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Dermatoglyphic Pattern of the Left Hand of Annang Ethnic Group in Akwa Ibom State, Nigeria.

Umoh NM, Bassey IF, Eru EM, Anani SE, Akpaso MI, Uruakpa KC and Oku ME

Department of Anatomical Sciences, Faculty of Basic Medical Sciences, University of Calabar, Calabar, Cross River State, Nigeria

Corresponding Author: Umoh NM

Email: nsikakumoh@unical.edu.ng; +2347014242712

ABSTRACT

Anthropometry of the digits, palms and feet provides data that reveals the relative distribution of dermal ridge among people in different geographical zone. Dermatoglyphic pattern of the left hand of Annang ethnic group in Akwa Ibom State, Nigeria was carried out to provide dermatoglyphic informations and interrelationship existing among this ethnic group. Two hundred indigenes of Annang ethnic group of Akwa Ibom State without hand deformity were chosen for this study. Lipstick method was employed by the researcher; the following materials were used; magnifying glass, lipstick, plain white paper, masking tape and table. The lipstick was applied on the entire finger of the subjects, then the sheet of white plain paper was placed on the stable surface, the subject were asked to place their hands on the white duplicating paper which leaves the fingerprint of subject on the paper. The prints were screened with the aid of a magnifying glass. The fingerprints analyzed using chi-square as statistical tool were plain arch, tented arch, ulnar loop, radial loop, plain whorl, double loop whorl, concentric whorl pattern.

The results showed the following pattern frequency distribution at $P < 0.05$, plain arch (PA) had 15.1%, Tented arch had a pattern distribution of 1.5%, ulnar loop (UL) had 45.4% pattern distribution, Radial loop (RL) had 2.5%, plain Whorl (PW) had 32.7% pattern distribution, Double Loop Whorl (DLW) with 2.2%. The results of the left hand digital dermatoglyphics of Annang tribe revealed that ulnar loop have the highest percentage pattern distribution. In conclusion, the left finger prints of the Annang populace shows a common similarities existing among the Annang populace and hence the Annang populace are related and from a common origin

Keywords: Anthropometry, Fingerprints, Annang Ethnic Group, Akwa Ibom State.

INTRODUCTION

Dermatoglyphics has been regarded by Physical anthropologist and population geneticist as a useful tool in analyzing the relationship in Human populations¹. With the increasing developments in human genetics, dermal pattern induces together with clinical features are being currently employed for the diagnosis of various inherited syndromes². Finger prints is the most frequently used aspect of dermatoglyphics since it can be easily collected from subjects, this is also referred to as digital dermatoglyphics. All humans possess a unique set of finger prints. The finger prints of both hands are not the same; they are permanent and will never change from birth to death³. The use of finger prints as a means of identification shows how significant they are as a measure of individuality. The identification of finger prints is the process by which two instances of friction ridge skin impression from human finger or toes or even the palms of the hand or sole of the foot are compared to determine whether these impressions could have come from the same individual³.

Anthropometry of the digits, palms and feet provides data that reveals the relative distribution of dermal ridge

among people in different geographical zone⁴. Dermatoglyphic parameters such as palmar creases, axial triradius, angle atd, polymorphism of main line C, inheritance of the patterns, main line index and transversality⁵. According to Henry's System of classification, fingerprints are of three basic patterns; such as loop, whorl and arch⁶, further classification breaks down pattern into more complex systems vis a vis; arch into plain and tented arch depending on pattern orientation. The loops which may be Ulnar and radial loops depending on the side of the hand toward which the tail of the pattern points. The whorls may also have Sub-group classification into plain whorls, double loop whorl, concentric whorl, central pocketed whorl and composite whorls⁷. The characteristics features that distinguish each pattern can either be heavy dark lines or the configuration of the ridges. The Annang also spelled as Anaang is a cultural and ethnic group that lives in the Northwest region of Akwa Ibom State in Nigeria.

The Annang is one of the second largest ethnic group in Akwa Ibom State, the Annang were formerly located in the former Abak and Ikot Ekpene Division of the Annang province in the former Eastern Region of

Nigeria⁸. The Annang populace constitute eight local government area comprising Abak, Essien Udim, Etim Ekpo, Ikot Ekpene, Obot Akara, Oruk Anam and Ukanafun, Ika.

Digital dermatoglyphics have been used extensively to characterize and differentiate human population by forensic experts, hence are highly suitable for studying population variation⁹.

The present study was to investigate the dermatoglyphic pattern of the left hand of the Annang ethnic group to provide the dermatoglyphic information of this ethnic group and also find out interrelation existing between the same ethnic group.

MATERIALS AND METHODS

This research was done using Two hundred (200) indigenes of Annang ethnic group of Akwa Ibom State without hand deformity whose parents and grandparents were both indigenes of the same ethnic groups. The dermatoglyphic method employed by the researcher was the lipstick method according to Roopam et al¹⁰. Materials such as Magnifying glass, lipstick, plain white paper, masking tape, foam pad, table were used. The lipstick was applied on the entire finger of the subjects, then the sheet of paper was placed on top of the foam rubber pad on a flat stable surface. The subjects were asked to place their fingers on the white duplicating paper which leaves the prints on the paper. The stratified random sampling was used for this

study. The data for this study was analyzed using chi-square as statistical tool with the aid of the statistical package of social science (SPSS) version 21.0. Ethical clearance for this research was obtained with ethical clearance No: NHREC/07/10/2012. UCTH/HREC/33/602.

