

A Study of Morphogenetical Characters Among Selected Population Groups of Jammu and Kashmir, India

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ABSTRACT Frequency distributions of three morphogenetical characters, namely, colourblindness, ear lobe attachment and mid-phalangeal hair, among Bodhs, Baltis, Dard Muslim (Scheduled tribes) and Tibetans of the Ladakh region, Kashmiri Muslims of the Kashmir region, and Gujjars (Scheduled tribe) and Dogra Caste groups (Brahmans, Rajputs and Ramdasias) of the Jammu region have been presented.

In the present study, an attempt has been made to investigate the distributions of morphogenetical characters *viz.*, colourblindness, ear lobe attachment and midphalangeal hair among nine tribal and non-tribal population groups of Jammu and Kashmir. The details about the eight population groups Bodhs, Baltis and Tibetan of Ladakh (Bhasin and Khanna, 1992a), Kashmir Muslims (Bhasin and Khanna, 1992b), Gujjars and Dogra-Brahmans, -Rajputs and -Ramdasias (Bhasin and Khanna, 1992c) have already been reported. Besides these Dard Muslims have also been included in the present study.

Dard Muslims

Hailing originally from the Gilgit area, the Dards inhabit the cold, bleak Drass valley of Kargil district of Ladakh region of Jammu and Kashmir. Their Aryan features and their language -Shinnai - set them apart from the surrounding Balti population. These Muslims of Drass mainly project the Sunni faith and mostly cling to the customs they brought with them from their original home.

MATERIAL AND METHODS

The subjects belonging to Bodhs (both males and females), Baltis (both males and females),

Dard Muslims (females) and Tibetans (males) [Ladakh division], Kashmiri Muslim (both males and females) [Kashmir division], Gujjars, Dogra Brahmans, Dogra Rajputs and Dogra Ramdasias (males) [Jammu division] from four different districts of the northernmost border Indian state of Jammu and Kashmir *viz.* Leh, Kargil, Srinagar and Jammu, were studied for three morphogenetical characters, namely colourblindness ($n = 2344$), ear lobe attachment ($n = 1332$) and mid-phalangeal hair ($n = 1334$) during 1988-89.

The Ishihara colour plates (Ishihara, 1960) were employed for the diagnosis of colourblindness. The ear lobe attachment was studied here into three categories - "Attached" meaning completely attached ear lobes; "Free" meaning completely free ear lobes; and "Lobeles" meaning the ear is without lobe (after Martin and Saller, 1961). The presence or absence of hair on middle phalanges was determined by means of a pocket lens.

RESULTS AND DISCUSSION

Colour Blindness

The incidence of colourblindness in the present population groups of Jammu and Kashmir is listed in table 1. The highest frequency has

been found among the Bodh males (6.61 per cent) and the lowest among the Kashmiri Muslim males (absent). It has been observed that among the females this trait is completely absent, whereas barring among Kashmiri Muslims, among the males of all other population groups studied, variable incidence of colourblindness which are statistically significant are found ($\chi^2 = 37.173$; $df = 11$; $p < 0.001$). Among the population groups of Ladakh, colourblindness is frequent (range 0.76-6.61 per cent) while in Kashmir region, no incidence of colourblindness was found. In each population groups of Jammu studied here, colourblindness has been detected (range 2.25-3.70 per cent).

Table 1 : Incidence of colourblindness in various population groups of Jammu and Kashmir

Population group	Sex	n	Colourblind (Per cent)
Bodhs	Male	484	6.61
Bodhs	Female	130	0.00
Baltis	Male	525	5.52
Baltis	Female	104	0.00
Dard Muslims	Female	23	0.00
Tibetans	Male	131	0.76
Kashmiri Muslims	Male	44	0.00
Kashmiri Muslims	Female	25	0.00
Gujjars	Male	89	2.25
Dogra Brahmins	Male	243	3.70
Dogra Rajputs	Male	264	2.65
Dogra Ramdasias	Male	282	2.84
Total	Male	2062	
	Female	282	

The population groups of Ladakh of the present study (Bodhs and Baltis) are showing similarities with other reported populations groups of Ladakh (c.f. Negi and Sahay, 1977).

