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DISTRIBUTION OF EARLOBE PATTERN IN INDIA

ABSTRACT — The incidence of ear lobe types was studied in a population of Tripura, India and compared with other Indian populations. Both sexes show high incidence of free earlobes. Statistical analyses show no significant bisexual difference. Geographical climate was noted in overall frequencies of the trait.

KEY WORDS: Earlobe — Distribution — Indian population.

Earlobe types, free or attached, are useful tools in the study of human variation. Attachment of earlobe in man is mostly influenced by heredity, although the mode of its inheritance is not established. The trait was studied first by Hilden (1922). He suggested that free earlobe is due to single autosomal gene. This postulation was supported by Carriere (1937) who observed the recessive nature of the free earlobe types in 12 families. Wiener (1937), too, on the basis of family study in 124 families stated that more than single pair of alleles or a single pair of alleles with modifiers are the factors responsible for this trait. According to Quelprud (1934, 1941), Powell and Whitney (1937), Wiener (1937) Kloepfer (1946), Suzuki (1950) and Gates (1954) this trait is controlled by multiple alleles. In recent years, authors like Mohanraju and Mukherjee (1973) strongly supported the influence of 'heredity' on the basis of their study on the proportion of concordant pairs in family and twin series respectively.

A good deal of work has been carried out by various investigators in this field. Higher incidence of attached earlobes in few African populations in comparison to Europeans were reported by Gates (1954), Gabel (1958), Saldanha (1962), and Glass (1954); Dutta (1963), Dutta and Ganguly (1965), Basu (1968) and Chattopadhyay (1968) studied the earlobe types for ethnic comparison. Dutta and Ganguly (1965) suggested that selection and breeding pattern do not play any role. Chattopadhyay (1968) observed overlapping of ranges between 'Mongoloids' and 'Caucasoids'.

TABLE 1. *Distribution of earlobe type of the population under study*

Population	Sex	Free		Attached		Sex difference χ^2(d . f = 1)	Result
		n	%	n	%		
Jugi (Debnath)	M	62	68.13	29	31.86	0.6426	non-significant
	F	46	62.16	28	37.83		

TABLE 2. *Distribution of earlobe pattern in the populations of India*

Area and Population	Sex	Sample-size	Earlobe type				Authors
			Free		Attached		
			Abs. No.	%	Abs. No.	%	
ASSAM							
1. Suri	M	100	55	55.00	45	45.00	Das and Deka '60
2. Kalita	M	120	67	55.30	53	44.70	Das '64
3. Rabha	M	300	54	18.00	246	82.00	Das '67
4. Garo	M	200	54	27.00	146	73.00	Das '67
5. Rajbanshi	M	100	46	46.00	54	54.00	Das '67
6. Kachari	M	100	32	32.00	68	68.00	Das '67
7. Lalung	?	52	37	72.30	15	32.70	Huq '74
8. Miri	?	41	27	65.10	14	43.90	Huq '74
9. Kachari	?	50	22	45.00	28	55.00	Huq '74
10. Koch	?	40	33	82.50	7	17.50	Huq '74
11. Kalita	?	130	108	83.10	22	16.90	Huq '74
12. Ahom	?	99	78	78.70	21	31.30	Huq '74
13. Kaibarta	?	142	107	75.30	35	24.70	Huq '74
14. Brahman	?	133	110	82.70	23	17.30	Huq '74
15. Muslim	?	141	112	79.40	29	20.60	Huq '74
16. Keot	M	126	100	80.10	26	19.90	Deka and Das '73
	F	94	79	84.00	15	16.00	—do—
17. Brahmin	M	104	79	76.00	25	24.00	Deka and Das '73
	F	85	71	83.60	14	16.40	—do—
18. Kalita	M	192	143	74.50	49	25.50	— do —
	F	118	98	83.10	20	16.90	— do —
19. Baishya	M	213	157	73.70	56	22.30	— do —
	F	100	80	80.00	20	20.00	— do —
20. Kumar	M	152	121	79.60	31	20.40	— do —
	F	85	71	83.50	14	16.50	— do —
21. Muslim	M	175	136	77.90	39	22.10	— do —
	F	100	88	88.00	12	12.00	— do —
22. Ahom	M	194	138	71.13	56	28.87	Das '75
	F	136	95	69.85	31	30.15	— do —
ARUNACHAL PRADESH							
23. Wanchos	?	105	76	72.38	29	27.62	M. N. Dutta '83
ANDHRA PRADESH							
24. Kodithi	M	81	46	56.80	35	43.10	C. Mohanraju and D. P. Mukherjee '73
Kapur	F	57	33	57.90	24	42.10	— do —
25. Balija	M	65	17	26.20	48	73.80	— do —
	F	32	10	31.30	22	68.70	— do —
ANDHRA PRADESH							
26. Kurava	M	77	21	28.50	56	71.50	C. Mohanraju and D. P. Mukherjee '73
	F	46	15	34.70	31	65.30	— do —
27. Kuslim	M	33	6	21.20	27	78.80	— do —
	F	12	3	25.00	9	75.00	— do —
ANDAMAN and NICOBAR ISLAND							
28. Nicobarese	M	428	86	20.30	342	79.70	Dutta and Ganguly '65
	F	301	60	20.00	241	80.00	— do —
29. Car-Nicobarese	M	175	33	18.90	142	81.10	— do —
	F	166	28	16.90	138	83.10	— do —
30. Teressan	M	77	28	36.40	49	63.60	— do —
	F	81	30	37.00	51	63.00	— do —
31. Southern Nicobarese	M	65	10	15.40	75	84.60	— do —
	F	54	20	3.70	34	96.30	— do —
32. Chowrite	M	111	15	14.40	96	85.60	— do —
33. Nomo-sudra Bengali	M	200	156	78.00	44	22.00	Krishnan and Rao '78
BIHAR							
34. Southern Pahira	?	183	137	74.90	46	25.10	Basu '66
DELHI							
35. Jat	M	107	87	81.30	20	18.70	Chattopadhyay '86
36. Ahir	M	80	55	68.80	25	31.20	Chattopadhyay '68
37. Jat	?	785	572	72.83	213	27.13	V. K. Kalita and Gupta A. K. '78