RESULTS

(Table: 1) showed investigation of left finger print pattern of subjects from Annang tribes. The percentage distribution of dermatoglyphic patterns is as follows; 15.1% for plain arch (PA) with the highest distribution on digit I with 28.5%, digit II with 20.5%, 16.0% on digit III, 4.5% on digit IV and 6.0% on digit V. Tented arch (TA) had 1.5% pattern distribution, 2.0% appeared on digits III and V respectively, 1.5% on digits II and IV, 0.5% on digit I. Ulnar loop (UL) had 45.4% pattern distribution. The highest distribution appeared on the digit V with 74.5%, 52.5% on digit IV, 50.5% on digit III, 30.0% on digit II and 19.5% on digit I. The radial loop (RL) had 2.5% pattern distribution, 5.5% on digit II, 3.5% on digit III, 1.5% on the digit I and IV respectively and 0.5% on digit V. Plain whorl (PW) had 32.7% pattern distribution, the highest appeared on digit I with 42.0%, 39.0% on digit IV, 38.5% on digit II, 27% on digit III and 17.0% on digit V. The double loop whorl (DLW) had 2.2% pattern distribution with 7.0% on digit I, 3.0% on digit II and 1.0% on digit IV. Central pocketed whorl (CPW) had 0.6% pattern distribution with 1.0% evenly distributed on the digits I, II and III respectively. Result showed that ulnar loop have the

Table 1: Investigation of left finger print pattern of subjects from Annang tribes

Pattern	I	II	III	IV	V	Total
CiW	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)
CPW	2 (1.0)	2 (1.0)	2 (1.0)	0 (0.0)	0 (0.0)	6 (0.6)
CW	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)
DLW	14 (7.0)	6 (3.0)	0 (0.0)	2 (1.0)	0 (0.0)	22 (2.2)
PA	57 (28.5)	41 (20.5)	32 (16.0)	9 (4.5)	12 (6.0)	151 (15.1)
PW	84 (42.0)	77 (38.5)	54 (27.0)	78 (39.0)	34 (17.0)	327 (32.7)
RL	3 (1.5)	11 (5.5)	7 (3.5)	3 (1.5)	1 (0.5)	25 (2.5)
TA	1 (0.5)	3 (1.5)	4 (2.0)	3 (1.5)	4 (2.00)	15 (1.5)
UL	39 (19.5)	60 (30.0)	101 (50.5)	105 (52.5)	149 (74.5)	454 (45.4)
Total	200	200	200	200	200	1000

Values are presented as frequency and percentage (in parenthesis)

Chi-square cal. = 211.547; df = 24; p < 0.05

The different print patterns differed significantly amongst the fingers

DISCUSSION

Distribution of the patterns of the ridges on the surface of palms and soles gained considerable importance in human population biology, for personal identification in forensic science and also in clinical and medical genetics and genetic counseling². Study of the left hand digital dermatoglyphics of the Annang ethnic group revealed that there is a significant ($p < 0.05$) variation in the different fingerprint pattern with the frequencies of 15.1%, 1.5%, 45.4%, 2.5%, 32.7% for plain arch, tented arch, ulnar loop, radial loop and plain whorls. Ulnar loop was seen most frequently on digit V with 74.5%, 52.5% on digit IV, 50.5% on digit III, 30.0% on digit II and least occurred on digit I with 19.5%. Plain whorls pattern distribution on the left fingers of Annang ethnic group was as follows; total frequency distribution of 32.7%, the highest appeared on digit I with 42.0%, 32.7% on digit IV, 38.5% on digit II, 27.0% on digit III and 17.0% on digit V. Radial loop was seen with the frequency of 2.5% on the left fingers of Annang, the highest on the digit II with 5.5%, 3.5% on digit III, 1.5% was seen on digits I, IV and 0.5% on digit IV.

Tented arch had 1.5% pattern distribution; the highest was seen on digits III, IV and 0.5% on digit I. Plain arch had 15.1%, highest on digit I with 28.5%, 20.5% on digit II, 16.0% on digit III, 6.0% on digit V and 4.5% on digit IV. This result is in line with the work done by Igbigbi *et al*¹¹, Oladipo *et al*¹² and Akpaso *et al*¹³, who opined that the left hand digits of the Nigerian Population have slightly higher counts of arches as compared to right hand digits in both male and female gender. The results of the left hand dermatoglyphics showed a higher frequency of tented arch, a radial loop than the right hand of Annang tribe. This result does not conformed to the generalization of Cummins and Midlo¹⁴ where it is expected that whorls patterns and radial loop should occur more commonly on the right hand digits in both sexes as compared to the left hand digits.

CONCLUSION

The left finger prints of the Annang populace showed a common similarities existing among the Annang populace and hence the Annang populace are related and from a common origin. I recommend the study on other parameters of the hand such as the palmar creases, A- B bridge count, digital crease and atd angle among the Annang tribe.

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