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BRIEF COMMUNICATIONS

Selection Intensity in the Kaibartas of Assam

Sarthak Sengupta[1] and Gitimallika Gogoi[2]

1. Anthropology Department, Dibrugarh University, Dibrugarh 786 004, Assam, India
2. Anthropology Department, City College, Dibrugarh 786 001, Assam, India

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ABSTRACT The index of total opportunity for selection based on differential fertility and mortality has been worked out for the Kaibartas of Dibrugarh, Assam. From the analysis, it emerges out that selection is acting on them with a very moderate intensity. The present findings are also compared with the available previous study 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 are geneticall-ly 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) improvised Crow's original approach and separated the mortality component 'into a component due to variance in prenatal loss and another due to postnatal mortality'.

The present study deals at a micro-level with the intensity of natural selection in the Kaibartas of Dibrugarh, Assam. Kaibartas constitute the predominant scheduled caste community in the Brahmaputra Valley of Assam, whose traditional profession is fish trade. They are divided into two functional groups - the Halowa and Jaliya, and several sub-groups such as Mali, Seoli, Neoli, Katharoa, Bhari etc. Although fishing is their traditional occupation, many of them have accepted the profession of boatmen as a source of living, while a sizable section is engaged in agricultural activities. Among them malnutrition due to poor economic condition and food habits clearly perceptible and often it leads to increased susceptibility to morbid conditions especially among children and pregnant mothers. Due to lack of modern health care and nutritional facilities, they are exposed to various types of health hazards which leads to higher mortality. Consequently, fertility remains high in them.

Demographic studies on north east Indian population are scarce. In this regard, studies on intensity of natural selection are conspicuous by their absence. It is in recongnition of these limitations, an attempt has been made in this note to study the natural selection potentials among the Kaibartas based on differential fertility and mortality.

The indices of natural selection calculated for various population at different levels of technological advancement have shown characteristic differences. Studies conducted earlier, clearly indicates that apart from bio-genetic factors, the living conditions, socio-economic, cultural and health care practices yield a characteristic index of total selection potential reflecting differential mortality and fertility. In view of these, in this paper we have attempted to compare the present findings on Kaibarta with the available previous study on the index and its component due to fertility and mortality of the north east Indian populations to study variations among population groups/sub-groups inhabiting diverse physical and/or socio-cultural environments of the region.

MATERIAL AND METHODS

The sample was collected from Natungaon, Amaraguri, and Tulsigaon of

Table 1 : Indices of selection intensity : The Kaibarta and other population groups of North East India

Population	*Crow's (1958) Formula*			*Johnston & Kensiinger's (1971) Formula*				*Source*
n	I_m	I_f	I	I_{mc}	I_m	I_f	I	
ASSAM								
Kaibarta	0.2035	0.1101	0.3360	0.1305	0.2035	0.1101	0.5103	Present study
Ahom	0.0830	0.1187	0.2180	0.0742	0.0830	0.1187	0.3085	Sengupta & Chakravarty*
Sonowal	0.1676	0.1638	0.3589	0.0535	0.1676	0.1638	0.4321	Sengupta and Kalita*
Sonowal	0.1850	0.1790	0.3640	0.1030	0.1850	0.1790	0.5410	Deka, 1980
Boro Kachari	0.1100	0.1300	0.2500					Guha & Mukherjee, 1990
Bengali Muslim	0.4300	0.3100	0.8700					Chakravarty, 1976
Khamti	0.1790	0.1130	0.3120	0.0050	0.1790	0.1130	0.3190	Sarkar et al., 1994
ARUNACHAL PRADESH								
Apatani (Guchi)	0.4350	0.1900	0.7100					Padmanabham & Jaswal, 1982
Apatani (Guth)	0.4400	0.3120	0.8890					Padmanabham & Jaswal, 1982
Singpho	0.4370	0.4060	1.0200					Padmanabham & Jaswal, 1982
Khampti	0.3800	0.3980	0.9340					Choudhruy *
Gallong	0.7500	0.1800	0.0700					Chakravarty & Ahmed, 1989
MEGHALAYA								
Pnar	0.2362	0.1335	0.4012	0.2016	0.23[illegible]2	0.1335	0.6807	Khongsdier, 1990
Jaintia	0.4560	0.1250	0.6380	0.1070	0.4560	0.1250	0.8140	Deka, 1989
Pnar	0.1060	0.2810	0.4160					Banerji et al., 1994
Hajong	0.4430	0.1310	0.6310	0.0320	0.4430	0.1310	0.6840	Barua, 1983
Punjabi Sonar (Shillong)	0.0500	0.0540	0.1070					Jaswal*

* indicates unpublished material

Dibrugarh district and comprised and comprised 35 Kaibarta mothers who had completed 40 years. The data were collected from randomly selected households. The fertililty and mortality data were collected using a sturctured schedules/questionnaire. The collected information was further cross checked from elderly members of household and sometimes from the village elders also. The index of total selection is computed following Crow (1958) and Johnston and Kensinger (1971).

RESULTS AND DISCUSSION

The study concerns with the pregnancy outcome of 35 Kaibarta married women aged 40 years and above and on the wastage/ death of their embryonic as well as liveborn offspring. They had altogether 234 pregnancies, out of which 207 are live born offspring. The prenatal loss in them (miscarriage and still-birth) is 27, while the number of premature death (died before 15 years of age) is 35, proportion of premature offspring mortality being 0.1691 or 16.91%. The average number ($\bar{X}$) of live births per women is 5.91 with a variance (V_f) of 3.84.

The index of total selection intensity acting with a very moderate intensity in the population and which according to Johnston and Kensinger's (1971) modified method shows considerably higher value than that of the value calculated according to Crow's (1958) formula (Table 1). Opportunity for selection estimated by both methods operates mainly through diffrenential mortality. In this regard the contribution of postnatal mortality (I_{nc}) is more than the prenatal mortality (I_{nc}).

The present data indicates that the 'I' among the Kaibarta is more towards the lower limit of the range of the Indians (0.258 - 2.250 ; Reddy and Chopra, 1990) and so is the case with 'I_n' (0.01 - 0.81). However, the index of selection due to fertiligy (I_f) in them is slightly lower than the minimal Indian level (0.17 - 0.38). It may be pointed out that in most of the population of north east India, the relative contribution of differential prenatal and postnatal mortality component is more for the index of selection than do the differential fertility, however in Ahom, Boro Kachari, Khamtis of Arunachal Pradesh and Pnar (Banerji et al., 1994), the fertility component is higher than the mortality component. The index of total selection in Punjabi Sonar of Shillong, Meghalaya is the lowest, while it is highest in Gallong of Arunachal Pradesh. However, in all the populations under consideration, the empirical value of 'I', being moderate are nearly of the same order.

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