

Studies on Morphological and Behavioural Traits in Eleven Endogamous Groups of Haryana

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ABSTRACT In the present study the distributions of a morphological trait-ear-lobe attachment and four behavioural traits-hand clasping, arm-folding, handedness and leg-folding have been reported among eleven endogamous groups of Haryana - Brahmin, Bania, Rajput, Gujjar, Ahir, Jat, Saini, Kamboj, Ror, Kumhar and Chamar. Barring ear-lobe attachment and leg-folding, the remaining traits showed no significant differences. The frequency of traits studied here fall well within the range of other populations investigated from north-west India.

INTRODUCTION

In comparison to other neighbouring north-west Indian populations (Bhasin et al., 1992) studies on morphological and behavioural traits in Haryana populations are rather limited (Malik et al., 1988; Yadav and Gupta, 1992). The present study, therefore, aimed at investigating the distribution of five morphological and behavioural traits among eleven endogamous groups of Haryana.

MATERIAL AND METHODS

The morpho-genetic data for various traits from eleven endogamous groups were collected from subjects residing in different regions of the Haryana state (Table 1). Among the endogamous groups studied the Jat, Ahir, Ror, Saini, Kamboj, Gujjar and Rajput comprise the rural agricultural castes of Haryana; these being also found scattered over in neighbouring Rajasthan, Uttar Pradesh, Punjab and Himachal Pradesh. The Brahmin and Bania are upper castes of the urban areas. The Kumhar and Chamar comprise backward and scheduled castes, respectively; Kumhar deals with earthen pottery. However, in some districts (Jind,

Hisar and Sirsa), Kumhars are agriculturists also. The Chamar's main occupation is with leather but they also assist peasant castes in agriculture.

For each group about 200 unrelated individuals between age group of 9-60 years were studied. Investigations were made following standard techniques of Weiner and Lourie (1969). The data of males and females were treated separately.

RESULTS AND DISCUSSION

Ear-Lobe Attachment

The highest incidence of attached ear-lobes (Table 1) was seen in the Brahmin (63.5%) and the lowest in the Saini (20.71%). The frequency recorded among male Ahir was closely related to that observed in Ahir of Delhi (31.25%) (Chattopadhyay, 1968) and that of male Rajput was closely related to that of Uttar Pradesh Rajput (55.5%) (Tyagi and Gupta, 1973). The Brahmin of Himachal Pradesh (63.45%) (Bhasin and Singh, 1974) and Haryana show close frequencies, while the Jat of Haryana are distinctly related to Jats of Delhi (18.70%) (Chattopadhyay, 1968). Barring

Ahirs ($\chi^2 = 27.741$, $df = 1$, $P < 0.001$) inter-sex differences were found to be non-significant among all the groups. Several inter-group comparisons (Jat with Brahmin, Rajput, Gujjar, Ror and Saini, Ahir with Brahmin, Gujjar and Saini, Ror with Brahmin and Gujjar, Saini with Bania, Brahmin, Gujjar, Rajput, Kamboj, Kumhar and Chamar, Kamboj with Brahmin, Gujjar and Rajput, Chamar with Brahmin,

Rajput and Gujjar, Kumhar with Brahmin, Rajput, Bania with Brahmin, Brahmin and Rajput and Gujjar with Rajput) showed statistically significant differences.

The frequency variation obtained for this trait (20.71 - 63.5%) falls within the range of north-west Indian populations *i.e.* between 7.47% in Gujjar (Malhotra, 1976) and 66.69% in Brahmin (Bhasin and Singh, 1974). There

Table 1: Percentage frequency distribution of various morpho-genetic traits in 11 caste groups of Haryana