TABLE 2. (contd.)

Area and Population	Sex	Sample-size	Earlobe type				Authors
			Free		Attached		
			Abs. No.	%	Abs. No.	%	
HIMACHAL PRADESH							
38. Brahmins of Dharamsala	?	67	32	48.97	35	51.03	Singh '74
KERALA							
39. Urali	M	125	89	71.20	36	28.80	Chatterjee and Kumar '56
40. Mannan	M	46	20	43.50	26	56.50	Chatterjee and Kumar '57a
41. Paliyan	M	47	21	44.70	26	55.30	Chatterjee and Kumar '57b
42. Malapantaram	M	37	2	8.10	35	91.90	Chatterjee and Kumar '57b
MYSORE							
43. Samartha Brahmin	M	116	43	37.10	73	62.90	Basu '68
	F	108	39	36.10	69	63.90	Basu '68
44. Nadhava Brahmin	M	105	41	39.00	64	61.00	Basu '68
	F	100	34	34.00	66	66.00	Basu '68
MYSORE							
45. Iyengar Brahmin	M	104	32	30.80	72	69.20	Basu '68
	F	110	38	34.40	72	64.60	Basu '68
46. Lingayat	M	106	33	31.10	73	68.90	Basu '68
	F	105	40	38.10	65	61.90	Basu '68
47. Vokkaliga	M	121	36	29.70	85	70.30	Basu '68
	F	105	30	28.60	75	71.40	Basu '68
48. Adikarnatak	M	102	31	30.40	71	69.60	Basu '68
	F	106	34	32.10	72	67.90	Basu '68
49. Muslim	M	108	58	53.70	50	46.30	Basu '68
	F	102	46	45.10	56	54.90	Basu '68
MAHARASTRA							
50. Chitpavans	M	100	59	59.00	41	41.00	Malhotra '66
51. Derruka	M	100	19	19.00	81	81.00	Malhotra '66
52. Sarswats	M	100	34	34.00	66	66.00	— do —
53. Kanhadas	M	100	50	50.00	50	50.00	— do —
54. Deshastha Rgvedi	M	100	51	51.00	49	49.00	— do —
55. Kanava	M	100	31	31.00	69	69.00	— do —
56. Madyandina	M	100	34	34.00	66	66.00	— do —
57. Charak	M	100	74	74.00	26	26.00	— do —
MEGHALAYA							
58. Hajong	M	165	55	33.33	87	52.73	S. Barua '85
	F	133	76	57.14	36	27.07	— do —
MADHYA PRADESH							
59. Muriya (Bastar tribe)	M	103	9	9.70	94	90.30	Basu '67
60. Bhatra (Bastar)	M	132	34	26.10	98	73.90	Basu '67
61. Brahmin	M	97	62	63.90	35	36.10	Dutta and Ganguly '65
62. Intermediate caste	M	103	58	56.30	45	43.70	— do —
63. Chamar	M	54	27	50.00	27	50.00	— do —
64. Tribals	M	54	28	51.90	26	48.10	— do —
65. Muslim	M	102	49	48.10	53	51.00	— do —
ORISSA							
66. Gadaba	M	302	186	61.70	116	38.30	Deka and Pattajoshi '75
PUNJAB							
67. Khatri Arora	M	94	89	95.00	5	5.00	
68. Brahmins	?	133	100	76.69	33	23.31	V. K. Kalia and A. K. Gupta '78
PUNJAB							
69. Khatris	?	191	158	82.72	33	17.28	V. K. Kalia and A. K. Gupta '78
70. Aroras	?	130	112	84.15	18	13.85	— do —
71. Vaishya	?	71	59	83.10	12	16.90	— do —
72. Backward castes	?	367	271	73.84	96	26.16	— do —
73. Scheduled castes	?	97	69	71.13	28	28.87	— do —
74. India	M	111		64.90		35.10	Lai and Walsh '66
RAJASTHAN	?	612	435	69.42	177	30.58	Haque '78
75. Bhil	?	478	259	68.52	119	31.48	— do —

