (AB)

Distant Variables:

Wife's and Husband Education (E) (Using dummy variables, scored 1 either of the couple is having education of M.E. level and beyond and 0 if otherwise), Per Capita Monthly Income (I), Wife Monthly Income (WMI), Wife's Nature of Occupation (WNO) (using dummy variables, 1 for wives who are cultivators and 0 for otherwise), Husband Nature of Occupation (HNO), (using dummy variables, 1 for husband's who are cultivators and 0 for otherwise),Wife's Labour Force Participation (WLFP), (using dummy variables, 1 for working women, and 0 for non-working women), Infant and Child Mortality Experience (ICM), Miscarriage and still Birth Experience (MSB), Effective Married Life Lived (EMLL), Type of Family (TF),(using dummy variables, 1 for nuclear and 0 for joint families), Family Members (FM)

Results and Discussion

To examine the effects of the above mentioned 15th variables on live birth (LB), the following multiple regression function has been framed-

$$LB_r = \beta_0 + \beta_1 AEM_r + \beta_2 BF_r + \beta_3 CU_r + \beta_4 AB_r + \beta_5 E_r + \beta_6 I_r + \beta_7 WMI_r + \beta_8 WNO_r + \beta_9 HNO_r + \beta_{10} WLFP_r + \beta_{11} ICM_r + \beta_{12} MSB_r + \beta_{13} EMLL_r + \beta_{14} TF_r + \beta_{15} FM_r + \epsilon_r$$

The results summarizing the effects of all the fifteen variables on live births have been presented in the following table-1

Table-1: Determinants of Fertility among the Deoris: Multiple Regression Results

Regressor	Unstandardized Coefficient	Standardized Coefficient	't'-Ratio	Tolerance	VIF
Constant	.980	-	-	-	-
AEM	-0.07314	-0.061	-2.478*	0.792	1.262
BF	0.01860	-0.054	2.290**	0.850	1.176
CU	0.137	0.019	0.793	0.819	1.221
AB	0.212	0.021	0.908	0.880	1.136
E	-0.06580	-0.013	-0.491	0.671	1.491
I	-0.0002108	-0.057	-1.950**	0.563	1.777
WMI	-0.00007095	0.045	1.423	0.478	2.090
WNO	0.03978	0.008	0.218	0.382	2.615
HNO	-0.164	-0.033	-1.108	0.555	1.803
WLFP	-0.125	-0.019	-0.571	0.425	2.352
ICM	0.996	0.558	22.827*	0.801	1.249
MSB	-0.160	-0.053	-2.290**	0.894	1.119
EMLL	0.08929	0.296	11.290*	0.697	1.435
TF	0.629	0.113	4.239*	0.677	1.476
FM	0.339	0.354	12.618*	0.610	1.640

Note: *=Significant at 1 % level, **= Significant at 5 % level.

R^2=0.721, $\overline{R}^2$=0.713, D.W=1.785, F=88.568*

The estimated result shows that for the Deoris, wife's age at marriage (AEM), breastfeeding (BF), per capita monthly income (I), infant and child mortality experience (ICM), miscarriage and stillbirth experience (MSB), effective married life lived (EMLL), type of family (TF), and number of family members (FM) are found to be significant variables explaining the variations in live birth (LB). The intercept value of 0.980 indicates that if the values of all the 16 regressions were fixed at

zero, the live birth will be less than one, (i.e., 0.980)

For examining the relative importance of the independent variables, it is revealed that the partial regression coefficient (β1) of the female age at effective marriage (AEM) is -0.07314, indicating that with the influence of all other explanatory variables held constant, as AEM increases say by one year, on an average, live birth goes down by 0.07314 units.

It is also found that controlling all others, longer duration of breastfeeding practice increase, on an average, live birth by a negligible amount of 0.018 units.

The regression coefficient for infant and child mortality experiences reveals that there is a highly significant positive relationship between live birth and infant and child (up to 5 years of age) mortality experiences of the couples. The partial regression coefficient of ICM being 0.996 indicates that an increase in infant and child mortality experience of the couples by saying one unit, controlling the influences of the other variables included in the model, increases live birth on an average, by almost one unit.

The regression co-efficient of the miscarriage and still birth experience (MSB) of the couple's shows that it has a depressing effect on live births. Holding all the others variables constant, an increase in miscarriage and still birth experience of the couples, say by one unit, reduces on an average, live birth by 0.160.

The partial regression co-efficient of EMLL being 0.08929, indicates that an increase in the length of effective married life lived, say by one year, increases live birth, on an average by 0.08929 units.

The regression co-efficient of TF indicates that fertility increases by 0.629 units if the type of family is nuclear. Moreover, Number of members in the family (FM) has also been found to have a significant positive influence on live birth. Having an additional member in the family, controlling the effects of all other factors, increases live birth, on an average, by 0.339.