Population group	Region	Sex	n	Ear-lobe attachment	Hand Classping	Arm-folding	Leg-folding	Handedness
				Attached	R type	R-type	R type	R type
Brahmin	Karnal, Kurukshetra, Sonapat	Male	100	60.00	53.00	46.00	65.00	97.00
		Female	100	67.00	64.00	60.00	60.00	95.00
		Total	200	63.53	58.00	53.00	62.50	96.00
Bania	Ambala, Yamuna Nagar, Kamal, Kurukshetra	Male	100	40.00	65.00	51.00	78.00	99.00
		Female	100	49.00	60.00	56.00	75.00	99.00
		Total	200	45.00	62.50	53.50	76.50	99.00
Rajput	Lukhi (Dist. Kaithal)	Male	100	53.00	62.00	40.00	84.00	97.00
		Female	100	52.00	68.00	63.00	76.00	98.00
		Total	200	52.50	65.00	46.00	80.00	97.50
Gujjar	Thana (District Kurukshetra)	Male	100	63.00	52.00	52.00	86.00	97.00
		Female	100	62.00	64.00	57.00	70.00	98.00
		Total	200	62.50	58.00	54.50	78.00	97.50
Ahir	Gurgaon, Mahendergarh	Male	184	66.41	55.44	45.65	74.46	96.20
		Female	31	87.10	54.84	61.29	83.87	100.00
		Total	215	43.72	55.35	47.91	75.81	96.74
Jat	Mahendergarh, Jind, Hisar, Kurukshetra	Male	182	38.46	56.59	44.50	82.97	95.05
		Female	33	39.39	54.55	60.60	72.73	96.97
		Total	215	38.61	56.28	46.98	81.40	95.35
Saini	Mahendergarh, Kurukshetra	Male	146	20.55	54.79	47.26	91.78	97.95
		Female	52	21.15	59.62	42.31	88.46	98.08
		Total	198	20.71	56.06	45.96	90.91	97.98
Kamboj	Yamunanagar, Sirsa	Male	79	35.44	68.35	45.37	94.94	97.95
		Female	120	41.67	61.67	45.00	82.50	98.08
		Total	199	39.20	64.32	45.23	87.44	97.98
Ror	Kurukshetra	Male	160	50.62	57.50	47.50	93.75	96.25
		Female	41	56.10	58.54	46.34	92.68	97.56
		Total	201	51.74	57.71	47.26	93.53	96.52
Kumhar	Sirsa	Male	151	34.44	47.68	50.99	70.20	96.69
		Female	53	41.51	52.83	60.38	92.45	96.27
		Total	204	36.28	49.03	53.43	75.98	96.57
Chamar	Sirsa, Kurukshetra	Male	157	34.39	63.06	47.77	78.34	96.18
		Female	40	47.50	67.50	37.50	82.50	100.00
		Total	197	37.06	63.96	45.68	79.19	96.95

R = right

Table 2: Chi-square values for total group differences in the distribution of morphogenetic traits studied among 11 endogamous groups of Haryana

Trait	χ^2	df	p	Remarks
Ear-lobe attachment	62.870	10	p<0.001	Significant
Hand-clasping	9.593	10	0.50>p>0.30	Non-significant
Arm-folding	11.296	10	0.50>p>0.30	Non-significant
Leg-folding	44.927	10	P<0.001	Significant
Handedness	3.0861	10	0.98>p>0.95	Non-significant

is a significant difference in the total material (Table 2) indicating a heterogeneous distribution of this trait among the present eleven endogamous groups.

Hand-Clasping

The incidence of R(right)-type of hand-clasping was higher than L(Left)-type in all the caste groups except the Kumhar (Table 1). The highest frequency of R-type was observed in the Rajput (65%) and the lowest in the Kumhar (49.03%). Brahmin and Gujjar showed same frequencies while the Bania, Kamboj and Chamar had similar frequencies on the higher side. All inter-sex comparisons were found to be non-significant. Inter-group differences were significant between Kumhar and Bania ($\chi^2 = 7.448$, df = 1, 0.01 p>0.001), Kumhar and Rajput ($\chi^2 = 10.469$ df = 1 .01>p>0.001), Kumhar and Kamboj ($\chi^2 = 9.601$ df = 1, .01>P>0.001) and Kumhar and Chamar ($\chi^2 = 9.0.91$ df = 1, 0.01>p>0.001).

Among the north-west Indian populations, the Ahir, Chamar and Jat males of Delhi (Malhotra, 1976), Haryana (Yadav and Gupta, 1992) and present study showed quite similar frequencies of hand-clasping. On the other hand the Brahmin and Kumhar of the present study were close to their counterparts in Himachal Pradesh (Bhasin et al., 1986; Singh, 1968).

The R-type of hand-clasping values in the present investigation (range 49.03-65%) fall well within the range reported for other north-west Indian populations *i.e.* between 40% in

Rajputs of Himachal Pradesh (Bhasin and Singh, 1974) and 72% in Jats of Punjab (Bansal, 1968). In the total material of this study no statistically significant difference was found (Table 2) suggesting that this trait has a homogeneous distribution in Haryana populations.

