

## Fertility and Mortality in Bison Horn Madias of Dantewara Tehsil of Bastar District, Madhya Pradesh

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**ABSTRACT** Demographic analysis of genealogical data on 204 households of Bison Horn Madias of Dantewara Tehsil, District Bastar, is conducted employing indirect estimation techniques. The results of the study indicate that the total fertility rate of Bison Horn Madias is higher than Indian national population which is in accordance with high tribal fertility levels as reported in some studies from India. Similarly, mortality rate in Bison Horn Madias is distressing when seen in the context of Indian national population. The existing trends are discussed in the light of prevailing socioeconomic, cultural and health care practices among the Bison Horn Madias.

### INTRODUCTION

District Bastar, with its considerable forest area, is located on the south-eastern border of Madhya Pradesh between 80°15' east longitude and 17°46' and 20°14' north altitude. It covers an area of 39114 sq. km. with a population density of 47 individuals per sq. km. (Census of India, 1981). Out of the total population of 18,42,854 about 67.78 per cent of the district population consists of tribal population. There are eleven administrative divisions *i.e.* tehsils, namely, Jagdalpur, Konta, Kondagaon, Narainpur, Bhanupratapur, Kanker, Bijapur, Dantewara, Antagarh, Charama and Bhopalpatnam (Sharma et al., 1987). The major tribal groups of Bastar district are Gonds, Halbas and Bhartras.

Gonds of Bastar can be said to fall into two major groups, *i.e.*, the Murias, claiming social advancement and the Madias, recognized as primitive and backward. The Madias can further be classified in to two groups namely Abhuj Madias and Dandami Madias or Bison Horn Madias. Former are distributed in the Narainpur tehsil while the latter are to be found

in Dantewara, Konta, Bijapur and parts of Jagdalpur tehsils.

Bison Horn Madias inhabit isolated and difficult terrains of Bastar district and their natural habitat render them vulnerable to a host of exigent factors which may have direct or indirect bearing on their health status.

Bison Horn Madias depend for their subsistence on agriculture and forest produce, supplementing their income by occasional contract labour. Their main crops are rice, maize, kosra (cereals) and pulses. The barter system of exchange of commodities still exists in this tribal population. The staple food among Bison Horn Madias is rice, millets, wild fruits etc. They consume non-vegetarian food depending on its availability.

Besides, a considerable number of cases of malaria, diarrhoea, respiratory infections, tuberculosis, skin diseases, vitamin deficiency and malnutrition have been seen among these peoples from time to time. Their low rate of literacy further adds to their ignorance and unawareness of surrounding environment, which continues to envelop them into deep magico-religious beliefs and taboos.

This paper presents estimates of fertility and mortality for Bison Horn Madias of Dantewara tehsil of Bastar district, Madhya Pradesh. An attempt is also made to compare these estimates with those for other Indian tribal population, and Indian national population derived from 1981 census.

### MATERIAL AND METHODS

After an extensive field visit to Dantewara tehsil of Bastar district, a detailed sampling design was prepared. Villages were chosen on the basis of predominant distribution of the tribal group under study, followed by a random selection of the households. A nuclear family formed the basic unit of the study.

The fertility and mortality data were collected using a structured schedule and by drawing extended genealogies. Reproductive performance data were collected by pregnancy by pregnancy enumeration. The collected information was further cross-checked from elderly members of the household and some times from the village elders also. The study sample consists of genealogical data collected on 204 household of Bison Horn Madias from Dantewara tehsil of Bastar district, containing age-specific vital data. Since most of our information is based on oral histories without much substantiated by written evidence, indirect estimation techniques have been employed for calculating total fertility.

The fertility levels are calculated by estimation method (United Nations, 1967) which suggests that the ratio of the average parity of women at the end of child bearing age of the average parity of a younger group (women in the age interval 25-29) is closely related to the relative mean parity of women early and late in their twenties.

The relationship is represented as

$$T.F./P_3 = P_3/P_2$$

Which may be rewritten as

$$T.F. = (P_3)^2 / P_2$$

Where T.F. = Total fertility

$P_2$  = Mean parity of women in the age interval, 20-24.

$P_3$  = Mean parity of women in the age interval, 25-29.

In the absence of exact age at death in the present investigation regarding offspring mortality, we have used indirect estimation procedure (Brass and Coale, 1968; Brass, 1975) to assess mortality parameters. This method translates proportion of surviving and proportion of dead among the children ever born to women in different age groups into conventional measures of mortality. Brass demonstrated that the proportion of children dead to the women in the 5 year age intervals in the child bearing age is, with a set of adjustment factors, equivalent to the probability of dying by exact age,  $X$ , comparable to  $q^x$  in the life table function. The adjustment factors consist of scalar multiplying factors which can be selected on the basis of mean age of child bearing ( $m$ ) and the ratio of mean parity for the first three 5 year age intervals of the women in the child bearing age.

