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Original Research

Assessment of finger prints pattern among known population

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***ABSTRACT*:**

Background: Fingerprint patterns are genotypically determined and remain unchanged from birth till death. The present study was conducted to assess the finger print pattern among population. **Materials & methods:** 120 subjects of both genders were included and finger prints of all fingers were taken on paper with the help of stamp pad. All patterns were assessed by classification given by- Michael and Kucken into 4 types- Arches, Loops, Whorls and composite **Results:** Age group 20-30 years had 22 males and 18 females and age group 31-40 years had 20 males and 23 females and 41-50 years had 19 males and 18 females. Different finger print patterns were whorl in 55%, loop in 20%, arch in 18% and composite in 7%. **Conclusion:** Finger print assessment is considered best method of human identification. In most of the patients, whorl type pattern was found.

Key words: Finger print, Loop, Whorl

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INTRODUCTION

Palmer surfaces of the hands and of the soles of the feet have friction ridges. The ridges are the raised portions of skin between furrows on either side. They are also known as "Papillary" or epidermal ridges. The ridges flow in various directions giving rise to innumerable patterns.[1] Dactylography or Dactyloscopy is the study of finger prints identification. The word Dactylography is derived from two Greek words, daktylos meaning 'finger' and graphein meaning 'to write'.[2] It is the study of the impressions of patterns formed by the papillary ridges on the bulbs of fingers and thumbs. It is taken with the help of printer's ink on unglazed paper. Fingerprint patterns are genotypically determined and remain unchanged from birth till death.[3] The peculiar factor regarding fingerprints is that no two person can have same finger prints. Even to identical twins can have same finger print patterns. This makes identification of suspect useful especially in crime scenes. This pattern remains uninfected by any disease process. Different fingers of same individual can have any pattern and that is unique for that finger.[4] They are present at birth, both on epidermis and dermis. Finger prints appear for the first time from the 12th to 16th week of intrauterine life and their formation gets completed by 24th week of intrauterine life. The ridges appear on the fingers first, then on the palm or sole. They remain constant for the whole life of the individual.[5] The present study was conducted to assess the finger print pattern among population.

MATERIALS & METHODS

The present study was conducted among 120 subjects of both genders. All subjects were informed about the study and written consent was taken.

Demographic data such as name, age, sex etc was recorded in performa. Finger prints of all fingers were taken on paper with the help of stamp pad. All patterns were assessed by using magnifying glass following classification given by- Michael and Kucken into 4 types- Arches, Loops, Whorls and composite. Results

thus obtained were studied. P value less tha 0.05 was considered significant.

RESULTS

Table I Distribution of patients

Age group (Years)	Male	Female
20-30	22	18
31-40	20	23
41-50	19	18
Total	61	59

Table I, graph I shows that age group 20-30 years had 22 males and 18 females and age group 31-40 years had 20 males and 23 females and 41-50 years had 19 males and 18 females.

