

Natural Selection Intensity among the Hmar of Mizoram, India

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ABSTRACT In the present study an attempt has been made to examine the intensity of natural selection among the Hmars of Aizawl District, Mizoram on the differential fertility and mortality from 132 ever pregnant women aged 45 years and above compared with the reported Hmar population of Manipur. Observed that, the value of I_m of Mizoram is much higher than the Hmar population of Manipur and the I value are 0.424 and 0.379, respectively.

INTRODUCTION

The opportunity for selection in a population is one of the major evolutionary processes that bring about changes in the gene frequencies. It comprises two components-differential mortality and differential fertility acting individually or jointly in a micro and macro levels. In the present paper, an attempt has been made to deal with the intensity of natural selection in the Hmar population of Aizawl District, rural area of Mizoram and a comparative study with those of reported Hmar population in the Churachandpur area of Churachandpur District, Manipur for a brief communication.

MATERIALS AND METHODS

Demographic data from 400 Hmar households of Tinghmun, Zohmun, Sakawrdai and Ratu villages of Aizawl District, Aizawl were collected during September-December 2001. The women's reproductive history has been collected by in-depth personal interview using household census schedules. The data pertaining to age and other parameters were crosschecked from the other family members and/or neighbouring relative family members. The index of opportunity of selection (I) and its mortality and fertility components (I_m , I_f) were computed following the original formula of Crow (1958) and modified version suggested by Johnston and Kensinger (1971).

RESULTS AND DISCUSSION

The reproductive performances of Hmar mother has been shown in Table 1. It indicates that, the mean number of live births per mother aged 45 years and above is 7.484 with a variance

of 14.005; whereas the proportion of premature deaths (those individuals who died before 15 years of age) is 0.078. The indices of selection due to mortality (I_m) relating to prenatal mortality (I_{me}) and post natal mortality (I_{mc}), and fertility (I_f) and total selection intensity (I) were computed according to modified version in Table 2. The I_m , I_{me} , I_{mc} , I_f and I in the Hmar population under study are 0.049, 0.085, 0.250 and 0.424, respectively.

Table 1: Parameters used in calculating the index of total selection intensity

Total number of mothers aged 45 years and above	=	132
Number of reported pregnancies	=	1035
Number of live births	=	988
Proportion of premature deaths (P_d)	=	0.0789
Proportion of embryonic deaths (P_{ed})	=	0.0457
Proportion of survivors upto birth (P_b)	=	0.9525
Mean number of live births per women		
Aged 45 years and above (x)	=	7.4848
Variance of live-births (V_l)	=	14.0055

A comparative study of the total selection of intensity among the Hmar of Mizoram and Manipur as reported by Varte (1998) shows that the I_m , I_f and I of the Hmar of Churachandpur district, Manipur are 0.072, 0.250 and 0.340 while the values for the Hmar of Aizawl District, Mizoram are 0.085, 0.250, 0.357 respectively. The study reveals that the value of index of opportunity for selection (I) as well as its mortality components operating in the present data are

Table 2: Indices of selection intensity among the Hmar of Mizoram

According to Crow's (1958)			According to Johnston and Kensinger (1971)			
I_m	I_f	I	I_{me}	I_{mc}	I_f	I
0.085	0.250	0.357	0.049	0.085	0.250	0.424

found to be much higher than those obtained for the Hmar of Manipur and also greater contribution of fertility component than mortality component in both the reported samples. However, the index of selection due to embryonic mortality i.e. prenatal mortality of the present sample is observed to be higher, almost double to that of the Hmar of Manipur.

From the above findings, we may conclude that the higher values of mortality components and index opportunity for selection among the rural Hmar population of Mizoram than that of their urban counterparts may be, mainly due to less equipped medical facilities, poor socio-

economic conditions and many other factors which can affect the total selection intensity i.e. due to rural-urban residence of population as there are no physical and environmental variations among themselves.

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