EUROPEAN JOURNAL OF PHARMACEUTICAL AND MEDICAL RESEARCH

DETERMINATION OF CHEILOSCOPY AND DACTYLOSCOPY AMONG TRIBAL BELT PHYSIOTHERAPY COLLEGE STUDENT IN CHHATTISGARH.

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ABSTRACT
Background: So many problem faced by human being in past to provide the identity of an individual, identification of human being was requisite for personal, social and legal reason; cheiloscopy, dactylographic pattern being uniform throughout the life, so the research of cheiloscopy, dactylographic pattern, distinctive and permanent in the present century is the most reliable method of human being identification. **Aim:** To study of cheiloscopy, dactylographic pattern on all the fingers of both hands among tribal students. **Materials and Methods:** This research were conducted in 300 students 200 females and 100 males 17 to 25 years age groups in tribal belt Government Physiotherapy College in Chhattisgarh, India. In this research were Students selected those family are tribe belongs to Chhattisgarh state, students without any disease related to lips, normal lip mucosa and finger and cleft lip and any inflammation, allergic to the lip stick, and with any kind of disease in lip and finger were excluded from our study. **Result:** In this research we obtained 300 students, maximum number of case in 22-22 years students in 167 and in female 109 and in 58 male, 100 (33.33%) were males and 200 (66.66%), most common lip pattern was II branched 56.66% and least common types of V mixed indefinite 1.35%, dactylographic pattern in female and male total highest number were obtained whorl 2000 (66.66%) and least pattern was composite 10 (0.33%). **Conclusion:** In the present research, lip pattern more in II type and dactylographic pattern highest number of pattern was whorl. Further in future research concerning standardization of the pressure applied to lip print dactylographic pattern during recording the prints is recommended and development for biometric system, identification of tribes races to allow fast and accurate assessment of lip print patterns and dactylographic pattern.

KEYWORDS: Whorl, Composite, Tribe, Cheiloscopy, Human being, Chhattisgarh.

INTRODUCTION
The pattern of wrinkles on the lips was individual characteristics as dactylographic pattern, the wrinkles and grooves on the labial mucosa called sulci labiorum form a characteristic pattern called lip prints, the study of which is referred to as Cheiloscopy.[1] In the past decade, lip print studies attracted attention in all scientists as a new tool for human being identification, Fischer was in 1902 first described to Cheiloscopy.[2] Lip print was one of the evidence that most of the time can be left in the crime scene which helps in identification purpose, lip prints were the normal lines and furrows in the form of wrinkles and grooves present in the human lip, like dactylographic pattern, during investigation it can be found over wine glass, love letters, on private parts etc.[3]

Dactylographic pattern means dactyl = skin + graphic=curves print, the skin on the palmer and plantar surface was continuously wrinkled with narrow minute ridges called as friction ridges, dactylographic pattern was an impression of the friction ridges on all parts, the dactylographic pattern appear first time on the human fingers, palms, soles, and toes on 12th to 16th week of embryonic life and completed on 14th week, 6th fetal month. Dactylographic pattern system was based on the study of epidermal ridges and their configurations in the fingers, palms and soles.[4]

The two individual having identical dactylographic pattern was about one in 64 thousand millions, its combined effect of heredity and environment factors on the pattern of ridges, according Galton classified the types of dactylographic pattern depending upon their primary pattern as loops, whorl, arches and composite.[5] The most common patterns are loop, these are formed by ridge lines that flow in from one side to sweep up like arch, then curve back around and flow out on that side from where they entered, loop are two types: radial or ulnar, the whorl patterns are of four different types: plain, central pocketed double loop, and accidental

whorl, whorl are at least two deltas and one or more of the ridge lines curve around the core to form a circle or spiral or other rounded, constantly curving form are known as whorl. Arches are the simplest rarest patterns having two types: plain and tented arches, in both types the ridge lines flow from one side, rise in the middle of the pattern and flow out to the other side. Composite is combination of patterns that does not fit into any of the above pattern.[6]

DNA report, postmortem report, anthropometric measurement of bone parameters, increasing dactylographic pattern is most widely used in the general population and crime, forensic investigator. Criminal, offenders are taking care not to leave behind dactylographic pattern at a crime scene, used gloves. So dactylographic pattern, chelioscopy, can also be helpful in additional ways to recognition of unknown body and races like tribes identification.
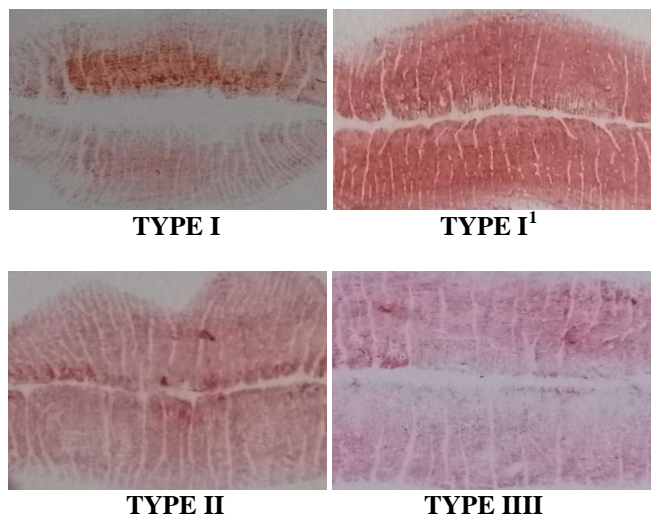
METHODS
This research was conducted on 300 students 200 females and 100 males 17 to 25 years age groups in tribal belt Government Physiotherapy College in Chhattisgarh, India. All the students were informed about the research, its method and objectives were explained in clear detail, they were made comfortable. In this research were Students selected those family are tribe belongs to Chhattisgarh state, active or passive lips and fingers which were normal and free of any disease, lesion. We excluded all students that are not belongs to tribal family, hypersensitivity to lip stick, any injury deformity, permanent scars on their in finger and lips. The lipstick was apply with a single stroke, evenly on the vermillion border of students, rub both the lips to spread the applied lip stick, after two minutes, the lip impression was taken in the strip of cellophane tape then stacked to white bond paper which maintained as the permanent record, this impression was then read under a magnifying glass of 10X. In this research we used the Tsuchihashi[7] classification of patterns of lines on lips. Type 1A - vertical grooves run along the entire lips. Type 1B -

