

Selection Intensity Among the Digambar Jain in an Urban Setting

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ABSTRACT The Digambar Jain of Sagar town, Madhya Pradesh were studied for index of opportunity for natural selection with its fertility and mortality components. According to Crow's (1958) formula and Johnston and Kensinger's (1971) modified method the total selection intensity is found to be 0.2226 and 0.3309, respectively.

INTRODUCTION

Any differential in fertility and mortality is known as natural selection, which is useful to measure the fitness of a particular environment. Population geneticists such as Sphuler (1973) have regarded it as a genetic phenomenon that has been operating in all human population. The index of selection intensities measures the maximum potential rate of change by selection where zero indicates no change. The method for computing the index of selection intensity was formulated by Crow (1958) which was modified by Johnston and Kensinger (1971) to incorporate the embryonic deaths. The present study is an endeavor to deal with intensity of natural selection among the Digambar Jain, residing in Sagar town of Madhya Pradesh.

MATERIAL AND METHOD

The present study was carried out during April 2001 on 166 unrelated women belong to the Digambar Jain of Sagar town Madhya Pradesh. Necessary data for calculating the indices of selection intensity were gathered through in depth interview. A total number of 60 women were older than 45 years. The index of opportunity for selection (I) and rates fertility and mortality components (I_f and I_m) were calculated according to the formulae of Crow (1958) and Johnston and Kensinger (1971).

RESULTS AND DISCUSSION

It could be seen from Table 1 that 60 Digambar

Jain mothers had 307 pregnancies in total, out of which 280 were live births. Mean number of live births for mothers aged 45 years and above is found to be 4.70 with a variance of 2.0433 while the proportion of survivors upto birth is 0.9186 and proportion of premature deaths is 0.1064 among them.

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

Total no. of mothers aged 45+ years	60
No. of reported pregnancies	307
No. of live births	282
Proportion of premature deaths (P_d)	0.1064
Proportion of embryonic deaths (P_{ed})	0.0814
Proportion of survivors upto birth (P_b)	0.9186
Mean number of live birth	4.70
Variance in the number of live births (V_b)	2.0433

Table 2: Indices of selection intensity

Calculated according to Crow's (1958) formula			Calculated according to Johnston and Kensinger's (1971) formula			
I_m	I_f	I	I_{me}	I_{mf}	I_f	I
0.1191	0.0925	0.2226	0.0886	0.1191	0.0925	0.3309

The indices of selection intensity as per Crow (1958) Johnston and Kensinger's (1971) methods were set out in Table 2. It reveals a higher component of mortality ($I_m = 0.491$) and lower component of embryonic mortality ($I_{me} = 0.0886$) than that of the component of fertility ($I_f = 0.0925$). However, both the results indicate that differentiated mortality contributes more towards the total opportunity for selection among the Digambar Jain. It is further observed that index of total selection (I) calculated according to Crow (1958) is comparatively lower than that calculated according to Johnston and Kensinger (1971), which is probably due to the inclusion of embryonic deaths in the latter.

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