Arm-Folding

The incidence of R(right)-type arm-folding is lower than L(left)-type arm-folding in most caste groups except in the Brahmin, Bania, Gujjar and Kumhar (Table 1). The lowest frequency of R-type was found in the Kamboj (45.23%) and the highest in the Gujjar (54.50%). The Rajput, Ahir, Ror and Jat showed almost similar frequencies. Sex differences were non-significant in all the groups except the Brahmin ($\chi^2 = 3.936$, df = 1, .05>p>.02). All the inter-group comparisons also showed non-significant differences.

Male Jats of Delhi showed close values (60.29%) (Chattopadhyay, 1970; Malhotra, 1976) to those of the present study. The Ahir and the Chamar of this study showed slight differences in frequency with their counterparts in Delhi (Malhotra, 1976) while the Brahmins showed a lower frequency as compared to Brahmins of Himachal Pradesh (Bhasin and Singh, 1974). The value recorded among Gujjar in the present study is closely related to that of Delhi (55.23%) (Malhotra, 1976) and Punjab (54.0%) (Ahuja and Sidhu, 1981) Gujjars. The narrow range of frequency (45.23-54.50%), obtained for this trait in the present study falls

within the range of north-west Indian populations which is from 31.90% in Gaddi Scheduled Castes of Himachal Pradesh (Bhasin et al., 1986) to 71.42% in Artisan castes of Himachal Pradesh (Bhasin and Gupta, 1974). Overall, the trait was found to have homogeneous distribution in the present caste material from Haryana (Table 2).

Leg-Folding

The frequency of R(right)-type leg-folding was recorded higher than L(left)-type in all the groups studied (Table 1). The highest frequency was recorded in the Ror (93.53%) and the lowest in the Brahmin (62.50%). Sex differences were non-significant in most of the groups, except in the Kamboj ($\chi^2 = 6.650$, $df = 1$, $0.01 > p > 0.001$), Kumhar ($\chi^2 = 10.853$, $df = 1$, $p < 0.001$) and Gujjar ($\chi^2 = 7.460$, $df = 1$, $0.01 > p > 0.001$). When compared with another study on Jats of the Haryana state (Yadav and Gupta, 1992), the present Jat showed almost similar value of R-type leg-folding. However, Gujjar of the present study showed a large difference in frequency value of this trait in comparison to their counterparts belonging to Delhi (Seth et al., 1969). Inter-group comparisons between Jat and Bania, Ror, Saini; between Ahir and Brahmin, Ror, Kamboj, Saini; between Saini and Gujjar, Rajput, Kamboj, Chamar; between Ror and Bania, Brahmin, Gujjar, Rajput, Kamboj, Kumhar, Chamar; between Kamboj and Bania, Brahmin, Gujjar, Rajput, Kumhar, Chamar, Brahmin; between Chamar and Gujjar; Bania and Brahmin and between Brahmin and Gujjar, Rajput showed statistically significant differences.

The range recorded in present study (62.50-93.53%) showed a higher value in the upper maximum as compared to the range of other north-west Indian populations from 62.71% in the Gujjars of Delhi (Seth et al., 1969) to 76.30% in Gaddi scheduled castes of Himachal Pradesh (Bhasin et al., 1986). Like ear-lobe

attachment this trait was found to have a heterogeneous distribution among the eleven endogamous groups of Haryana studied here (Table 3).

Handedness

The right handed (R-type) individuals were prominent in all caste groups (Table 1). The highest frequency of right handed individuals was found in the Bania (99%) and the lowest in the Jat (95.35%). The Ahir and Chamar females showed 100% frequency of right handedness, Malhotra (1976) reported 100% R-type handedness in Ahir and Chamar of Delhi. However, male Jat of Delhi showed a relatively higher frequency (97.25%) (Malhotra, 1976) when compared to present material. For each caste group intersex comparisons showed non-significant differences. Inter-group comparisons were mostly found to be non-significant except that between Jat and Bania ($\chi^2 = 14.962$, $df = 1$, $p < 0.001$). The frequency range for this trait obtained during the present study (95.35-99%) fall within the range of other north-west Indian populations from 97.25% in Jats to 100% in the Ahir and the Chamar of Delhi (Malhotra, 1976) and Gaddi scheduled caste of Himachal Pradesh (Bhasin et al., 1986). Overall, the distribution of this trait was found to be rather homogeneous in Haryana populations (Table 2).

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