

Opportunity for Natural Selection among Chakesang of Nagaland, India

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ABSTRACT An attempt has been made to deal the opportunity for natural selection among the Chakesang of Kezhakhenoma village of Phek District, Nagaland. The value of I_m , I_f are 0.076, 0.143 and I value is 0.345 indicates the selection is operating moderate in this population.

INTRODUCTION

The Kezhakhenoma village, the location of the present study lies under the Phek Sub-Division of the Phek District in the Southern part of Nagaland. The village is occupied by the Chakesang community who are much closed to the Angami Naga in culture, language, custom, appearance and so on. Agriculture is the main occupation of the people and they practice wet rice terrace cultivation and as such proportion of jhum cultivation is found less in comparison to the other villages of Nagaland.

This time an attempt has been made to find out the demographic variables like fertility, mortality which are the fundamental events of the natural selection and the major evolutionary forces that can bring changes in allele frequencies and genetic make up of a population from one generation to another. And how far the socio-economic condition effects the rate on fertility and mortality in understanding the magnitude of natural selection in a population shows the fertility rate in this population.

MATERIALS AND METHOD

Demographic information of 235 households data were collected from Kezhakhenoma village of Nagaland during December 2000 to January 2001 with 63 mothers aged of 45 years and above lived continuously in the wedlock till attainment and mother age of 40 years and above for a calculation of complete family size and selection intensity. Information on age, sex, marital status of each offspring and reproductive wastages (including abortion and still birth) have been collected through in-depth interview with the

head of the family using household census schedules. The elderly women who are not aware of their real age was estimated with reference to some important local events and to the age of some other individuals who seemed to be in the same age group to avoid mistakes in estimation of age. The index of opportunity of selection (I) and its mortality and fertility (I_m , I_f) were computed following the original formula of Crow (1958) and a modified version suggested by Johnston and Kensinger (1971).

RESULTS AND DISCUSSION

The reproductive performances of Chakesang mothers from Keshakhanoma village has shown in Table 1 and 2 such as complete family size of and parameter used in calculating selection intensity. It indicates that, the mean number of live births per mother of aged 40 years and above are 7.16 with a variance of 7.34 whereas the frequency of premature death (those individuals died before 15 years of age) is 0.9667. The Indices of selection due to mortality (I_m) fertility (I_f) and both mortality and fertility (I_m , I_f) are 0.076, 0.143 and 0.435 respectively. I_f (fertility) contributes more in comparison with I_m and the value of I is so that found operating very low intensity in the present study than many population reported in the national level (Reddy and Chopra 1990; Basu et al. 1995) and a population from the North East of India (Khongsdier 1990, 1994; Choudhury et al. 1994; Sengupta and Kalita 1996; Barua and Rizvi 1996; Varte 1998, 2000; Varte and Varte 2006).

The low contribution of mortality component towards total selection intensity of this population occupies higher social status and econo-

Table 1: Complete family size

No. of mother	No. of live birth children	No. of surviving children	Mean no. live birth per mother (+SEM)	Mean no. surviving children (+SEM)
63	449	441	7.12±0.79	6.52±0.74

Table 2: Parameters used in calculating selection intensity

No. Parameters	Frequency
1. Number of women aged 40 years and above=	74
2. Number of reported pregnancies	= 569
3. Number of, live births	= 550
4. Number of survivors children	= 492
5. Proportion of survivors to births (P_b)	=.9667
6. Proportion of child birth i.e. death before 15 Years of age (P_a)	=.0738
7. Proportion of embryonic death (P_{ed})	=.2108
8. Mean number of live birth per mother of 40 Years and above (X)	= 7.16
9. Variance	= 7.34

Table 3: Indices of selection intensity

According to Crow (1958)				According to Johnston and Kensinger (1971)			
I_m	I_f	I		I_{me}	I_{mc}	I_f	I
0.076	0.143	0.233		0.285	0.076	0.143	0.345

mically better position than the other population of the region except that of the Khamti of Assam and Arunachal Pradesh (Barua et al. 1996). The mean number of live births and surviving children of the complete family size to such mother of 45 years and above (7.12 ± 0.79 and 6.52 ± 0.72) also shows the rate of fertility found higher in this population than other.

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