TABLE 2. (contd.)

Area and Population	Sex	Sample size	Earlobe type				Authors
			Free		Attached		
			Abs. No.	%	Abs. No.	%	
TRIPURA							
76. Jugi (Debnath)	M	91	62	68.13	29	31.86	Present study
	F	74	46	62.16	28	37.83	— do —
UTTAR PRADESH							
77. Bhotia	M	100	82	82.00	18	18.00	Tiwari '54
78. Muslim	M	115	91	79.10	24	20.90	Verma '57
79. Brahmin	M	224	200	89.30	24	10.70	Verma '57
80. Kshatriya	M	128	106	82.80	22	17.20	Verma '57
UTTAR PRADESH							
81. Ahir	M	123	105	85.40	18	14.60	Verma '57
82. Pasi	M	74	63	85.10	11	14.90	— do —
83. Kurmi	M	44	38	86.40	6	13.60	— do —
84. Chamar	M	46	36	78.30	10	21.70	Verma '57
85. Kanyakubja Brahmin	?	145	81	55.87	64	44.13	Tyagi et al '72
86. Sarjupari Brahmin	?	114	58	50.87	56	49.13	— do —
87. Brahmins	?	398	365	91.71	33	8.29	Bhowmik '71
88. Agarwals	?	104	44	42.30	60	57.70	Tyagi et. al. '72
WEST BENGAL							
89. Northern Pahira	?	119	80	67.50	39	32.50	Basu '66
90. Gandhabanik	M	100	43	43.00	57	57.00	Dutta '63
91. Rarhi Brahmin	M	55	42	76.36	13	23.64	Chattopadhyay '68
	F	40	28	70.00	12	30.00	— do —
WEST BENGAL							
92. Kayastha	M	73	53	72.60	20	27.40	Chattopadhyay '68
	F	58	44	75.90	14	24.10	— do —
93. Baidya	M	15	11	73.33	4	26.70	— do —
	F	13	10	71.00	3	23.00	— do —
94. Namasudra	?	100	78	78.00	22	22.00	G. Krishnan and K. R. Rao '78

? indicates sex is not mentioned.

But Basu (1968) observed the reverse and found a close similarity of discrete populations. This controversy has added complexity about the anthropological usefulness of this trait — Martin (1928).

MATERIAL AND METHOD

The data for the present study have been collected at random from the villages of Western Tripura under Bishalgarh Police Station. Only Jugi (Debnath), a Bengali speaking Hindu caste group population were considered for the purpose. Both males and females were taken into consideration to understand the sexual variation. Earlobe types were examined under two groups — (i) attached lobe and (ii) free lobe, following the method adopted by Mohanraju and Mukherjee 1973.

RESULTS AND DISCUSSION

The frequency of earlobe distribution is revealed in *Table 1.* It is observed that both sexes show higher incidence of free earlobe (68.13 % in males and 62.16 % in females). Sex difference is not significant at 5% level ($\chi^2 = 0.6426$, d.f. = 1). Neither has been the sex difference significant in any Indian population studied so far except the Southern Nicobarese (Dutta and Ganguly, 1965).

Table 2 represents the frequency of free earlobes in different populations of India, where the present findings are also compared. It is evident from the table that the frequency of free earlobe in Indian population varies from 70—95 %. The overall geographical climate is noted from this criterion. The frequency of free earlobe tends to increase in the northern and north-eastern parts of India, viz., Assam, Arunachal Pradesh, the Punjab, Uttar Pradesh, Delhi and in the western side which includes Rajasthan. The trend tends to decrease towards south and east. Similar incidence of free earlobes is expected in our findings in view of geographical location. The Lowest frequency is noted among the Malapantaram of Kerala except the Charak Brahmins and Uralis who show high frequency of the trait.

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