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MAIN LINE INDEX AND TRANSVERSALITY KUREEL CHAMARS AND GUJAR PISIS OF LUCKNOW

Dermatoglyphics is an important trait for an anthropologist, because of their permanency, unchangeability and individualness. This helps in personal identification, sexual dimorphism and racial-variation. Dermatoglyphic patterns or configurations are formed during the third and fourth month of the foetal life (Cummins; 1943: 40). From this time until death, there is no morphological change. The only changes are in the size and growth of ridges.

MATERIAL AND METHODS

Social stratification is the typical feature in the population of India. According to Chatur-varna vyavastha, these Chamars and Pisis occupy the lowest social substratum and are traditionally recognised as untouchables. Each comprises of a number of intrabreeding populations. From a genetical view point these population may be recognised as a genetical isolates. So the present study aims to make a comparative study of two populations in respect to main line index and transversality.

The material analysed consists of bilateral palmar prints of 150 Chamars (100 males and 50 females) and 150 Pisis. (100 males and 50 females). The data have been collected from outskirts of the city around utarathia in Lucknow district. All the blood related individuals have been discarded as far as possible.

The method for analysing, interpreting and formulating the prints was adopted as proposed by Cummins and Midlo. (1943 p. p 84-117).

DEFINITION OF MAIN LINE INDEX

Cummins in 1943 described the main line index as an expression of the direction of the neutral line, its inclination being determined by the courses of the main lines D and A. The index is not a proportion but a summation of values describing the courses of these two main lines. Thus it expresses the direction taken by the dermatoglyphic ridges on the palm. Progressively higher values indicate increasing degrees of transversality.

ANALYSIS

Table I and II present the distribution of main line index, showing the mean (M) standard deviation (S. D.) co-efficient of variation (C. V.) with their errors and percentage of transversality (T %) of Chamars and Pisis respectively.

From table I we observe that mean value of main line index in entire Chamar series is 9.09 ± 0.119 . Males exhibit a higher value (9.28 ± 0.146) as compared to females (8.72 ± 0.200).

The mean values of this index in right hand of males and females are 9.77 ± 0.191 and 9.08 ± 0.268 respectively. This value is higher in rights (8.79 ± 0.216) as compared to the lefts (8.36 ± 0.175) of both sexes.

Second table also reveals the similar trends as exhibited by Kureel Chamars in table I. The mean value of Gujar Pisis is 8.65 ± 0.137 . Males show a higher value (8.83 ± 0.159) than females ($8.28 \pm$

TABLE I

Main line Index of Male and Female Chamar.

| SUBJECT | RANGE | MEAN | S.D. | C.V. | % T. |
|-------------------|-------|--------------|--------------|---------------|-------|
| MALE | | | | | |
| (100) Right hands | 4-12 | 9.77 ± 0.191 | 1.91 ± 0.135 | 19.54 ± 1.38 | 61.06 |
| (100) Left hands | 5-12 | 8.79 ± 0.216 | 2.16 ± 0.152 | 24.57 ± 1.68 | 54.93 |
| (200) Both hands | 4-12 | 9.28 ± 0.146 | 2.07 ± 0.103 | 22.30 ± 1.11 | 58.00 |
| FEMALE | | | | | |
| (50) Right hands | 5-12 | 9.08 ± 0.268 | 1.90 ± 0.190 | 20.92 ± 2.92 | 56.75 |
| (50) Left hands | 3-12 | 8.36 ± 0.175 | 1.24 ± 0.124 | 14.83 ± 1.48 | 52.25 |
| (100) Both hands | 3-12 | 8.72 ± 0.200 | 2.00 ± 0.141 | 22.93 ± 1.62 | 54.50 |
| BOTH SEXES | | | | | |
| (150) Right hands | 4-12 | 9.54 ± 0.134 | 1.65 ± 0.095 | 17.29 ± 0.998 | 59.62 |
| (150) Left hands | 3-12 | 8.64 ± 0.160 | 1.96 ± 0.113 | 22.68 ± 1.309 | 54.00 |
| (300) Both hands | 3-12 | 9.09 ± 0.119 | 2.07 ± 0.084 | 22.77 ± 0.930 | 56.81 |

