

## **REPRODUCTIVE PERFORMANCE OF DIBONGIYA DEORI WOMEN OF LAKHIMPUR DISTRICT, ASSAM**

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*Demography is the scientific study of human population primarily with respect to their size, structure and development. It is the study of population behaviour over time, its causes and consequences in spatial temporal details. Fertility and mortality are important demographic variables and are the sources of micro-evolutionary dynamics. The rate and pattern of fertility of women is not the same in two populations and even within the same population, it differs. It is influenced by a set of social and biological factors. Similar to fertility, mortality, especially infant mortality, is also regulated by some bio-demographic factors.*

*In the present study an attempt has been made to analyze the effect of age at menarche, age at marriage, mothers' age at child birth, birth order, family type and maternal education on fertility as well as pre-reproductive mortality among the Dibongiya Deori women of Narayanpur, Lakhimpur district of Assam.*

*The Deori is a scheduled tribe inhabiting the plains of Assam. Ethnically they are affiliated to the Tibeto-Mongoloid tribal group. They are divided into four khels- Dibongiya, Tengapania, Borgonya, and Patorgonya.*

*Keywords: Demography Study, Dibongiya-Lakhimpur, Assam-Dibongiya*

### **INTRODUCTION**

Demography, being an important aspect of physical anthropology, deals with the scientific and statistical study of human population through two principal components of population dynamics i.e., fertility and mortality. Fertility is the reproductive performance of an individual or population, measured as the number of viable offspring produced over a period (Jones *et al.*, 1995). On the other hand, mortality is defined as the state or condition of being subject to death. These two factors determine the size and structure of the population of a country. While fertility increases the size of a population, mortality reduces it. Both these factors are responsible for biological maintenance of a society.

Fertility performance is not the same among various communities of the world and even within the same population also, the rate is found to be differing. Similarly mortality rate also varies from community to community, population to population and so on. Many proximal and determinant factors

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are involved for differential fertility and mortality in human populations. Some factors are operating separately and some in conjunction with each other. Research studies repeatedly emphasize that biological and socio-cultural variables like age at menarche, age at marriage, type of marriage, economic levels, education and birth control methods have significant influence on the fertility and mortality of a population (Meerambica *et al.*, 1999; Das and Goswami, 2004; Hammami, 2005; Al-Kandari, 2007; Bosch, 2008; Koc, 2008). However, the net influences of the factors vary from population to population depending on their bio-cultural status.

Though the study on bio-social determinants of fertility and mortality is not very old, yet several studies regarding it have been published by many scholars of India and abroad. In this paper also an attempt has been made to analyze the effect of various bio-social factors on fertility as well as pre-reproductive mortality among the Dibongiya Deori women of Lakhimpur district of Assam. The Deori is a scheduled tribe inhabiting the plains of Assam. They are one of the four divisions of Chutiyas and they represent the 'priestly' section of the whole Chutiya community. The Deories are Mongoloid people. The word Deori originated from the Sanskrit word '*Deva Grihika*', meaning in-charge of the temple. Their original habitats were on the bank of the river Kundil and also in Sadiya. To escape from frequent troubles created by the Adis and Mishmis of Arunachal, they migrated to Assam. Brown (1895) reports that Swargadeo Gaurinath Singha (1780-1875 A.D) being unable to protect them from the Abors (Adis) and Mishmis, shifted them to Majuli, the famous river island of the river Brahmaputra. From there, they gradually spread over to the different parts of Assam. Nowadays, the Deoris are mainly found in Lakhimpur, Sibsagar, Jorhat, Dibrugarh and Sonitpur districts of Assam. Besides, they were also concentrated in the Lohit district of Arunachal Pradesh. According to 2011 Census, in Assam the total populations of the Deori are 41,161 in numbers. The entire tribe is divided into four main *khels* (territorial group) i.e., the Dibongiyas, Borgonyas, Tengapanias and the Patorgonyas. However, it has been reported (Saikia, 1976) that the last group i.e., the Patorgonya has almost become extinct and cannot be traced in any part of Assam. Among these four types of Deori people, only the Dibongiya group preserves their traditional Deori dialect.

## MATERIALS AND METHOD

The data for the present study were collected from 147 ever married women from two Dibongiya Deori villages (*Majorchapari and Pichala Deori Gaon*) of Narayanpur area, Lakhimpur district of Assam. The data were collected in the year 2012-2013. Data on bio-events and pregnancy outcome were collected

from each woman through specially designed fertility investigation schedule. Women whose husbands are alive and have at least one child are only interviewed. Besides these, for the selection of the subjects, the age is taken into consideration. For the determination of age, we had to estimate in few cases with reference to some important local events. In the present investigation, the spontaneous abortion case is only reported.

