

# Dactylograms Modifications among the students of Rai Medical College, Sargodha

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## ABSTRACT

**Aim:** To deduce the dispersal of attribution motif disparities among the MBBS 3<sup>rd</sup> year students of Rai Medical College Sargodha

**Study design:** Observational descriptive study

**Place and duration of study:** Rai Medical College Sargodha from 1-03-2018 to 30-04-2018.

**Methods:** Attributes of individual student were placid after getting their informed consent during the month of March 2018, to April 2018. MBBS 3<sup>rd</sup> year students of Rai Medical College voluntarily contributed in the study and attributes were collected after getting the ethical clearance from the institute. One hundred twenty-six students' attributes were documented on a plain unglazed sheet of white paper with the help of stamp pads by using Plain and Rolled Method. Each hallmark of student allocated with their roll numbers and Id numbers along with their general particular data including Age, gender and blood groups were documented during the collection of data. MBBS 3<sup>rd</sup> year students age was in the range of 19-25yrs.

**Results:** In comparison between the both hands the commonest pattern is Loop and second most common is Whorl and third most common is Arch.

**Conclusion:** Loops pattern is most predominant pattern followed by the whorl pattern.

**Keywords:** Dactylogram, attributes, Dactylography

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## INTRODUCTION

Federal Bureau of Investigation consuming the world's largest integrated automated fingerprinting identification system since 1999, which contains more than 60 million persons with their complete demographic information using both latent print search in crime scene investigation and 10print ID for the suspected identification and general population backgrounds. FBI declares that other personal characteristics of body may have a modification, but attributes do not and is approved worldwide<sup>1,2</sup>. Now they began to update the IAFIS to the Next Generation Identification (NGI) system<sup>1,2</sup>.

Due to increasing apprehensions regarding security issues and fraud, Commercial and government<sup>3</sup> organizations have significantly raised their own arrangement of biometric recognition systems in several non-forensic submissions, in cooperation with corporeal and rational access control, bank ATM businesses, border controller, and customer expedient access. The hallmark is the leading biometric attribute in these applications equated to other communal traits like as voice, iris, face, with new emerging traits like ear, palm-vein and gait<sup>4</sup>. Fingerprints or attributes are impressions of pattern formed by the papillary or epidermal ridges of the finger tips<sup>5</sup>. It is mainly based on the specific particularities of the forms designed by the arrangement of the papillary or epidermal ridges on the

finger tips are absolutely constant and persists throughout life from infancy to old age and that the patterns of no two hands resemble with each other<sup>5</sup> during the intrauterine life these epidermal ridges have been formed during the period of 11th and 24th week. These epidermal ridges do not change throughout life<sup>6</sup>. Studies showed that the Skin and brain developed from the same ectoderm and critical development of the brain also occurring in the same period. Attributes variation can be very helpful and revealing in early brain developmental disturbances<sup>7</sup>. Henry Galton describes the fingerprints on the basis of arrangement of papillary ridges classified it into four major types loop, Whorl, Arch, and Composite. Among four the most common pattern in population is Loop 65%, whorl 25%, arch 07% and composite 02-03% population<sup>8</sup>. In Sargodha Pakistan no such type of study has been conducted yet to determine the fingerprinting prevalence so that this study is planned to deduce the dispersal of attribution motif disparities among the MBBS 3<sup>rd</sup> year students of Rai Medical College Sargodha.

## MATERIALS AND METHODS

Attributes of individual student were placid after getting their informed consent during the month of March 2018, to April 2018. MBBS 3<sup>rd</sup> year students of Rai Medical College voluntarily contributed in the study and attributes were collected after getting the ethical clearance from the institute. One hundred twenty-six students' attributes were documented on a plain unglazed sheet of white paper with the help of stamp pads by using Plain and Rolled Method. Before getting the sample wash their hands and fingers properly with soap and water then soaked the hands with towel after that we ink the ball of the fingers with stamp pad ink and used it on an unglazed white paper with two different methods of taking fingerprints. 1) Plain finger-print by just pressing the inked ball of the finger on the paper.

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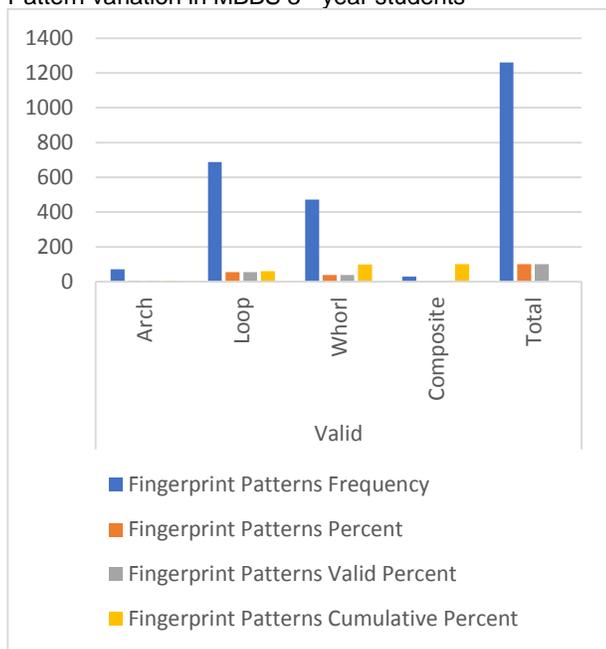
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And 2) Rolled finger-print by pressing the inked finger ball, roll it from one side to other side of the finger<sup>8</sup>. Each hallmark of student allocated with their roll numbers and Id numbers along with their general particular data including Age, gender and blood groups were documented during the collection of data. MBBS 3<sup>rd</sup> year students age was in the range of 19-25yrs. The study design was observational descriptive study. The volunteer students of either gender from MBBS enrolled in 3<sup>rd</sup> year of Rai Medical College, Sargodha belonging to any dermal ridge pattern with any ABO blood group were included. All those students who have been suffered from any acute or chronic skin diseases like scars, leprosy eczema, chronic dermatitis, congenital or acquired glitches due to any sort of trauma on hands or on fingers were completely excluded from our study. Anelaborative proforma for the students was designed in which particulars detail of students like gender, name, ethnicity, age, and blood groups were mentioned.

