

THE DISTRIBUTION OF HAIR ON THE PHALANGES OF A SAMPLE POPULATION OF NIGERIAN YORUBAS IN RELATION TO SEX, AGE AND JOB TYPE

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Summary: Five hundred adults aged between 18 – 35 years were used for the study. The aim of this study was to provide a reference document for Nigerians on the distribution of phalangeal hair using a sample population of Yorubas resident in Ilorin and to assess the effect of job type, age and sex hair distribution. With the help of a hand lens, the pattern and frequency of hair distribution on the proximal, intermediate and distal were randomly chosen from the population. Proximal phalangeal hair was absent in 10 (2%) individuals who were all males. The highest frequency distribution (51%) was found on the 2-3-4-5, digits of proximal phalanges (26% in males and 25% females) while the least (1%) was the 3-5; 1-2-3-5 digital pattern. It was observed that the frequency of middle phalangeal hair was low (1%). Females had less phalangeal hair. Hair was absent on the distal phalanges. Distribution is similar to other populations reported. Age was not a factor in the distribution but individual's job type and sex had effect on hair distribution. Hence people engaged in wet work should wear gloves.

Key Word: *Hair distribution, Phalanges, Hand, Yoruba.*

Introduction

Evaluation and measurement of body dimensions in man is an important branch of science and is achieved through anthropometry (Williams *et al*, 1995, Chamella, 1997). These dimensions are affected by race, ecology, gender, age etc (Okukpe *et al*, 1984, Tuli *et al*, 1995, Mibodi and Frahani, 1996) or interaction between genetic and environmental factors (Kasai *et al*, 1993, Dharap *et al*, 1996).

Hair is common to mammals. In man it is a special and cherished feature especially in females. Hair is a filamentous keratinised structure present over almost all of the body surface (Junqueira *et al*, 2005). It is a derivative of the epidermis which assists in thermoregulation and provides some protection against injury (Harrison and Davies, 1999; Williams *et al*; 2005). It has sensory functions and subserves various roles in social communication. It is used for diagnostic purposes (Szalay *et al*, 1999). Hairs are absent from few areas of the body, for example sole of foot, palm of hand, buccal surface of the lip etc. The length of hair varies from 600cm² on the face 60cm² on the rest of the body (Junqueira *et al*, 2005). Body hair ranges from 0.005 to 0.6mm in length. It is not affected by frequent cutting or shaving. It varies in form being either straight, helical or wavy and differ in colour depending on the degree and type of pigmentation. Over the body surface hair is short and narrow but longer, thicker and heavily pigmented in places like the scalp, eyelashes and eyebrows. Phalangeal hair is different from hairs on other parts of the body. It is concentrated in the particular regions of phalanx. Distribution of hair on the

phalanges may be influenced by certain factors such as gene and environment (Williams *et al*, 2005).

The distribution of phalangeal hairs has been studied in some tribes such as Turkey (Hatiboglu, 1983), Sardinian (Vona and Porcella 1989), kanuri and Baburs of Northwest Nigeria (Mbjiorgu, 1996). The aim of this study was to assess the different patterns and frequency of hair distribution on the phalanges of the population studied and determine the effect of age, sex and job type on the distribution.

Materials and methods

Subjects used were of the Yoruba tribe in the Western part of Nigeria specifically those residents in Ilorin-Kwara State. The job type, sex age and health status of the subjects were taken into consideration. Those with any kind of skin diseases were excluded from the study. Five hundred subjects were used among which 250 were males and 250 were females. Hand lens, measuring tape, a piece of white thread, camera and duplicating papers were used. With the hand-lens, hair were viewed and being magnified, counting of hairs was made easy. The hairs were counted for the proximal, middle and distal phalanges for all fingers and recorded.

The subjects were initially group into sexes and later assessed according to job types and age. The area with highest number of hair was noted on each phalanx and the number of hairs in the area counted.

The average number was determined by finding the average of the number on both hands. The

subjects were divided in to 250 males and females made up of office and field workers.

Patterns of hair distribution were divided into 11 – groups for proximal phalanges as below for easy analysis.

Proximal Phalangeal hairs

1. Those with hairs on 2nd, 3rd, 4th, 5th, fingers.
2. Those with hairs on 3rd, 4th, 5th fingers.
3. Those with hairs on 2nd, 3rd, 4th fingers.
4. Those with hairs on 3rd, 4th, fingers.
5. Those with hairs on 4th fingers only
6. those with hairs on 1st, 2nd, 3rd, 4th, 5th fingers
7. Those with hairs on 4th, 5th fingers
8. Those with hairs on 3rd fingers.
9. Those with hairs on 3rd and 5th fingers.
10. 1st, 2nd, 3rd and 5th fingers.
11. Those without hairs.

