

Some Morphogenetic Variables Among The Koch Populations of Assam

Sarthak Sengupta

Department of Anthropology, North Eastern Hill University, Shillong 793 014, Meghalaya, India

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ABSTRACT The distribution patterns of hand clasping, arm folding, handedness and dominant eye among the Koch populations of Assam are reported.

INTRODUCTION

Attention to the inheritance of the manner of hand clasping in man was drawn first by Lutz (1908). The genetics of hand clasping has been reviewed by Freire-Maia et al. (1958) and Lai and Walsh (1965). Later on, similar dimorphism in arm folding was noticed by Weiner (1932). Investigation carried by Francis (1913) on handedness revealed that the trait is genetically controlled. Although the genetic mechanism of the traits under consideration is still unclear, but, occurrence of these traits in various populations in different frequencies have been confirmed by several researchers. Thus, these traits seem to be of value in human population variation studies.

The present paper reports the bilateral variation with regard to hand clasping, arm folding, handedness and dominant eye among the Koch populations of Assam. The Koch, which are synonymous with Rajbansi are major detribalized caste populations of Assam (Sengupta, 1993). The populations are distributed in the entire Brahmaputra valley, heavily concentrated in undivided Goalpara and Kamrup districts of Assam. They consist of people of different tribal groups (Kachari, Rabha, Garo, Lalung, Mikir or Karbi etc.) who have been converted to Hinduism (Waddel, 1901; Gait, 1905; Mazumdar, 1972). Conversion started in time immemorial but it is an ongoing process.

SUBJECTS AND METHODS

A total of 561 not closely related Koch sub-

jects was studied from five different districts of Brahmaputra valley of Assam: Goalpara (male 81, female 41), Kamrup (male 85, female 39), Darrang (male 79, female 47), Nowgong (83 male) and Dibrugarh (53 male, 53 female).

To determine hand clasping and arm folding the subjects were asked to perform the act quickly. The thumb (in hand clasping) and the limb (in arm folding) that occupy the upper position was scored as right or left. These phenomenon were repeated at least thrice in both the traits to ascertain the observation. For handedness and dominant eye, a person was classified as right or left depending on hand and eye used for various activities. All the above mentioned tests were performed without making the subjects conscious about the experiments. The differences between and among the samples have been determined by chi-square test.

RESULTS AND DISCUSSION

In all the samples right type of hand clasping is the dominant one (Table 1) but barring Dibrugarh district, the females show comparatively lower frequency of this type than their male counterparts. However, the bisexual differences were not statistically significant as is expected in case of any autosomal trait. Therefore, the data from the two sexes of each district have been pooled together for the purpose of comparison. The Koch of Darrang showing the lowest percentage (57.14%) of the right type of hand clasping differ significantly only from the Koch of Nowgong (73.49%). The Koch of other districts, however, do not show significant differences among them.

With regard to arm folding, the left arm over the right is the usual one (Table 1). The Koch

Table 1: Percentage distribution of morphogenetic traits among the Koch populations of Assam

Districts	Sex	n	Right type			Dominant eye
			Hand clasping	Arm folding	Handedness	
Goalpara	Male	81	65.43	30.86	90.12	77.78
	Female	41	60.98	34.15	85.37	63.41
	M + F	122	63.93	31.97	88.52	72.95
Kamrup	Male	85	68.24	47.06	89.41	65.88
	Female	39	58.97	43.59	87.18	71.79
	M + F	124	65.32	45.97	88.71	67.74
Darrang	Male	79	60.76	34.18	88.61	73.42
	Female	47	51.06	44.68	82.98	61.70
	M + F	126	57.14	38.10	86.50	69.05
Nowgong Dibrugarh	Male	83	73.49	44.58	97.59	68.67
	Female	53	54.72	39.62	96.23	79.25
	M + F	106	66.04	45.28	92.45	73.58
Total	Male	381	65.35	39.37	92.13	72.44
	Female	180	59.44	42.22	87.22	67.78
	M + F	561	63.46	40.29	90.55	70.94

M = Male F = Female

males of Goalpara, Darrang and Dibrugarh exhibit higher percentage of left type of arm folding than their female counterparts. No statistically significant bisexual differences were observed. Thus, here too, while comparing the data from two sexes have been pooled. Test of significance reveals that barring the Goalpara and Kamrup ($\chi^2 = 5.066$, $df=1$, $0.02 > p > 0.01$) districts, the other inter-district comparisons were not statistically significant, suggesting similarities among them.

Comparatively higher frequency of right handedness in males than in the females is noticed in all the samples (Table 1). However, in none of the samples sex differences appear to be significant. Koch of Nowgong district having maximum frequency of right handedness differ significantly from each of the Koch sample of Goalpara ($\chi^2 = 5.645$, $df = 1$, $0.02 > p > 0.01$), Kamrup ($\chi^2 = 5.501$, $df = 1$, $0.02 > p > 0.01$) and Darrang ($\chi^2 = 7.440$, $df = 1$, $0.01 > p > 0.001$) districts. Similarly, Koch of Dibrugarh having the next highest frequency also differ significantly from the Koch of Darrang ($\chi^2 = 3.955$, $df = 1$, $0.05 > p > 0.02$).

In respect of frequency distribution of types of dominant eye, there is neither sexual nor population variation. The right eye is the dominant one in all the samples. Here too, like the case of arm folding, the females of the Koch of Kamrup exhibit higher occurrence of right type of dominant eye while in the rest of samples the trait is overwhelmingly dominant in males.

Thus, bisexual symmetry is characteristic in respect of all the morphogenetic traits studied. It is also apparent from this investigation that the Koch population of one district shows homogeneity with their counterparts in other districts in respect of most of these traits. On the whole, Koch are within the broad range of variations of Assamese caste populations when compared with the studies reported among Brahmin by Sharma (1981), Das et al. (1986 a) Kayastha by Das et al., (1980); Kalita by Sharma (1981), Das et al. (1986b) and Hira, Jogi, Kumar and Kaibartta by Das et al. (1986c) and Sengupta (1985).

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