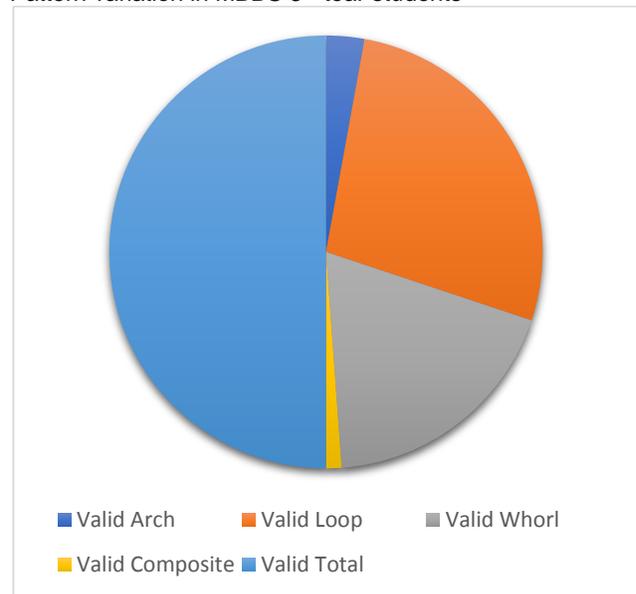
**RESULTS**

Out of one hundred twenty-six participants (1x 10) (126x10=1260) the most common form belonging to Loop pattern 687(54.5%), which was tracked by whorl pattern 472(37.5%), and a 3rd common variant is Arch pattern 72(5.7%). A very least pattern was composite 29(2.3%). In comparison between the both hands the commonest pattern is Loop and second most common is Whorl and third most common is Arch. These types of results may be due to indicating the specimen oscillation or random sampling or illustrative scale is not enough or these two variables are entirely different and autonomousand cannot be affected by one another. Larger illustration size at district, provincial, nationwide may enhance the precision of calculation.

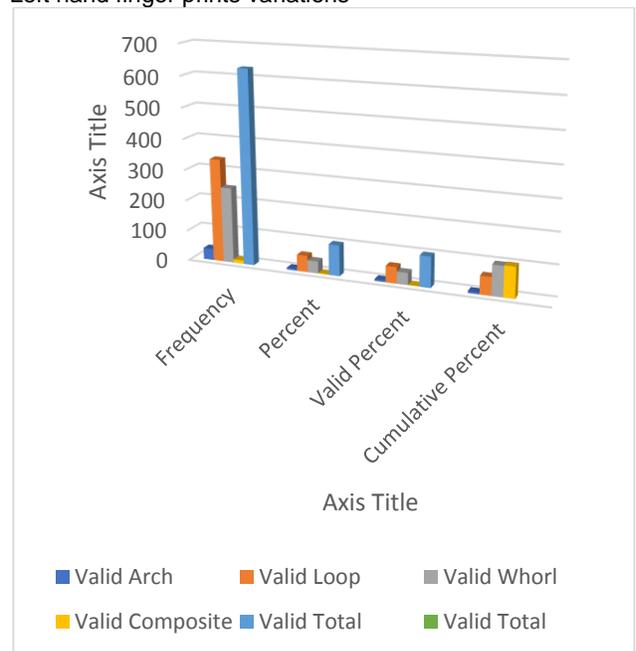
Pattern variation in MBBS 3<sup>rd</sup> year students



Pattern variation in MBBS 3<sup>rd</sup> year students



Left hand finger prints variations



**DISCUSSION**

In civil and criminal courts, results of trials often depend upon establishing proper identity. In deaths due to violence, law needs to establish the exact identity of the deceased prior to final verdict. Identity happens to be the part and parcel of corpus delicti or body of crime<sup>8</sup>. Characteristically the skin of hands and feet shows a particular morphological design called dactylogram. This pattern is typically on the thick skin of the digits, the palm of the hands and the soles of the feet, and its properties have a leading role in human identification<sup>9</sup>. No two persons have exactly the same arrangement of ridge patterns, and the patterns of any one individual remain unchanged throughout life. Finger-prints

offer an infallible means of personal identification<sup>8</sup>. The importance of individual dactylographic pattern cannot be neglected each and every individual sample is inimitable. In our study the most common prevalent pattern of finger prints is Loop 54.5% followed by whorl 37.5% and arch 5.7% respectively. These types of results were also found in different studies. Similar results were also found in a study done in Karachi, Lahore regions and also in Indian studies which shows loop pattern is mainly dominated followed with the whorl pattern then the arch pattern<sup>10,11,12,13,14</sup>. There are many limitations of our study including limited only on a specific region, limited size of illustration and may be due to the illustration errors. This type of study should be elaborated at the state level, provincial level, racial level, and should be tried to correlate the clinical diseases along with the genetic diseases.

## CONCLUSION

It was concluded that Individually each dactylograph is exceptional and provide an important clue for identification of individual among the courts.

Loops pattern is most predominant pattern followed by the whorl pattern and Composites are the least one.

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