

A Note on Some Morphogenetic Variables Among The Mishings of Assam

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ABSTRACT Morphogenetical traits such as pattern of hand clasping, arm folding, handedness, dominant eye, tongue rolling, earlobe attachment as well as dental occlusion pattern of the Mishings of Assam are reported. Barring tongue rolling, the two sexes fail to record any statistically significant differences in the remaining characters. The results of the present study are compared with other neighbouring population in order to assess the group difference or similarities. The present Mishing sample stand significantly apart from most of the population under consideration.

INTRODUCTION

Population diversity in north east India provides a unique opportunity to study the morphogenetic variations among the endogenous populations living in different geographical and ecological conditions of the region. The present paper brings results of a morphogenetic study on pattern of hand clasping, arm folding, handedness, dominant eye, tongue rolling, earlobe attachment as well as dental occlusion pattern of the Mishings of Assam.

The Mishings, which are synonymous with Miri are one of the largest plain tribal populations with Mongoloid affinities in the State of Assam. Their language belong to North Assam group of the Tibeto-Burman branch of the Sino-Tibetan family. They inhabit mostly in the district of Dibrugarh, Lakhimpur, Dhemaji, Darrang, Jorhat and Sibsagar.

Lutz (1908) was the pioneer to point out the dimorphism in the method of clasping the hands in man and postulated a genetic basis for the trait. Weiner in 1932 for the first time studied the arm folding and noticed a com-

parable dimorphism. Trankell (1955) studied handedness and pointed out that this functional assymetry is partially genetically controlled. The population variability in dominance of eye and tongue rolling have also been reported (Whittinghill, 1970; Sturtevant, 1940). Studies reveal the genetic nature of both the traits. However, many researchers have opined that these traits are not genetically controlled and the difference in the patterns are probably due to habits formed early in life, rather than hereditary.

According to the degree of earlobe attachment, individual can classified into different categories. Since Hilden's (1922) pioneering works on earlobe attachment, the trait has been used as an tool in the study of human diversity for its simplicity in diagnosis and existence of variation among population.

Individuals can also be classified into different categories to the tooth occlusion pattern and researches conducted by various investigators confirmed that there are ethnic variability of the trait.

Although the genetic mechanism is still unclear, these traits seems to be of value in comparative population studies.

MATERIAL AND METHODS

The study conducted among the Mishing tribe from Kachutoli and Mohori Camp in Dhemaji district, Assam. The sample consists of 105 individuals comprising 60 male and 45 female Mishings. Proper care was taken to exclude closely related individuals in the sample. The methods followed for examination and analysing the types of hand clasping, arm folding, handedness, dominant eye

and tongue rolling were similar as described earlier (Chetry and Sengupta, 1991-1992). Standard methods (Sturtevant, 1940) were adopted in recording the ability for tongue rolling. The earlobe have been classified into free and attached types following the two fold classification of Powell and Whiteney (1937). Tooth occlusion pattern were classified following Eveleth's (1972) four fold models, *i.e.*, edge to edge bite, overbite and underbite or negative overbite. Within the brief limits of this article, in making the data analysis, the group studied has been compared with some neighbouring populations. Sexes have been treated separately considering sexual dimorphism. The difference between and among groups have been determined with the chi-square test.

RESULTS AND DISCUSSION

In table I the frequencies of various morphogenetic traits among the Mishings are compiled with that of the available data from other populations of Brahmaputra valley, Assam. In Mishing the frequency of right type of hand clasping, handedness and dominant eye is overwhelmingly prevalent over that of the left type, while it is just reverse in case of arm folding. Negative type of tongue rolling is also common occurrence among them. The bisexual differences are observed not significant in all the traits except for tongue rolling. It has also been observed that Mishing groups show significant differences with most of the neighbouring populations with Mongoloid affinities for

Table 1 : Percentage distribution of morphogenetic traits (right or positive type)