Graph I Age & gender wise distribution

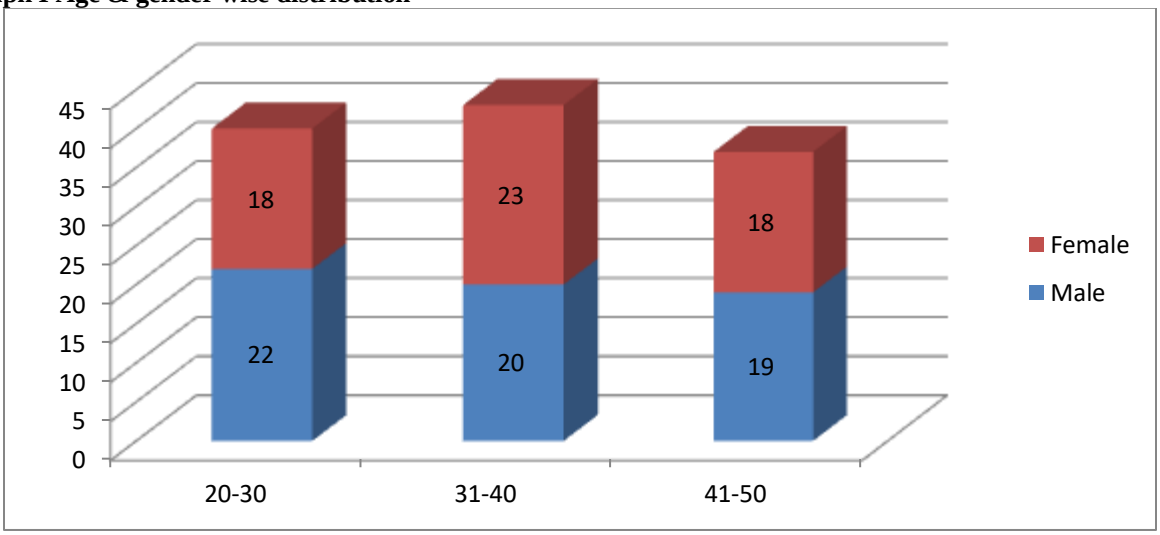
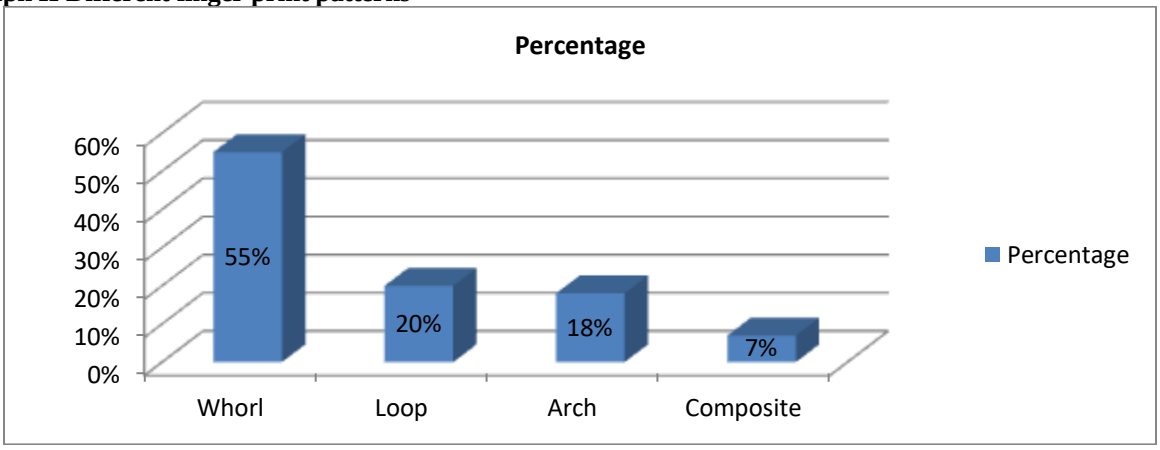


Table II Assessment of finger print patterns

Finger print patterns	Percentage	P value
Whorl	55%	0.01
Loop	20%	
Arch	18%	
Composite	7%	

Table II, graph II shows that different finger print patterns were whorl in 55%, loop in 20%, arch in 18% and composite in 7%.

Graph II Different finger print patterns



DISCUSSION

Dactylography is a progressing science and new methods for the recording, lifting and developing of prints under different field conditions, including those from the decomposed body, are being introduced regularly.[6] As far back as seventieth century AD, the finger print impressions in ink were used in Assyria and Far East as an evidence of good faith in the sealing of bonds or the issue of documents.[7] Dr. Henry Faulds came to Darjeeling, Bengal in 1872 as a medical missionary and observed the use of Tip Sahi in lieu of signature and other official purposes.[8] The finger prints of an individual do not change throughout his life. In fact, the ridges appear before birth. They start appearing during third or fourth month of pregnancy. They remain even after the death of the individual, till the epidermal skin is destroyed by fire, putrefaction or is eaten by insects or other creatures.[9] The present study was conducted to assess the finger print pattern among population.

In present study, age group 20-30 years had 22 males and 18 females and age group 31-40 years had 20 males and 23 females and 41-50 years had 19 males and 18 females. Srilakha et al[10] conducted a study during 2000-2001 on 300 medical students with different ABO blood groups in Rajasthan which revealed that individuals with blood group A have more of loops, while that of blood group AB had more of whorls. Arch can be of two types, plain Arch and tented arch. In plain arch, the ridges run from one side to the other making no backward turn. There is usually no delta. But when delta appears, no ridge must intervene between the inner terminus and outer terminus. In tented Arch, the ridges near the middle may have an upward thrust, arranging themselves as it were on both sides of an axis towards which adjoining ridges converge. The ridges thus converging give to the pattern the appearance of a tent in outline, hence the name tented arch.[11]

We found that different finger print patterns were whorl in 55%, loop in 20%, arch in 18% and composite in 7%. Sam et al[12] found that rolled fingerprints of ten fingers of all the 200 subjects were collected. Hence a total of 2000 fingerprints were obtained, which were analysed and their patterns and subtypes were determined. Among the 2000 fingerprints obtained, 1142 were loops, 607 were whorls, 127 were composites and 124 were arches. The distribution of different patterns of fingerprints was analysed separately for both males and females. Out of the 1142 loop patterns obtained in this study, 1089 were ulnar loops (95.36%) and 53 were radial loops (4.64%). Similar distribution was observed in both males and females. Out of the 607 whorl patterns obtained in this study, 374 were spiral whorl (61.6%), 154 were circular whorl (25.4%), 48 were double core whorl (7.9%) and 31 were elliptical whorls (5.11%). In both males and females, same distribution pattern was observed.

CONCLUSION

Finger print assessment is considered best method of human identification. In most of the patients, whorl type pattern was found.

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