The comparison of the standardized beta coefficients indicate that amongst all the determinants included in the model, infant and child mortality experience is the most important determinant of fertility. A standard increase in infant and child mortality experience leads, on an average, to a 0.558 standard deviation increase in live births. The effective married life lived by the couples has been found to be the third most significant factor influencing fertility among the Deori couples of the surveyed areas.

The data for the survey areas shows that the fertility level declines considerably with an increase in the educational level of women among the Deoris. The enhancement of educational amenities directly works as a contraceptive. The higher educational attainment couples are likely to have less desire for additional children. Educated persons are aware of the problems that may result from big family. Moreover they have the knowledge of family planning and practice contraceptives. Table-2 gives the information about education and wife's attitude towards additional children among the survey areas-

Table-2: Education and Wife's Attitude Towards Additional Children

Education	Percentage					
	Husband			Wife		
	Favourable	Unfavorable	Total	Favourable	Unfavorable	Total
Illiterate	118 (62.11)	72 (37.89)	190(100)	223(59.15)	154(40.85)	377(100.0)
Literate	231(63.28)	134(36.72)	365(100.0)	98(55.05)	80(44.95)	178(100)
Upto primary level	41(63.07)	24(36.93)	65(100)	18(69.23)	8(30.77)	26(100.0)
Upto M.E. Level	64(64.0)	36(36.0)	100(100.0)	26(47.28)	29(52.72)	55(100.0)
Upto High School level	65(58.55)	46(41.45)	111(100.0)	29(45.31)	35(54.69)	64(100.0)
Beyond High School level	61(68.53)	28(31.47)	89(100.0)	25(75.75)	8(24.25)	33(100.0)
Total	349(62.88)	206(37.12)	555(100.0)	321(57.84)	234(42.16)	555(100.0)

Source:-From field survey.

From the Table-2 it is found that, so far as the education is concerned, the study revealed that the percentage of wives having favourable attitude to additional child is higher for the illiterate females (59.15%) than the literate females (i.e.55.05%). On the other hand, in case of the husbands it has been noticed that the literate husbands have more preference for additional child (63.28%) as compared to the illiterate husbands (i.e.62.11%) It is also reveals that among the literate Deori wives and husbands the desire for additional child is more for those who have attained education beyond high school level.

Factor Affecting Attitude to Additional Children:

To quantify the factors determining the wife's attitudes towards additional children in relation with different socio-economic and demographic variables have been examined by applying the Binomial Logit Model.

In the applied model, wife's attitude towards additional children (ATAC) is the dummy dependent variable (using 1 for favourable and 0 for unfavorable attitude towards additional children) and the independent variables are- (1) Live Birth (LB), (2) Infant and Child Mortality Experience (ICM), (3) Per-Capita Monthly Income (I), (4) Wife's Monthly Income (WMI), (5) Number of Family Members (FM), (6) Type of Family (TF), (using dummy variables, 1 for nuclear families and 0 for joint families), (7) Wife's Age at Effective Marriage (AEM), (8) Miscarriage and Still Birth Experiences (MSB), (9) Wife's Labour force participation (WLFP), (using dummy variables, 1 for working women and 0 for non-working women), (10) Wife's Nature of Occupation (WNO), (using dummy variables, 1 for wives who are cultivators and 0 for otherwise) (11) Husband's Nature of Occupation (HNO), (using dummy variables, 1 for husbands who are cultivators and 0 for otherwise) (12) Education (E), (using dummy variables, scored 1 if either of the couples is having education of M.E. level and beyond and 0 if otherwise),(13) Effective Married Life lived (EMLL), (15) Knowledge of Family planning (KFP) (using dummy variables, 1 for wives having knowledge of family planning and 0 for otherwise)The model is –

$$ATAC = I_n\left(\frac{D}{1-D}\right) = \beta_0 + \beta_1 LB_i + \beta_2 ICM_i + \beta_3 I_i + \beta_4 WMI_i + \beta_5 FM_i + \beta_6 TF_i + \beta_7 AEM_i + \beta_8 MSB_i + \beta_9 WLFP_i + \beta_{10} WNO_i$$

$$+ \beta_{11} HNO_i + \beta_{12} E_i + \beta_{13} KFP_i + \beta_{14} EMLL_i + \beta_{15} KFP_i + U_i.$$

Where, D_i is a dummy variable, If the expected value of D_i continues to be P_i the probability is that the i^{th} person will make the choice described by D_i =1(i.e, having favourable attitude towards additional children) the results of the estimated Logit Model are reported in the table-3

Table-3: Determinants of Attitude Towards Additional Children, Binomial Logit Regression Results-Dependent Variable: Attitude Towards Additional Children (ATAC)

Regressor	Coefficient (β)	Std. Error	wald	Antilog (β*)
Constant	6.821	1.399	23.761*	917.107
LB	-0.802	.104	59.473*	.449
ICM	0.615	.127	23.368*	1.850
I	0.000	0.000	1.537	1.000
WMI	0.000	0.000	2.626	1.000
FM	-0.042	.062	.458	.959
TF	0.106	.320	.110	1.112
AEM	-0.138	.061	5.095**	.871
MSB	0.097	.150	.420	1.102
WLFP	0.697	.453	2.363	2.007
WNO	-0.291	.372	.611	.748
HNO	1.440	.336	18.416*	4.220
E	0.201	.290	.478	1.222
EMLL	-0.091	0.021	19.498*	0.913
KFP	-0.830	0.279	8.848*	0.436

Note: *=Significant at 1 % level, **= Significant at 5 % level.