Population	No.	Hand Clasping	Arm folding	Handedness	Dominant eye	Tongue rolling	References
MALE							
Mishing	60	97.27	30.00	97.27	51.67	33.33	Present study
Mishing	111	87.39 ¹	34.23	99.10	31.53 ¹	47.75	Das et al., 1985
Ahom	103	81.55 ¹	35.92	94.17	74.51 ¹	92.16 ¹	Das et al., 1985
Ahom	100	62.00 ¹	59.00 ¹	48.00			Dutta and Phookan, 1978-79
Chutiya	104	50.96 ¹	30.77	100.00	61.54	46.15	Das et al., 1985
Tengaponiya							
Deori	100	93.00	24.00	98.00	68.00 ¹	53.00 ¹	Das et al., 1985
Dibongiya Deori	91	73.63 ¹	54.95 ¹	67.03 ¹	71.43 ¹		Chetry and Sengupta, 1991-1992
Lalung	94	98.94	56.38 ¹	96.81	44.68	72.34 ¹	Das et al., 1980
Moran	106	68.67 ¹	23.58	100.00	47.17	49.06 ¹	Das et al., 1985
Turung	75	94.66	18.66				Barua et al., 1982-1983
FEMALE							
Mishing	45	100.00	27.78	100.00	64.44	53.33	Present Study
Mishing	90	87.78 ¹	28.80	100.00	41.11 ¹	37.78	Das et al., 1985
Ahom	101	91.09 ¹	26.73	98.02	75.25	61.39	Das et al., 1985
Chutiya	86	74.74 ¹	19.77	100.00	61.63	33.72 ¹	Das et al., 1985
Tengaponiya							
Deori	101	91.09 ¹	19.80	98.02	81.19 ¹	52.48	Das et al., 1985
Dibongiya Deori	44	63.64 ¹	45.45	93.18 ¹	86.36 ¹		Chetry and Sengupta, 1991-1992
Moran	100	81.00 ¹	10.00	100.00	31.00	35.00 ¹	Das et al., 1985
Turung	79	92.40	20.25				Barua et al., 1982-1983

Mishing males and females samples are compared using chi-square test with other population groups sex-wise
1. Statistically significant at 5.0% level

Table 2 : Percentage frequency of attached earlobe types in some Mongoloid population of Assam

Population	No.	Attached	Comparison with Mishings	Reference
MALE				
Mishing	60	65.00	-	Present study
Mishing	152	50.65	3.57	Sengupta, 1987
Miri	100	53.00	2.19	Sharma, 1961
Ahom	205	39.02	12.73 ¹	Sengupta, 1987
Ahom	194	28.87	25.56 ¹	Das, 1975
Ahom	100	62.00	0.14	Dutta, 1979
Deori	143	34.26	16.25 ¹	Sengupta, 1987
Boro Kachari	100	34.00	14.53 ¹	Das, 1967
SONOWAL				
Kachari	166	43.97	7.80 ¹	Das et al., 1978
Lalung	80	60.00	0.31	Das & Sharma, 1968
Lalung	94	87.23	10.74 ¹	Das et al., 1980
Rabha	300	82.00	8.761	Das, 1967
FEMALE				
Mishing	45	73.33	-	Present Study
Mishing	150	57.33	3.72	Sengupta, 1987
Ahom	175	31.42	26.19 ¹	Sengupta, 1987
Ahom	136	30.15	26.08 ¹	Das, 1975
Deori	148	27.02	31.46 ¹	Sengupta, 1987

1. Indicates statistically significant at 5.0% level

various traits listed in the table I. Only Turung, a Tai Mongoloid population has a trait complex which is almost similar to that of the Mishings.

The frequency of attached earlobe types dominants over the free one in both the sexes of Mishings (Table 2). Though attached ear-

lobe is more common among the females as compared to males, but the sexual differences is statistically non-significant. Mishings population show similar distribution as observed for Ahom males (Dutta, 1979) and Lalung (Das and Sharma, 1968).

The Mishings tribals show a predominance of edge to edge bite (68.33% in males, 80.00% in females) of dental occlusion pattern. The bisexual differences are observed not significant. The percentage figure with regard to overbitting among them (30.00% in males; 20.00% in females) are much lower than the corresponding figures observed among the Dibongiya Deori and the present study show significant differences with Dibongiya Deori in both the sexes, as well as combined.

Our assesment of the morphogenetic relationship between the Mishings with other population suggest that although in a larger number of characters the Mishings show a great deal of variation, nonetheless certain significant similarities are not wanting. The most striking similarities are between the Mishings and the rest of the populations in character such as handedness. In the present study the females possess right type of these morphogenetic traits more often than the males, but test of significance with regard to sexual variation record non-significant differences. The population Turung show least

Table 3 : Percentage distribution of dental occlusion pattern

Population	No.	Sex	Dental occlusion			References	
			Edge to edge bite	Overbitting			Underbite
				Mild	Severe		
Mishing	60	M	68.33	23.33	6.67	Present study	
	45	F	80.00	17.78	2.22		
	105	M+F	73.33	20.95	4.76		
Dibongiya	90	M	47.78	41.11	7.78	Sengupta & Chetry, 1992	
Deori	44	F	47.73	40.91	9.09		
	134	M+F	47.76	41.04	8.21		

Statistically significant differences are observed at 5.0% level among Mishings and Dibongiya Deori (male : female and combined)

while Dibongiya Deori show greatest magnitude of differences with the Mishings.

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