## RESULTS AND DISCUSSION

Age at menarche is an important indicator of physiological development in female which represents the symbolic start of womanhood. Menarcheal age varies from population to population depending on various hereditary and environmental factors which subsequently has an important effect on differential fertility. In North East India, study on the relationship between fertility and menarcheal age is very scanty. Only a few studies have been carried out by Chakraborty, 1994; Sengupta and Chakraborty, 1995; Frish, 1975; Phookon Gogoi, 2002, etc., and their findings are also corroborative. In many studies higher fertility is observed among those women who experience menarche at relatively early ages. But in some studies reverse results are also found. In the study of Reddy and Sudha (2010) among the Setti Balija community of Andhra Pradesh, they found that early menarcheal women with relatively early marriages register overall less number of pregnancies, leading to less number of live births. The present study shows conformity with the findings of Reddy and Sudha. It has been found that the incidence of mean conception and mean live birth increases as the age at menarche increases. In the study of Sengupta and Dutta among the Mishings of Assam it has been found that reproductive wastage as a whole is higher among those attaining menarche at relatively younger age (Sengupta and Dutta, 2000). In the present study miscarriage is higher among those who attain menarche at younger ages. It is gradually decreasing but again relatively higher in higher age group. But still birth is considerably higher in women who have attained menarche at 13 years. The infant mortality rate is found to be higher in women who have attained menarche at younger age, whereas the child mortality increases with an increase in the age at menarche and it is lower when women have attained menarche at higher age. It is completely absent in the menarche of younger one. Similarly juvenile mortality is found only in the higher menarcheal age. It is also absent in the menarche of younger ones (Table 1).

The age at marriage is also one of the major parameters for differential fertility. Many studies in different parts of the world have substantiated that delayed marriage plays a significant role in reducing the birth rate and consequently, the population growth rate. In North East India, studies

conducted by different scholars such as Coale and Tye (1961); Choudhury (1984); Sengupta and Sarmah (2007) etc., reveal that the fertility rates decline with the increase in age at marriage. Our result with regard to relationship between age at menarche and fertility rate also supports the earlier observation of these scholars. With regard to reproductive wastage, it has been found that the higher incidence of spontaneous abortion is exhibited among the women with higher age at marriage. But the still birth is completely absent with increase in age at marriage. The incidence of infant mortality is found higher among the mothers who have attained marriage below 19 years and gradually it is decreasing within the age group 20-24 and 25-29 years. Again it increases with increasing age at marriage i.e., 30-34 years (Table 2).

**Table 1**  
**Reproductive Performance of Mothers by Age at Menarche**

| Population | Age at Menarche | Number of Mothers | Mean Conception | Mean Live Birth | Abortion % | Still Birth % | Mortality |         |            |
|------------|-----------------|-------------------|-----------------|-----------------|------------|---------------|-----------|---------|------------|
|            |                 |                   |                 |                 |            |               | Infant %  | Child % | Juvenile % |
|            | <12             | 12                | 2.25            | 1.83            | 14.81      | 3.70          | 0         | 0       | 0          |
| DIBONGIYA  | 12              | 13                | 2.77*           | 2.69            | 2.78       | 2.78          | 5.71      | 0       | 0          |
| DEORI      | 13              | 27                | 2.74*           | 2.67            | 0          | 4.05          | 8.33      | 1.39    | 0          |
|            | 14              | 41                | 3.07*           | 3               | 2.38       | 0.79          | 3.25      | 2.44    | 0.81       |
|            | 15 & above      | 54                | 3.33*           | 3.11            | 3.89       | 3.33          | 3.57      | 0.60    | 0          |

\*includes 1 twin

**Table 2**  
**Reproductive Performance of Mothers by Age at Marriage**

| Population | Age at Marriage | Number of Mothers | Mean Conception | Mean Live Birth | Abortion % | Still Birth % | Mortality |         |            |
|------------|-----------------|-------------------|-----------------|-----------------|------------|---------------|-----------|---------|------------|
|            |                 |                   |                 |                 |            |               | Infant %  | Child % | Juvenile % |
|            | <19             | 66                | 3.32**          | 3.09            | 4.57       | 3.65          | 5.39      | 0.98    | 0          |
| DIBONGIYA  | 20-24           | 50                | 2.72*           | 2.7             | 0.74       | 0.74          | 2.96      | 2.22    | 0.74       |
| DEORI      | 25-29           | 26                | 2.88            | 2.69            | 2.67       | 4             | 2.86      | 0       | 0          |
|            | 30-34           | 5                 | 2.6             | 2.2             | 15.38      | 0             | 9.09      | 0       | 0          |