Unlike the present Kashmiri Muslims, in other samples reported from Jammu and Kashmir (c.f. Negi and Sahay, 1977; Prabha, 1978), colourblindness has been found. The

present Dogra caste groups are showing lower incidence than that reported among Dogra Rajputs (6.6 per cent) and Dogra Brahmins (6.5 per cent) by Bhalla et al. (1980).

Ear lobe Attachment

Table 2 shows the distribution of ear lobe attachment in the nine population groups studied here from Jammu and Kashmir. Barring Dard Muslims (26.09 per cent), among the remaining population groups, the frequency of attached lobes is quite high, ranging from 44.19 per cent among Kashmiri Muslims (males) to 75.58 per cent among Bodhs (females). This variability is statistically non-significant ($\chi^2 = 13.660$; $df = 9.0.20 > p 0.10$).

Among the female subject studied, no incidence of lobes is found, whereas among the males its frequency ranges from 5.62 (Gujjars) to 12.12 (Tibetans) per cent. In the Ladakh region, the population groups with mongoloid affinities (Bodhs, Baltis and Tibetans) are showing similar high frequency of attached ear lobes. This is in conformity with observations of Tiwari and Bhasin (1969a) among Tibetans and Bhasin and Gupta (1974) among Nepalese. On the other hand, the Dard Muslims of Ladakh with their quite low frequency (26.09 per cent) are depicting their similarities with the population groups of Quetta (Pakistan) reported by Mian et al. (1989).

Among Kashmiri Muslims, males are showing rather low frequency of attached ear lobes (44.19 per cent) than females (56.00 per cent). They are thus showing a distribution almost similar to that observed among Pangwalas and Gaddi-Brahmin (Bhasin et al., 1986) and Gaddis (Bhasin and Singh, 1974).

It is interesting to note that the population groups of Jammu are showing consistently high frequency of attached ear lobes [range 61.56 (Dogra Ramdashas) -67.80 (Dogra Rajputs) per cent]. In fact, such high frequencies have also been reported among Brahmins and Rajputs of

Table 2 : Distribution of ear lobe attachment and mid-phalangeal hair among various population groups of Jammu and Kashmir

Population group	Sex	Ear lobe attachment				Mid-phalangeal hair	
		n	Attached	Free	Lobeless	n	Present
			(In Per cent)				(Per cent)
Bodhs	Female	128	75.78	24.22	0.00	130	20.00
Baltis	Female	104	55.77	44.23	0.00	103	11.65
Dard Muslims	Female	23	26.09	73.91	0.00	23	17.39
Tibetans	Male	132	62.88	23.48	12.12	131	13.74
Kashmiri Muslims	Male	43	44.19	46.51	9.30	44	54.54
Kashmiri Muslims	Female	25	56.00	44.00	0.00	25	24.00
Gujjars	Male	89	64.04	30.34	5.62	89	58.43
Dogra Brahmans	Male	243	64.20	28.39	7.41	243	66.25
Dogra Rajputs	Male	264	67.80	24.62	7.57	264	50.00
Dogra Ramdasias	Male	281	61.56	29.89	8.54	282	57.45
Total	Male	1052				1053	
	Female	280				281	

neighbouring state of Himachal Pradesh (Bhasin and Singh, 1974).

Mid-phalangeal Hair

The distribution of individuals with mid-phalangeal hair among the present populations groups of Jammu and Kashmir is given in table 2. This table shows that the frequency of mid-phalangeal hair varies from as low as 11.65 per cent among Baltis to as high as 66.25 per cent among Dogra Brahmans. These differences are statistically significant ($\chi^2 = 138.606$, $df 9$; $p < 0.001$).

The population groups of Ladakh (Bodhs, Baltis, Dard Muslims and Tibetans are showing quite low frequency of individuals with mid-phalangeal hair (range 11.65-20.00 per cent). Among the Kashmiri Muslims, the frequency is rather low among females (24.00 per cent) as compared to males (54.54 per cent). On the other hand, all the population groups of Jammu are characterized by quite high frequency—Gujjars (58.43 per cent), various Dogra caste groups (range 50.00-66.25 per cent).

