

## Study of Behavioural Traits Among Nine Population Groups of Jammu and Kashmir, India

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**KEY WORDS** Behavioural Traits. Scheduled Tribes. Communities. Caste Groups. Jammu and Kashmir.

**ABSTRACT** Data on the distribution of various behavioural traits among nine tribal and caste groups of Jammu and Kashmir have been presented.

In the present study, an attempt has been made to study six behavioural traits (tongue folding, tongue rolling, hand clasping, arm folding, leg folding and handedness) among various population groups of Jammu and Kashmir state *viz.*, Bodhs, Baltis, Dard Muslims and Tibetans of the Ladakh region; Kashmiri Muslims of the Kashmir region, and Gujjars, Dogra Brahmans, Dogra Rjputs and Dogra Ramdasias of the Jammu region. The details of these population groups have been given elsewhere (Bhasin and Khanna, 1992 a,b,c).

The field works for the this study were conducted in four different districts of Jammu and Kashmir—Leh, Kargil, Srinagar and Jammu in the years 1988 and 1989. A total of 1336 subjects was studied for tongue folding, tongue rolling, hand clasping, arm folding and leg folding and 1312 for handedness.

### RESULTS AND DISCUSSION

The percentage distribution of different behavioural traits among nine population groups of Jammu and Kashmir are shown in table 1.

#### *Tongue Folding*

The frequency of tongue folding among the present population groups has been observed ranging from 65.22 (Dard Muslims) to 90.15

(Dogra Rajputs) per cent. However, the overall inter-group variability is statistically non-significant ( $\chi^2 = 6.099$ , df 9,  $80 > p > 0.70$ ).

In the Ladakh region, among the population groups with Mongoloid affinities (Bodhs, Tibetans, Baltis), the frequency of tongue folding is somewhat higher than that observe among the Dard Muslims. Males and females of Kashmiri Muslims are showing almost similar incidences. In the Jammu region, among the Dogra caste groups the frequency ranges from 85.46 per cent (Ramdasias) to 90.15 per cent (Rajputs), while Gujjars are showing rather low frequency (73.03 per cent). The Kashmiri Muslims of the present study are showing lower frequency than that reported among the Sunni Muslims of Kashmir valley studied by Sidhu and Singhal (1991). But on the whole, the frequencies of tongue folding observed in the present material are rather high compared to various other population groups reported from India.

#### *Tongue Rolling*

Table 1 shows that barring male Kashmiri Muslims, all other population groups of the present study are showing quite high frequency of tongue rolling (range 89.63-100.0 per cent).

Among the Baltis of Ladakh, the frequency of tongue rolling has been found 100.0 per cent. Tibetan males are showing slightly lower fre-

Table 1 : Percentage distribution of different behavioural traits among various population groups of Jammu and Kashmir

Population group	Sex	Tongue folding		Tongue rolling		Hand folding		Arm folding		Leg folding		Handedness	
		n	Positive	n	Positive	n	Right (R) type	n	Right (R) type	n	Right (R) type	n	Right (R) type
Bodhs	Female	130	90.00	130	97.69	129	50.39	129	65.89	129	46.51	113	100.0
Baltis	Female	104	79.81	104	100.00	104	61.54	104	58.65	104	45.19	100	100.0
Dard Muslims	Female	23	65.22	23	95.65	23	39.13	23	47.83	23	30.43	23	100.0
Tibetans	Male	135	88.15	135	89.63	135	63.70	135	62.96	135	57.78	133	98.50
Kashmiri Muslims	Male	41	73.17	41	63.41	43	60.46	43	60.46	43	41.86	43	97.67
Kashmiri Muslims	Female	25	72.00	25	92.00	25	68.00	25	52.00	25	28.00	25	100.00
Gujjars	Male	89	73.03	89	91.01	89	69.66	89	59.55	89	79.77	89	91.01
Dogra Brahmans	Male	243	88.06	243	93.41	243	62.55	243	62.14	243	58.02	243	87.65
Dogra Rajputs	Male	264	90.15	264	97.73	264	67.80	264	60.61	264	69.32	262	88.17
Dogra Ramdasias	Male	282	85.46	282	92.20	281	69.75	281	64.41	281	64.41	281	91.81
Total		1336		1336		1336		1336		1336		1312	
		$\chi^2_{(9)} = 6.099$ 0.80>P>0.70		$\chi^2_{(9)} = 5.883$ 0.80>P>0.70		$\chi^2_{(9)} = 9.762$ 0.50>P>0.30		$\chi^2_{(9)} = 2.297$ 0.99>P>0.98		$\chi^2_{(9)} = 3.408$ P<0.001		$\chi^2_{(9)} = 3.866$ 0.95>P>0.90	

quency (89.63 per cent) than the females of Bodhs (97.69 per cent), Baltis (100.0 per cent) and Dard Muslims (95.65 per cent). Among Kashmiri Muslims also males are showing much lower frequency (63.41 per cent) as compared to females (92.00 per cent). Among the population groups of Jammu, the frequency ranges from 91.01 per cent in the Gujjars to 97.73 per cent in Dogra Rajputs. The overall inter-group variability, however, has been found to be statistically insignificant ( $\chi^2 = 5.883$ ,  $df 9$ ,  $0.80 > p > 0.70$ ).

The frequency of tongue rolling has been reported low among the Sunni Muslims (Sidhu and Singhal, 1991), but the frequencies recorded among the present population groups are well within the range (23.7 - 98.2 per cent) reported for other population groups of India (Bhasin et al., 1992).