\*\*includes 3 twins, \*includes 1 twin

Mother's age at child birth also plays a major role in determining the fertility rate. Reproductive performance in relation to mother's age at child birth is given in the table 3. Universally, the prenatal wastages, mortality rate of infants and children born to younger mother is higher. Researches carried out on this aspect reveal that variety of birth defects such as chromosomal abnormalities, frequencies of still birth, abortion, etc. occur in association with increased maternal age. Taussing (1931), Pearl (1939) and others opines that percentage of abortion is lower in the earlier pregnancies than in the later

pregnancies. In the present study also abortion and still birth is slightly higher in later pregnancies. Again, infant mortality rate is found to be higher among those women who have given birth below 19 years and between 30-34 years. Similarly child mortality is also found among the mothers of higher age at child birth and juvenile mortality is found only in higher age group.

**Table 3**  
**Reproductive Performance of Mothers by Age at Child Birth**

| Population | Age at Child Birth | Number of Mothers | Mean Conception | Mean Live Birth | Abortion % | Still Birth % | Mortality |         |            |
|------------|--------------------|-------------------|-----------------|-----------------|------------|---------------|-----------|---------|------------|
|            |                    |                   |                 |                 |            |               | Infant %  | Child % | Juvenile % |
|            | <19                | 40                | 1.33*           | 1.3             | 1.89       | 1.89          | 9.62      | 1.92    | 0          |
|            | 20-24              | 96                | 1.47**          | 1.38            | 4.26       | 4.26          | 1.52      | 0.76    | 0          |
| DIBONGIYA  | 25-29              | 87                | 1.54            | 1.47            | 2.99       | 1.49          | 3.91      | 0.78    | 0          |
| DEORI      | 30-34              | 55                | 1.53            | 1.42            | 4.76       | 2.38          | 6.41      | 2.56    | 1.28       |
|            | 35-39              | 19                | 1.47            | 1.42            | 0          | 3.57          | 3.70      | 0       | 0          |
|            | 40-44              | 3                 | 1               | 1               | 0          | 0             | 0         | 0       | 0          |

\*includes 1 twin, \*\*includes 3 twins

Number of birth order also has an effect on the reproductive performance of a woman. It is generally observed that very often risk of high wastages exists for the 1<sup>st</sup> and 2<sup>nd</sup> order of pregnancy, declines for the 3<sup>rd</sup> and again increases from the 4<sup>th</sup> or 5<sup>th</sup> onwards. Poddar (1975) reported that there is greater effect of birth order on prenatal mortality of the offspring. Table 4 shows the reproductive performance of mother as per different birth order. But the present studies show a different picture. Here reproductive performance in relation to birth order reveals a very high frequency of

**Table 4**  
**Reproductive Performance of Mothers by Age at Child Birth**

| Population | Birth Order | Number of Mothers | Live Births % | Abortion % | Still Birth % |
|------------|-------------|-------------------|---------------|------------|---------------|
|            | 1st         | 147**             | 97.28         | 2.04       | 2.04          |
|            | 2nd         | 114**             | 95.61         | 2.63       | 3.51          |
|            | 3rd         | 78                | 92.31         | 5.13       | 2.56          |
| DIBONGIYA  | 4th         | 47                | 89.36         | 6.38       | 4.26          |
| DEORI      | 5th         | 25                | 92            | 4          | 4             |
|            | 6th         | 15                | 100           | 0          | 0             |
|            | 7th         | 10                | 90            | 10         | 0             |
|            | 8th         | 4                 | 100           | 0          | 0             |
|            | 9th         | 2                 | 100           | 0          | 0             |
|            | 10th        | 1                 | 100           | 0          | 0             |

\*\*includes 2 twins

miscarriage in the 3<sup>rd</sup> and 4<sup>th</sup> birth order. The incidence of still birth register gradual increases through subsequent birth orders; however, there is no still birth reported after 5<sup>th</sup> birth order onwards.

The relationship between women's education and fertility behavior has always been a central concern in demographic research because formal education has widely been found to be a more significant determinant of fertility than any other socio-economic variable (Cochrane, 1979, 1983). It is generally believed that education leads to improved knowledge and favourable attitude toward birth control and better communication between husband and wife. Therefore it is assumed that higher the educational level of spouses, lower the fertility (Driver, 1963). The National Sample Survey Reports (1960-1961 and 1961-1962 rounds) showed a decrease in the average number of children born alive with an increase in women's education (National Sample Survey, 1967, 1970).

