

Selection Intensity in the Ahom of Assam

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ABSTRACT The index of total opportunity for selection has been worked out for the Ahom, a Tai - Mongoloid group of Assam. The total index of selection of found to be higher among the Ahom residing in rural area than its urban counterparts. The present findings are discussed in detail in the context of available previous studies especially from north east India.

INTRODUCTION

The index of total selection intensity (Crow, 1958), which measures the maximum potential rate of change, assuming that variations in mortality and fertility and genetically determined and fitness is completely heritable. There would be no change in the genetic make-up of a population, if the computed value of index comes to zero. Subsequently, Johnston and Kensinger (1971) extended Crow's original approach and separated the mortality component 'into a component due to variance in pre-natal loss and another due to post-natal mortality'.

In the present note an attempt has been made to examine the intensity of natural selection in the Ahom of Assam as well as to compare the present findings with those of published data on other populations of north east India. The Ahom belongs to Tai Mongoloid groups, who migrated to Assam from Myanmar (Burma) in the early part of the 13th century. The majority of them are concentrated mainly in the eastern districts of the State like Sibsagar, Jorhat, Lakhimpur, Dibrugarh and Tinsukia districts.

MATERIALS AND METHOD

The present investigation was conducted on the Ahom population inhabiting Chiring Gaon of Dibrugarh district and Tiphuk village near

Moran, Sibsagar district. The Chiring Gaon is very close (only 1 km away) to Dibrugarh town and thus the village is exposed to and benefited by the urban facilities maximally and can be regarded as an urban population. The village Tiphuk on the other hand is about 15 km away from Moran town and as such represent a rural population.

For the present analysis, the data on pregnancy outcome of 88 married Ahom women (34 rural and 54 urban women) aged 40 years and above, and on the wastage (death) of their embryonic as well as liveborn offspring have been considered. In view of relatively earlier menopausal age and early decline of fertility in the Indian women, for calculating the index of opportunity of selection (I), mothers over 40 years have been considered in the present study.

Difficulties were experienced in the assessment of age in case of few elderly women. In the cases, who are not aware of their real age, it was estimated with reference to some important local events and also with the help of other persons in the household/village. Similarly, the information given by the mothers were cross-checked and verified from their respective husbands or/and elderly women of the household, even then there may be minor recall lapses in informations.

The total selection intensity, has been worked out for each series (rural and urban) of data by using both original (Crow, 1958) and modified (Johnston and Kensinger, 1971) formulae with a view to identify how these two estimates in Ahom population differ from each other.

Surveying the literature on selection intensity, it appears that very little work has been done on north east Indian population. A comparison of the present data with that of the other available data on north east Indian population reported so far is also attempted. No test of

Table 1 : Parameters used in calculating the total selection intensity in Ahom

S.No.	Parameters	Ahom (Rural)	Ahom (Urban)	Ahom (R+U)
1.	Number of mothers aged 40 yrs and above	34	54	88
2.	Number of conception/pregnancy	193	270	463
3.	Number of live births	182	249	431
4.	Number of embryonic deaths	11	21	32
5.	Number of deaths (dead child) upto 15 yrs of age	19	14	33
6.	Survivor upto 15 yrs of age and above	163	235	398
7.	Number of live births per women of completed fertility (i.e. 40 yrs and above)	5.35	4.61	4.90
8.	Variance of mean live births	3.46	2.46	2.99

significance of the difference between the population with respect to 'I' was possible, however.

RESULTS AND DISCUSSION

The study reveals that the selection is acting with a very moderate intensity in the Ahom. The index according to modified formulae (Johnston and Kensinger, 1971) shows considerably higher value than that of the value calculated according to original (Crow, 1958) one. The present data also indicates that the 'I' among the Ahom is more towards the lower limit of the range of Indians (0.11 - 2.25) and so is the case I_m (0.01 - 0.81). However, the index of selection due to fertility i.e. I_f in the Ahom is slightly lower than the minimal Indian level (0.12 - 0.83).

There is a greater contribution of fertility component than the mortality component. Contribution of differential mortality (I_m) and particularly post-natal mortality (I_{mc}) is comparatively greater in the total opportunity for selection in Ahom of rural setting, and it is almost two times higher in magnitude to that of the Ahom of urban area.

It is also apparent that the value of index of opportunity for selection, as well as its fertility and mortality component by both the estimates are comparatively greater in rural Ahom

than their urban counterparts (Table 2). The findings of the present study, is in conformity with the observation made by earlier studies (Mukhopadhyay, 1989; Bharati, 1981 etc.) who observed that I_m , I_f , and I usually differ in relation to rural-urban residence of population.

The data on north east Indian population (see Sengupta and Gogoi, 1995 for detail) shows that among the Sonowal, the Bengali Muslim of Cachar, the Apatani, the Singpho and the Pnar/Jaintia (Deka, 1989; Khongsdier, 1990), mortality component of selection are comparatively higher than its fertility component, while it is just the reverse in the rest of the populations. The index of total selection (I) in Punjabi Sonar of Shillong (Jaswal and Dut-tachoudhury, 1989) is the lowest, in which both I_m and I_f are the lowest, while it is highest in the Singpho of Arunachal Pradesh (Padmanabham and Jaswal, 1982) in which I_f is the highest and I is also relatively high. There are considerable variations amongst the results obtained on the Pnar/Jaintia populations of Meghalaya. In Jaintia (Deka, 1989), the mortality component exceeds the fertility component by more than three times. It is worth mentioning that like Ahom the two samples from the Sonowal tribe also demonstrate the variation due to rural-urban residence on the index (Sengupta and Kalita, 1996).

Table 2 : Indices of selection intensity in Ahom

Parameter	Crow's (1958) formula			Johnston & Kensinger's (1971) method			
	I_m	I_f	I	I_m	I_{mc}	I_f	I
Ahom (Rural)	0.1166	0.1209	0.2516	0.0603	0.1166	0.1209	0.3270
Ahom (Urban)	0.0595	0.1160	0.1824	0.0844	0.0595	0.1160	0.2822
Ahom (R+U)	0.0830	0.1187	0.2180	0.0742	0.0830	0.1187	0.3085

The present comparative study reveals that the total selection intensity in Ahom population is nearly of the same order to those obtained for the other north east Indian population. The study also reveals that selection is operating with low intensity in all the populations of north east India.

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