N=555, R^2_p =0.79, Cox & Snell R^2=0.379, Nagelkere R^2=0.509

Hosmer and Lemeshow Goodness of fit test statistic =15.613

From the estimated regression coefficients it is found that there is a highly significant negative relationship between live birth (LB) experience and wife's attitude towards additional children. If the number of live birth experience increases by one unit, holding other variable constant, the log of odds of wife's favourable attitude to additional children is reduced by .802 units.

It is revealed that there is a highly significant positive influence of infant and child mortality experience on the wife's favourable attitude towards additional children. The ICM coefficient of 0.615 indicates that with other variables held constant, as the infant and child mortality experience increases by one unit, on an average, the log of odds of the wife's favourable attitude towards additional children increases by 0.615 units.

The antilog of ICM coefficient (i.e.1.85) suggest that, controlling for the other variables, an increase in wife's infant and child mortality experience increases by one unit, increases the chance of having favourable attitude towards additional children by 1.85 percent.

Wife's age at effective marriage has been found to have a significant negative effect on the favourable attitude towards additional children. The AEM coefficient being -0.138, suggests that with other variables constant, if wife's age at effective marriage increases by one year, on an average the estimated logit decreases by about 0.14 units.

The antilog of the AEM coefficient (0.871) indicates that one year increase in wife's age at effective marriage, other things remaining constant, reduces the favourable attitude towards additional children by 0.871 units.

It is observed from the table that husband nature of occupation has a highly significant influence on the wife's favourable attitude towards additional children. The HNO coefficient (1.44) indicates that, other things remaining constant, with a cultivator's wife increases the log of odds of having favourable attitude towards additional children by 1.44 units. The antilog (4.22) of the coefficient HNO also suggests that, other things remaining constant, the odds of wife's having favourable attitude towards additional children is four times more if the husbands are cultivators than when husbands are having different nature of occupations.

Similarly, the knowledge of family planning has been found to have a highly significant negative influence on the wife's favourable attitude towards additional children. The coefficient of KFP (-0830) indicates the negative impact of having knowledge of family planning on the log of odds of wife's having favourable attitude towards additional children.

Thus, the other regressors included in the model have no statistically significant effect on the attitude towards additional children. The R^2_p (i.e. 0.79) indicates that, the model correctly 'predicts' that in respect of about four fifths of the wives, the attitude towards additional children is dependent on the 15 independent variables included in the model.

Conclusion

As it has been observed from the survey that higher educated women are not only favourable predisposed towards family planning but also use modern and effective contraceptives and start practicing contraception soon after marriage or the first birth. For the findings of our survey it is also revealed that the wives having favourable attitude to additional child is higher for the illiterate females (59.15%) than the literate females (55.05%) but in case of the husbands it has been revealed that the literate husbands have more preference for additional child (63.28%) as compared to the illiterate husbands (i.e.62.11%) among the Deoris.

Ethical Clearance- Taken from **Institute of Research for Tribals and Scheduled Castes, Guwahati,** Assam

Source of funding- Self

Conflict of interest- Health and hygienic conditions in different minority communities in Assam.

References

1. Nayar PKB, 'Factors in Fertility Decline in Kerala' In K. Mahadevan etal (eds.), Fertility and Mortality, Sage Publications New Delhi India in 1986.
2. Bharali PN and Borah AK, "Educational Problems Among the Deorias, A Plains Scheduled Tribe of Assam" Published in *Bulletin* Assam Institute of Research for Tribals and Scheduled Castes, Guwahati in 2001 vol.-1

3. Bordoloi, BN, GC Sharma Thakur & MC Saikia, Tribes of Assam, Part-1. Published in Assam: Tribal Research Institute Guwahati in 1987.
4. McDonald P and Caldwell JC, 'Influence of maternal education on infant and child mortality levels and causes' International population conference: proceedings and selected papers, 1981 p.45
5. Palloni A, Mortality in Latin America: Emerging Patterns. Population and Development Review, 1981 Vol-7 pp. 623-649.
6. The Mysore population study, Published in United Nations Dept. of Economics and Social Affairs in 1961.
7. National Sample Survey, Tables with notes on family planning Sixteenth round. The cabinet Secretariat, Govt., of India July 1960-Jun 1961. No. 116. New Delhi, 1960.
8. Borah R, Tribal Demography in Arunachal Pradesh-A Case study of the Adis, Ph. D. thesis, Dibrugarh University, submitted in 2003 pp 88-91.