Table 5 shows the relationship between fertility and educational level. The mean conception and mean live birth is found to be higher in illiterate women in comparison to the literate women. The incidence of embryonic wastages in educated Dibongiya Deori women show higher occurrences of abortion and still birth in general which shows similarity with Sengupta and Sarmah's study on Moria Muslims of Assam. The highest incidence of infant mortality is found among the primary educated women. In the present study the highest incidence of infant mortality is found among the women with primary education followed by those with secondary education. Likewise, the child mortality rate decreases with the increase in educational qualification and juvenile mortality is found only in illiterate women.

**Table 5**  
**Reproductive Performance of Mother by Educational Level**

| Population | Educational Level       | Number of Mothers | Mean Conception | Mean Live Birth | Abortion % | Still Birth % | Mortality |         |            |
|------------|-------------------------|-------------------|-----------------|-----------------|------------|---------------|-----------|---------|------------|
|            |                         |                   |                 |                 |            |               | Infant %  | Child % | Juvenile % |
| DEORI      | Illiterate              | 25                | 4**             | 4.04            | 1          | 2             | 2.97      | 2.97    | 0.99       |
|            | Primary Level           | 25                | 4.08            | 3.88            | 1.96       | 2.94          | 7.22      | 1.03    | 0          |
|            | Secondary Level & Above | 97                | 2.48            | 2.29            | 4.98       | 2.90          | 3.60      | 0.45    | 0          |

\*\*includes 4 twins birth

Like other factors, family type also has a profound influence on fertility as it is considered as the universal institution. It is generally observed that

people living in joint families have an increased fertility rate on an average. The study of Davis (1951), Lorimer (1954), Deka Mahapatra (1970), Choudhury (1979), etc. substantiated this viewpoint. On the other hand, several studies conducted in India reveal that the women from joint families register lower fertility compared to women of nuclear families (Dutta 1961; Bebarta, 1961, 1966; Nag 1965; Pakrashi and Malakar, 1967; Patel, 1993; Sengupta and Chakraborty, 1995; Dutta and Sengupta, 2013). In the present study, mean conception as well as incidence of live birth is considerably higher in women from nuclear families than from joint families. The incidence of abortion is higher in joint families than the nuclear families. The mothers from nuclear families have relatively higher still birth. The Dibongiya Deori mothers living in joint families have slightly higher infant mortality than the nuclear families. Again the incidence of child mortality is experienced only by the mothers from joint families, whereas in case of juvenile mortality it is experienced only in the nuclear families (Table 6).

**Table 6**  
**Reproductive Performance of Mothers by Family Type**

| Population | Family Type | Number of Mothers | Mean Conception | Mean live Birth | Abortion % | Still Birth % | Mortality |         |            |
|------------|-------------|-------------------|-----------------|-----------------|------------|---------------|-----------|---------|------------|
|            |             |                   |                 |                 |            |               | Infant %  | Child % | Juvenile % |
| DEORI      | Nuclear     | 58                | 3.47*           | 3.33            | 1.49       | 2.99          | 4.15      | 0       | 0.52       |
|            | Joint       | 89                | 2.72**          | 2.55            | 4.96       | 2.48          | 4.41      | 2.20    | 0          |

\*includes 1 twins, \*\*includes 3 twins

## CONCLUSION

From the foregoing discussion it can be concluded that quite a good number of bio-social factors are responsible for the reproductive performance of a woman. All these factors have either an independent effect or a collaborative effect. As the present study is based on small sample size, it doesn't permit us to make any definite statement. Therefore, there is a need to conduct in-depth study for better understanding of the effect of these factors on reproductive performance of women.

## References

- Al-Kandari, Y. Y., (2007), Fertility and its relationship with socio-cultural factors in Kuwaiti society, *East Mediterr Health J.*, 13, 6: 1364-71.
- Bebarta, P. C., (1961), Family type and fertility: A study in six Delhi villages, *Economic and Political Weekly*, 1: 633-634.
- Bosch Alinda, M.; Frans J. Willekens; Baqui Abdullah H.; Jeroen K.S; Van Ginneken; and Inge Hutter, (2008), Association between age at menarche and early-life nutritional status in rural Bangladesh, *J. Biosoc Sci*, 40: 223-237.