TABLE II

The main line Index of Male and Female Pasis

| SUBJECT | RANGE | MEAN | S.D. | C.V. | % T. |
|-------------------|-------|--------------|--------------|--------------|-------|
| MALE | | | | | |
| (100) Right hands | 5-12 | 9.58 ± 0.201 | 2.01 ± 0.142 | 20.98 ± 1.48 | 59.87 |
| (100) Left hands | 3-12 | 8.09 ± 0.226 | 2.26 ± 0.159 | 27.93 ± 1.97 | 50.59 |
| (200) Both hands | 3-12 | 8.83 ± 0.159 | 2.25 ± 0.112 | 25.48 ± 1.27 | 55.18 |
| FEMALE | | | | | |
| (50) Right hands | 5-11 | 8.98 ± 0.305 | 2.16 ± 0.216 | 24.05 ± 2.40 | 56.12 |
| (50) Left hands | 4-12 | 7.58 ± 0.192 | 1.36 ± 0.136 | 17.94 ± 1.79 | 47.37 |
| (100) Both hands | 4-12 | 8.28 ± 0.228 | 2.28 ± 0.161 | 27.53 ± 1.94 | 51.74 |
| BOTH SEXES | | | | | |
| (150) Right hands | 5-12 | 9.38 ± 0.162 | 1.99 ± 0.114 | 21.21 ± 1.22 | 58.50 |
| (150) Left hands | 3-12 | 7.92 ± 0.189 | 2.32 ± 0.133 | 29.29 ± 1.69 | 49.50 |
| (300) Both hands | 3-12 | 8.5 ± 0.137 | 2.38 ± 0.094 | 27.51 ± 1.12 | 54.06 |

± 0.228) and the index value of rights is higher than lefts in both the sexes.

The dextral difference of main line index is more frequent in Chamar males, so that there is more degree of transversality in Chamar males as compared to females but in Pasis there is no such sex difference.

Table III shows right and left hand ratio among several populations in males and females (fig. 1). It is noted that characteristically the ratio is higher in males than in females. In the present series Chamars show the usual trend, a comparative higher frequency in males than in females. But Pasis show no difference at all between two sexes like Eskimos and Rajasthan mohammedans (Cummins, 1935; Kumbnani, 1963, 1964).

In the Chamars and Pasis it is observed that ratio among males is 111 and 118 which is a low frequency for an Indian population, while the ratio in females is 109 and 118 which is usually high for

TABLE III Right to Left hand Ratio Among Several populations.

| CATEGORY | MALES | FEMALES | AUTHOR |
|-------------------------|-------|---------|---------------------------|
| European — Americans | 121 | 117 | Cummins 1926 |
| Germans | 121 | 117 | Cummins 1926 |
| Jews | 120 | 116 | Cummins 1927 |
| Eskimos | 112 | 112 | Cummins 1935 |
| Australoids | 111 | 107 | Cummins & 1951 Setzler |
| Kachins (Burma) | 130 | 121 | Sharma 1956 |
| Gollas (South India) | 130 | 122 | Kumbnani 195) |
| Mohammedans (Rajasthan) | 118 | 118 | Kumbnani 1962 |
| Brahmins (Rajasthan) | 118 | 121 | Kumbnani 1964 |
| Pandits (Kashmir) | 124 | 112 | Kumbnani 1965 |
| Kureel Chamar (Lucknow) | 111 | 109 | Present study |
| Gujar Pasi (Lucknow) | 118 | 118 | Present study |

MALES

FEMALES

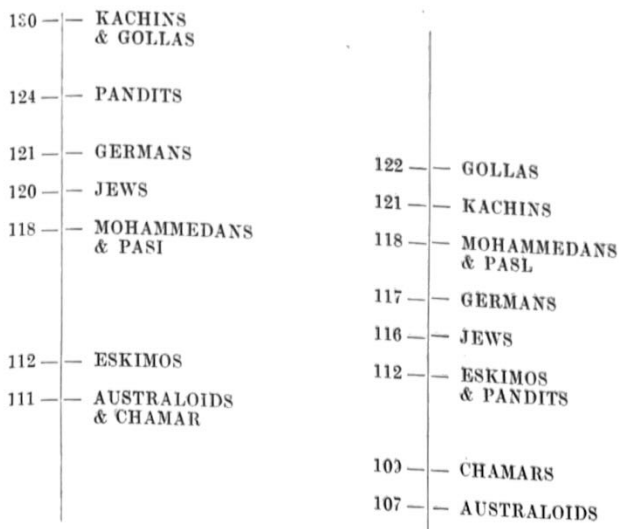


FIG. 1. Comparison of Right-left Ratio in various Groups

a female group as indicated by Kumbnani (1966). The etiology and significance of this unusual situation is unknown, but this does not make the fact less worth reporting.

SUMMARY

Bilateral Palmar dermatoglyphic prints of Kureel Chamars and Gujar Pasis have been analysed and evaluated for their main-line index. This index shows its higher value in males than females, in both the groups. It indicates an excess of dextral transversality in males as compared to those of females. The Right/Left ratio indicates that there is no difference in Pasi, but Chamar males exhibit 2 0/0 higher frequency than their females.

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