Middle Phalanx

3rd, 4th and 5th fingers

Distal phalangeal hair

Results

There were observable variations in the distribution of hair on the phalanges of office and field workers and between males and females. The table below shows the result. The groups with hairs on digits 4-; 3 – 5; and 1-2-3-5- had the smallest

percentages of distribution (1% each). 2% of the population had no hair on the proximal phalanges while 0.2% of the males had hair on the middle phalanges. Hair was absent on the distal phalanges of subjects.

Table 3: Mean number of hair in relation sex

Mean No. of hair	Sex
3.22 ± 0.25	Male
2.80 ± 0.25	Female

Mean number of hair with in males was higher than in female (Table 3).

Result shows (in Table 2) that the group with hair on 2, 3, 4, 5 digits has the highest percentage 51% (26 males, 25 females). There was a difference observed in the percentage distribution between male and female subjects. The groups with hairs on digits 4-5; 3-; and 1-2-3-5 had the smallest percentage (1%). 2% of the population had no hair on proximal phalanges. The most common pattern for both sexes was 2-3-4-5 while the least common for males were 4,5 and 1-2-3-5. The least for females was 2-3-4, (1%).

Results show no differences in the percentage distribution of phalangeal hair on the right and left hands of field workers. The ratio of right to left was 54.56. There was a variation in the number of hair on the right and left hands of office workers.

Table 1: Hair distribution pattern of subjects in relation to job type and sex

S/N	Finger Pattern	Total	Percentage (%)	No. of male	No. of Female	Field workers	Office workers
1	2-3-4-5	255	51	130	125	110	145
2	3-4-5	80	16	60	20	30	50
3	2-3-5	15	3	10	5	05	10
4	3-4	45	9	10	35	10	35
5	-4-	05	1	05	-	05	-
6	1,2-3-4-5	55	11	45	10	45	10
7	4-5	10	2	-	10	10	-
8	3-	15	3	05	10	-	15
9	3-5	05	1	05	-	-	05
10	1,2,3,5	05	1	05	-	-	05
11	Without hair	10	2	10	-	-	10
12	Middle phalanges	1	0.2	1	-	1	-
13	Distal phalagges	-	-	-	-	-	-

Distribution of hair on the phalanges

Table 2: Frequency of proximal hair distribution pattern in relation to job type and sex

Group	2-3-4-5	3-4-5	2-3-4	3-4	4	1-2-3-4-5	4,5	3	3,5	1,2,3,5	0	Total
No. of field workers male	75	10	05									90
%	15	2	1									18%
No. of female field workers	35	20	-	-	-	45	10	-	-			110
%	7	4				9	2					22%
Male office workers	90	10	05	-	-	10	-	5	5	5	10	140
%	18	2	1			2		1	1	1		26%
Female office workers	55	40	05	35	-	-	-	10	-	-	-	145
%	11	8	1	7				2				29%

Discussion

The highest percentage of hair distribution was observed in the proximal phalanges and in males. This was also observed in a previous work (Singh 1982). The commonest type of hair pattern in both office and field workers was the 2nd, 3rd, 4th, 5th finger pattern while the least was 2nd, 3rd, 4th and 5th. The presence or absence of hair on the phalanges is affected by genetic endowment and job type (Uter *et al.*, 1999). The number of hair was greater on the left than on the right. This may be due to the fact that more people use the right hand than the left (Dharap *et al.*, 1995). There was no difference in the distribution of phalangeal hair in relation to age although teenagers and the older people appeared to have higher number of hair than adolescents. This could be explained on the basis of less usage. The former are people of school age and the later are more elderly people who do less work (especially wet work) with their hands. Their phalangeal hairs are not exposed to tear and wear. The absence of hair on the proximal phalanges of 2% of some subjects is in line with what has been reported in other populations – South of Spain (Luna, 1989); Sardinian, Italy (Vona and porcella, 1989); South India (Sethuraman *et al.*, 1982); Calabar, Nigeria (Singh, 1982), Indians (Dutta, 1965).

The higher frequency of distribution of hair in males may be attributed to greater involvement of females in domestic work and washing in this part of the world. These activities may destroy hairs and make it become sparse in number. The significant variation in the pattern and number of hair on the phalanges of office and field workers with a higher number among office workers suggest that field

workers e.g. brick layers, mechanics, hair dressers etc are exposed to labour which destroys phalangeal hair especially if the individual had been on the job for a long period of time. The result of the study indicates that proximal phalanges have the highest percentage of hair distribution, 51%. Middle phalangeal hair is not common (2%) and hair on distal phalanges is rare. This result is similar to the result from other populations including the Caucasians (Hatiboglu, 1983). Furthermore, field workers especially those involved in wet work should always wear gloves during working hours to protect their phalangeal hairs which are important receptors in the body (Harrison and Davies, 1999).

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