- Brown, B. W., (1895), *An Outline Grammar of Deori Language Spoken in Upper Assam*, Secretariat Printing Office, Michigan.
- Chakraborty, K., (1994), *A Study on Nutrition, Fertility and Mortality among the Ahoms of Assam*, Report submitted to the Omiyo Kumar Das Institute of Social Change and Development, Guwahati, Assam.
- Choudhury, B., (1979), Population problem in India: An anthropological approach, *The Assam Tribune*, Guwahati, Assam.
- Choudhury, R. H., (1984), The influence of female education, labour participation and age at marriage on fertility behavior in Bangladesh, *Social Biology*, 31: 59-74.
- Coale, A.J. and Tye, C. Y., (1961), The significance of age-patterns of fertility in high fertility population, *Milbank Memorial Fund Quarterly*, 39,4: 631-646.
- Cochrane, S. H., (1983), Effect of education and urbanization on fertility, In R.A. Bulatao and R. D. Lee (Eds): *Determinants of Fertility in Developing Countries*, Vol. II, Academic Press; New York.
- Das R., and Goswami, M., (2004), Fertility performance of a tea working population of Dibrugarh District, Assam. *Journal of Human Ecology*, 16, 2: 119-123.
- Deka Mahapatra, U., (1970), Study of fertility in a tribe of North East India, *Journal of Social Research*, 13: 74-82.
- Driver, E. D., (1963), *Differential Fertility in Central India*, Princeton University Press; Princeton.
- Dutta, E. D., (1961), Differential fertility in East Bengal in 1956, *Arth Vigyan*, 3: 67-82.
- Dutta, D. and Sengupta S., (2013), 'Effects of some bio-cultural factors on fertility among the Khamyangs of Assam', in K. Jose, G.K.Bera and R. P. Athparia (Eds.): *Anthropology in North East India*, pp 98-111, Omsons Publications, New Delhi.
- Frish, R. E., (1975), 'Demographic implications of the biological determinants of female fecundity', *Social Biology*, 22: 17-82.
- Hammami, A.; Chalbi, N. Ben; Abdallah, M., and Elgazzeh, M., (2005), Effects of consanguinity and social factors on mortality and fertility in Mauritania, *Tunis Med.* 83, 4: 221-226.
- Koc, (2008), Prevalence and socio-demographic correlates of consanguineous marriages in Turkey, *J Biosoc Sci*, 40, 1: 137-48.
- Lorimer, F., (1954), *Culture and Human Fertility*, UNESCO; Paris.
- Mahapatro, M., Sachdeva M.P., and Kalla A.K., (1999), Demographic profile of Bhattara tribal population of Nowrangpur district, Orissa, *Anthropologist*, 2: 133-137.
- Pakrasi, K., and Malakar, C. (1967), The relationship between family type and fertility, *Milbank Memorial Fund Quarterly*, 14, 4: 451-460.
- Patel, S., (1993), *Tribal Families and Fertility at Cross Roads*, Mittal Publications, New Delhi.
- Pearl, R., (1939), *The Natural History of Population*, Oxford University Press, London.
- Phookan. Gogoi, A., (2002), 'Effect of some socio-cultural factors on fertility and mortality among the Mundas of Assam - A preliminary appraisal'. In I. Barua, S.



- Sengupta and D. Dutta Das (Eds): *Ethnic Groups, Cultural Continuities and Social Change in North East India*, 325-332, Mittal Publications, New Delhi.
- Poddar, S., (1975), Effects of birth order and mothers age on reproductive wastages, In H.K. Rakshit (Ed): *Bio- Anthropological Research in India*, Anthropological Survey of India, Calcutta.
- Reddy, K. S. N and Sudha, G. (2010), Factors affecting fertility and mortality: A case study among the Setti Balija community of Andhra Pradesh, *Anthropologist*, 12,4: 271-275.
- Saikia, P.C., (1976), *The Dibongias*, B.R.Publishing Corporation, New Delhi.
- Sengupta, S. and Sarmah, M.P. (2007), Effects of some bio-cultural factors on fertility and mortality among the Moria Muslims of Assam: A preliminary appraisal, *Bulletin of the Department of Anthropology, Dibrugarh University*, 35: 113-128.
- Sengupta, S. and Dutta, R.K. (2000), Factors influencing fertility: A case study among the Mishings of Assam, *Bulletin of the Department of Anthropology, Dibrugarh University*, 28: 113-128.
- Sengupta, S., and Chakraborty, K., (1995), Family type, fertility and mortality: A study among the Ahoms of Assam, *Journal of Human Ecology*, 6: 197-200.
- Taussing, F. J., (1931), Abortion in relation to foetal and maternal welfare, *American Journal of Obstetrics and Gynecology*, 22.

