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Dermatoglyphics in Individuals with Asocial Behaviour

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ABSTRACT

The patterns of fingertip prints (dermatoglyphics) in Swedish series of sexual offenders of law compared with common offenders of law and normal individuals were analysed. The dermatoglyphic patterns in common offenders of law did not differ from those in normal individuals. The group of sexual offenders of law showed statistically significant differences ($p < 0.001$) in the dermatoglyphic patterns compared to the samples of common criminals and normals.

INTRODUCTION

Almost fifty years ago Cummins observed certain deviations in dermatoglyphic features in persons with Down's syndrome as compared with control samples from a normal population (6). These findings were later confirmed by many investigations and in several different populations (1,2,3,7,15,17). They also provided the incentive for further studies on the association between dermatoglyphic patterns and medical disorders, in the first place those caused by chromosomal aberrations (5,8,12.13,14,16). Furthermore, the association between dermatoglyphic patterns and genetically transmitted diseases (9), as well as diseases of uncertain transmissions, evoked widespread interest on the part of medical researches, and the results of innumerable studies on this matter have been published. In principle, some peculiarities in the frequencies and morphological characteristics of dermatoglyphics may be expected in all kinds of disorders associated with early embryological deviations in the organo-genesis. Since during embryogenesis the epidermal and dermal structures develop from the ectodermal layer, it seems reasonable to examine their variation as an indication of a morphogenetic disturbance in the nervous system.

The aim of the present investigation was to study and characterize the dermatoglyphic patterns in individuals with asocial behaviour compared with a normal material.

MATERIAL AND METHODS

This study was based on three samples of fingertip prints from the records of the National Swedish Police Board. It was carried out in two stages. In the first one, a sample of 270 fingertip patterns from 27 persons registered for several common crimes, such as thieves, robbers and housebreakers, were compared with 209 fingertip prints from 21 sexual offenders. In the second stage, both of these samples were matched with 3,583 fingertip prints obtained from 359 Swedish men registered by the police authorities for several common offenses of law, between the years 1968 and 1983. All persons included in this study had died before June 1984. The Swedish Police Board gave special permission to examine this material, on June 7th, 1985. The results were matched with a control sample obtained from 200 normal individuals (1). This study, which was essentially of a preliminary nature, was limited to comparative examination of the frequencies of main fingertip types. The validity of the results obtained was proved statistically by the X^2 probability test.

RESULTS

In the first, introductory stage of the investigation, two small samples of dermatoglyphics were compared with each other (Table 1). Clear differences were found between these two samples, especially in the frequency of ulnar loops (D = 20.5 per cent) and whorl patterns (D= + 15.8 per cent).

Table 1. Fingertip pattern

	L_u		L_r		W		A		Number of digits
	n	%	n	%	n	%	n	%	
Common criminals (I)	182	67.4	12	4.4	62	23.0	14	5.2	270
Sexual offenders	98	46.9	12	5.7	81	38.8	18	8.6	209

These differences were statistically significant (P<0.001). However, in view of the small number of examined individuals in the two groups, 27 and 21 respectively, no general conclusion could be drawn. Against this background, the second stage of the study was carried out. The fingertip prints of another group of 359 Swedish males, registered as law offenders, were compared with those of both previously examined samples (Common criminals and sexual offenders). Table 2 shows the results of the comparison. As can be seen, the statistical significance of the former observed differences betweeen so called common criminals and sexual offenders persisted:

Table 2.	L_u		L_r		W		A		Number of
Fingertip pattern	n	%	n	%	n	%	n	%	digits
Common criminals (II)	2.172	60.6	198	5.5	1.0003	28.0	210	5.9	3.583

C.C. criminals II vs C. criminals I: $X^2 = 4.4$ NS
C. criminals II vs sexual offenders: $X^2 = 16.6$, $P < 0.001$

When the frequences of dermatoglyphic patterns in both samples of common criminals (27 + 359) were compared with those observed by other investigators in samples of normal individuals of near ethnic and/or geographical origin (Table 3), no significant differences were found.

Table 3. Fingertip pattern (%)	Loops (u+r)	Whorls	Arches	Author
Englishmen	74.9	20.2	5.0	Collins
Danes	70.3	25.0	5.0	Bonnevie
Norwegians	66.3	26.2	7.5	Bonnevie
Dutchmen	67.4	25.4	7.4	Piebenga
Swedes	71.9	21.4	6.7	Beckman et al.
Present study (common crim)	66.4	27.8	5.8	

DISCUSSION

From these findings the following conclusions may be drawn: The dermatoglyphic patterns in common offenders of law do not differ significantly from those in normal populations of Northern Europe. Thus the asocial behaviour of this group may possibly be attributable to environmental factors - either single or multifactorial, rather than early prenatal genetic or non-genetic influences on the development of the central nervous system. The observed differences in the frequences of dermatoglyphic types in our series of sexual offenders compared with common offenders and normal individuals may indicate early prenatal pathological influence on the ectodermal development, as of the central nervous system in sexual offenders.

Characteristic of the examined group of sexual offenders in our series is the reduced number of ulnar loops and the increased number of whorl-pattern.

The latter finding contrasts with the results of Bugge and Poll (4), who found fewer whorls in Danish and German sexual offenders than in non-criminals. Their results are not comparable with the present ones, however, and are also misleading, as such categories as prostitutes, persons with "immoral conduct" and homosexuals were included in their material comprising over 6.000 individuals. The results of the present investigation emphasize the importance of a very rigorous definition and selection of the samples to be examined and the need to compare with a normal material.

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