Schwidetzky (1962) while summarizing the data on the racial distribution of mid-phalangeal hair pointed out that in Mongoloid population the frequency of this anthropological trait

seems to be somewhat lower than in Caucasoids. In fact, a similar pattern of distribution has been observed among the population groups of the present study, albeit the incidence observed among the present Tibetans is much lower than the that reported earlier (Tiwari and Bhasin, 1969b). The population groups of Jammu are showing similarities with Gaddi-Rajputs (Bhasin et al., 1986) and Thakurs, Chetris and Artisan castes (Parmar, 1968) of neighbouring Himachal Pradesh.

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REFERENCES

- Bhalla, V., Sharma, L. and Dutta, M. : Genetic polymorphism in Cis-Himalayan populations IV. Allele

- frequencies at six loci in the Dogras of Tawi valley (Jammu and Kashmir). *J. Ind. Anthropol. Soc.*, 15 : 85-89 (1980).
- Bhasin, M.K. and Gupta, M. : Ear lobe attachment, hand clasping and arm folding among three different groups of Dharamsala. *Unpublished* (1974).
- Bhasin, M.K. and Singh, N. : A study of types of hand clasping, arm folding and ear lobe attachment among Brahmans Rajputs and Gaddis of Dharamsala. *Unpublished* (1974).
- Bhasin, M.K., Singh, L.P., Walter, H., Bhasin, V., Chahal, S.M.S. and Singh, R. : Genetic studies of Pangwalas, Transhumant and Settled Gaddis 4. Colour blindness, mid-phalangeal hair, ear lobe attachment and behavioural traits. *Anthropol. Anz.*, 44 : 45-53 (1986).
- Bhasin, M.K. and Khanna, Asha : Distribution of blood groups among Bodhs, Baltis and Tibetans of Ladakh, Jammu and Kashmir, India. *J. Hum. Ecol.*, 3 : 163-166 (1992a).
- Bhasin, M.K. and Khanna, Asha : Distribution of blood groups among two Kashmiri population groups of Jammu and Kashmir, India. *J. Hum. Ecol.*, 3 : 167-169 (1992b).
- Bhasin, M.K. and Khanna, Asha : Distribution of blood groups among the Gujjars and three Dogra caste groups of Jammu district, Jammu and Kashmir, India. *J. Hum. Ecol.*, 3 : 171-176 (1992c).
- Ishihara, S. : *Tests for Colour Blindness*. 15th Complete Edition with 38 plates. H.K. Lewis, London (1960).
- Marthin, R. and Saller, K. : *Lehrbuch der Anthropologie*. Fischer, Stuttgart (1961).
- Mian, A., Ali M., Khan, T.H. and Uzme, M.A. : Genetic studies on human population of Quetta (Pakistan): 1. Distribution of tongue rolling, hand clasping and attached ear lobe in different ethnic groups. *Pakistan J. Zool.*, 21 : 369-374 (1989).
- Negi, R.S. and Sahay, B.N. : Incidence of colour blindness in North Western India, with special reference to Dehradun city. *Paper presented in the Seminar on the Human Variation in India, Calcutta* (1977).
- Parmar, P.K. : The distribution of middle phalangeal hair among Gorkhas. *Acta Genet. Stat. Med.*, 18 : 70 (1968).
- Prabha : *Delhi University, Field Work Expeditions*. Unpublished (1978).
- Schwidetzky, I. : Neuer Entwicklungen in der Rassenkunde des Menschen. pp. 15-134. In : *Die Neue Rassenkunde*. I. Schwidetzky (Hrsgb.) Gustav Fischer Verlag, Stuttgart (1962).
- Tiwari, S.C. and Bhasin, M.K. : Frequency of hand clasping and ear lobe attachment in Tibetans. *Hum. Hered.*, 19 : 658-661 (1969a).
- Tiwari, S.C. and Bhasin, M.K. : A note on the distribution of middle phalangeal hair among Tibetans. *Am. J. Phys. Anthropol.*, 31 : 429-431 (1969b).