### RESULTS AND DISCUSSION

The fertility record of Bison Horn Madia mothers in various child bearing age group (Table 1) indicates a total fertility of 5.46 estimated from the mothers at the end of child bearing age i.e. mothers in the age group 45-49. However, the indirect estimation of total fertility calculated from  $(P_3)^2/P_2$  has been found to be 5.60 which hardly differs from the observed fertility rate for the women in the age group 45-49. The total fertility rate for Madia women is higher than that for Indian national population of 4.55 at this time (Census of India, 1981 b); but is in accordance with the high tribal fertility levels as reported in various studies from India (Bhowmik et al., 1975; Sharma, 1978, Sinha and Pal, 1983; Ray and Roth, 1984; Singh et al., 1987; Basu et al., 1988; Basu and Kshatriya, 1989; Satish et al., 1991).

The distribution of age specific mortality among Madia women (Table 1) together with multiplying factors  $K(a)$  and resultant  $q(a)$  values are utilized for estimating life expectancy at birth.

Table 1: Estimation of fertility, mean age at child bearing from age specific average parities and proportion dead by age specific mortality among Bison Horn Madias of Dantewara Tehsil, Bastar District, Madhya Pradesh

| Age interval | Number of women | Number of live birth | Mean parity | Age | Age Specific mortality  |          |       |          |
|--------------|-----------------|----------------------|-------------|-----|-------------------------|----------|-------|----------|
|              |                 |                      |             |     | Number of children dead | $K(a)^1$ | $D^2$ | $q(a)^3$ |
| 15-19        | 25              | 20                   | 0.80        | 1   | 1                       | 0.876    | 0.050 | 0.044    |
| 20-24        | 43              | 85                   | 1.98        | 2   | 6                       | 0.950    | 0.071 | 0.067    |
| 25-29        | 39              | 130                  | 3.33        | 3   | 14                      | 0.956    | 0.114 | 0.109    |
| 30-34        | 21              | 84                   | 4.00        | 5   | 16                      | 0.969    | 0.190 | 0.184    |
| 35-39        | 27              | 114                  | 4.22        | 10  | 24                      | 1.011    | 0.210 | 0.212    |
| 40-44        | 23              | 111                  | 4.83        | 15  | 25                      | 0.988    | 0.225 | 0.222    |
| 45-49        | 26              | 142                  | 5.46        | 20  | 34                      | 0.987    | 0.239 | 0.236    |
| Total        | 204             | 686                  |             |     |                         |          |       |          |

Estimated total fertility = 5.60

Mean age at child bearing =  $m = 27.73$  (United Nation, 1967).

1. Multipliers for age (a), Brass (1975); Ages 1-5 based on  $P_{(2)}/P_{(3)}$ , age 10-20 based on  $m = 27.73$

2. Proportion of children dead

3. Probability of dying by age (a)

The life expectancy at birth is based on  $q^5$  values and interpolated from Brass one-parameter model life tables (Carrier and Hobcraft, 1971). Life expectancy for Bison Horn Madias is 46.7 years which is comparable to Bastar tribes of Madhya Pradesh (41.09 years) and Kutia Kondh tribal population of Orissa (44.28 years). But, this is much below the average life expectancy at birth of 58.6 years for Indian national population (Census of India, 1991).

Thus, the tribal mortality estimated in the present study for Bison Horn Madias is quite distressing, especially when seen in the context of Indian national population. The differences can be attributed to the prevailing socio-economic, cultural and health care practices among the Madias of Dantewara tehsil. It has been observed that Madia live in poverty depending upon single crop cultivation and forest produce. The poor food habits contribute to malnutrition especially among children and pregnant mothers which leads to increased susceptibility to morbid conditions. Maternal-child care among Madias of Dantewara tehsil is largely neglected and the expectant mother to a great extent are not inoculated against tetanus.

From the inception of pregnancy to its termination, no specific nutritious diet is consumed by a woman. The consumption of iron, calcium and vitamins during pregnancy is poor. More than 90 per cent of deliveries are conducted at home attended by elderly ladies of the household. Services of paramedical staff are secured only in difficult labour cases. A breast fed infant in the first year do not get any supplementary diet. Vaccination and immunization of infant and children have been inadequate among this tribal groups. In addition, extremes of magi-coreligious beliefs and taboos tend to aggravate the problems.

Malaria, unspecified fevers, diarrhoea, respiratory infections and neo-natal tetanus take a heavy toll of infants and children.

Further, the houses are devoid of proper ventilation and enclosures for the animals are made within the household compound which leads to poor environmental sanitation. The Bison Horn Madias of Dantewara tehsil depend on ponds, ditches, and wells for drinking water which considerably increases the chances of water borne fungal and bacterial infections.

Thus, prevailing socio-economic, cultural, environmental sanitation, awareness and health care practices among Madias of Dantewara

tehsil are significant factors towards the observed fertility and mortality trends.

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