#### Hand Claspings

The distribution of the type of hand claspings in nine population groups of Jammu and Kashmir shows that as compared to "L" type the

frequency of "R" type is higher in each of them except the Dard Muslims of Ladakh. The frequency of "R" type of hand claspings was found lowest among the Dard Muslims (39.13 per cent) and highest among the Dogra Ramdasias (69.75 per cent). The population groups of Ladakh are generally showing somewhat lower frequencies of "R" type of hand claspings as compared to the population groups of both Kashmir and Jammu regions. However, the overall variability has been found to be statistically insignificant ( $\chi^2 = 9.762$ ,  $df 9$ ,  $0.50 > p > 0.30$ ).

The frequency of "R" type hand claspings observed in the present material are well within the range (26.41-69.70 per cent) reported for the population groups of Western Himalayas (Bhasin et al., 1992). The present Kashmiri Muslims are showing almost similar frequencies as reported among Sunni Muslims (Sidhu and Singhal, 1991), though Gujjars of the present study are exhibiting higher frequency as compared to earlier samples of this tribe (Seth et al., 1969; Chattopadhyay, 1970; Malhotra, 1976).

### *Arm Folding*

The frequency of "R" type of arm folding is observed higher as compared to "L" type among all the population groups of the present study except the Dard Muslims of Ladakh. The frequency of "R" type arm folding varies from 47.83 per cent among Dard Muslims to 65.89 per cent among the Bodhs, both of Ladakh. In Ladakh, both the Muslim population groups (Baltis and Dard Muslims) are showing higher frequency (60.46 per cent). The Gujjars-transhumant Muslim tribals are showing slightly lower frequency (59.55 per cent). The variability observed in frequency distribution of arm folding in the present material from Jammu and Kashmir state, however, is statistically non-significant ( $\chi^2 = 2.297$ ,  $df 9$ ,  $0.99 > p > 0.98$ ).

It has been observed that among the population groups of India, the "R" type arm folding is generally less frequent than "L" type arm folding. However, among various population groups of north India the "R" type of arm folding is more frequent. In fact, the present Kashmiri Muslims, Gujjars and Dogra caste groups are showing similar trend, as also reported among the Sunni Muslims of Jammu and Kashmir (Sidhu and Singhal, 1991).

### *Leg Folding*

The frequency of "R" type leg folding was found to be higher among the Tibetans (57.78 per cent), Gujjars (79.77 per cent), and all the Dogra caste groups (range 58.02-69.32 per cent) than that of "L" type. On the other hand, among the Bodhs (46.51 per cent), Baltis (45.19 per cent) and Dard Muslims (30.43 per cent) of Ladakh and Kashmiri Muslims (41.86 and 28.00 per cent) of Kashmir, the "R" type leg folding was less frequent than "L" type. Furthermore, it has been observed that "R" type of leg folding is frequent in the males than in females, and the population groups of Ladakh and Kashmiri Muslims are showing low frequency of "R" type as compared to population groups of Jammu. These variations in the distri-

bution of type of leg folding are statistically highly significant ( $\chi^2 = 31.408$ ,  $df 9$ ,  $p < 0.001$ ).

From India, only a few studies are available on the distribution of this trait. It has been found that among the population groups of Western Himalayas the frequency of "R" type of leg folding ranges from 21.60 per cent among Pangwalas to 76.30 per cent among Gaddi-Scheduled castes (Bhasin et al., 1986). Thus, the frequencies observed in the present study are well within this range, although the present Gujjars are showing higher frequency of "R" type than that observed among the Gujjars of Delhi studied by Seth et al. (1969).

### *Handedness*

From table 1, it has been observed that in each of the population groups of the present study, the "R" type of handedness is overwhelmingly more frequent (above 85 per cent) than the "L" type. It is interesting to note that all the females studied (Bodhs, Baltis, Dard Muslims and Kashmiri Muslims) are showing only "R" type of handedness. The "R" type of handedness is most frequent among the population groups of Ladakh followed by Kashmiri Muslims, while the population groups of Jammu (Gujjars and Dogra caste groups) are showing comparatively low frequency. Though there is some variability in the distribution of handedness in the present material but this is statistically non-significant ( $\chi^2 = 3.866$ ,  $df 9$ ,  $0.95 > p > 0.90$ ).

Some studies are available on handedness among Indian population groups, and the frequency of "R" type has been observed ranging from 90.47 to 100.00 per cent among them (Bhasin et al., 1992). Thus, except the Dogra Brahmans and Dogra Rajputs, all the population groups studied here from Jammu and Kashmir are showing frequencies well within the range reported for north Indians. The Gujjars of the present study are exhibiting slightly lower frequency of "R" type of handedness as compared to earlier samples of this tribe reported by Chattopadhyay (1970), Malhotra

(1976), Ahuja and Sidhu (1981). The Sunni Muslims (both male and female) of Srinagar (Sidhu and Singhal, 1991) were also reported with a distribution similar to that observed among the Dard Muslims and Kashmiri Muslims of the present study.

In conclusion, from the frequency distributions of the various behavioural traits investigated, it has been observed that the population groups of Jammu and Kashmir are showing similarities with other population groups of the north Indian region.

#### ACKNOWLEDGEMENT

Acknowledgement is gratefully made to the Ministry of Environment and Forests, Government of India for providing the financial assistance for the research project entitled "Environment, Human Settlement and Human Activities in Jammu and Kashmir with Special Reference to Ladakh" under MAB (Man and Biosphere) Programme of UNESCO, Ref. No. 14/122/84 RE-MAB to Dr. M.K. Bhasin (Principal Investigator) Department of Anthropology, University of Delhi, Delhi 110 007.

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