vertical grooves that do not run along the entire lips. Type 2 - branched grooves Y shaped. Type 3 - Intersected grooves. Type 4 - reticulate grooves. Type 5 - undetermined grooves. For dactylographic pattern was prepared on a A -4 white paper divided into two, marked as right and left, and each again divide into five columns for thumb, index, middle, ring and little, the finger prints were taken using the stamp orient source paint, roller and plain base, finger prints were taken after washing the hands with hand wash liquid, water and after complete drying, the dactylographic patterns, loops, whorl, arches and composite were observed with the help of magnifying hand lens. After obtaining the finger prints and lips print, the basic details name, age and sex was also gathered.

OBSERVATION AND RESULTS
In the present research we found that no individual had single type of lip print, not similar type of lip print pattern, between two or more individuals. Table – 1we obtained out of 300, most of case in 22- 22 years students in 167 and in female 109 and in 58 male. Table - 2 in this research we obtained total number of 300 students, 100 (33.33%) were males and 200 (66.66%) were females, most common pattern was II branched 56.66% and least common types of V mixed indefinite 1.35%. In male most common type of lip pattern was II branched 60% after than I long vertical 20% than I[1] 10% and not obtained any cases in V mixed indefinite pattern. In case of female most common lip pattern was II 55% followed I 32.5% than IV 5% and least common lip pattern was V 2%. Table – 3 Dactylographic pattern of ten fingers of all the 300 students were obtained, total highest number were whorl 2000 (66.66%) and least pattern was composite 10 (0.33%).in female highest number were obtained whorl 1500 (50%) than loop 450 (15%), after than arch 45 (1.5%) and least numbers were composite 5 (0.16%). Similar finding in male highest number in whorl pattern 500 (16.66%) than loop 450 (15%), after than arch 45 (1.5%) and least pattern was composite 5 (0.14%).
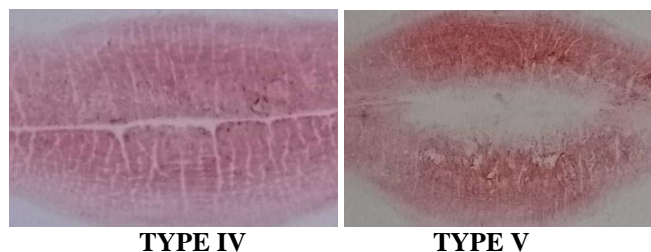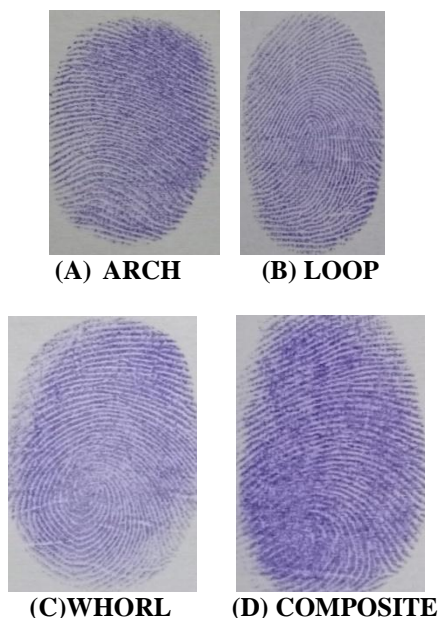
Image: 1

| TYPE I | TYPE I[1] |
| TYPE II | TYPE IIII |

TYPE IV   **TYPE V**

Image: 2

(A) ARCH   **(B) LOOP**

(C)WHORL   **(D) COMPOSITE**

Table:

Table: 1 Age and sex wise case distribution in tribe students.

Students age group (in years)	Male	Female	Total number of cases
17 - 19	32	56	88
20 - 22	58	109	167
23 - 25	10	35	45

Table 2: Lip pattern among tribe students.

Lip Pattern	Male (%)	Female (%)	Total (%)
I (Long vertical) pattern	20 (20%)	65 (32.5%)	85 (28.33%)
I^1 (Short vertical) pattern	10 (10%)	6 (3%)	16 (5.33%)
II (Branched) pattern	60 (60%)	110 (55%)	170 (56.66%)
III (Intersecting) pattern	8 (8%)	5 (2.5%)	13 (4.33%)
IV (Reticulate) pattern	2 (2%)	10 (5%)	12 (4%)
V (Mixed indefinite) pattern	0 (0%)	4 (2%)	4 (1.33%)
Total	100 (33.33%)	200 (66.66%)	300 (100%)

Table 3: Distribution of dactylographic pattern of all the fingers in both the hands among tribe male and female students.

Dactylographic patterns	Males (N=1000)	Females (N=2000)	Total (N = 3000)
Loops	450 (15%)	450 (15%)	900 (30%)
Whorls	500 (16.66)	1500 (50%)	2000 (66.66%)
Arches	45 (1.5%)	45 (1.5%)	90 (3%)
Composite	5 (0.16%)	5 (0.16%)	10 (0.33%)
Total	1000 (33.33%)	2000 (66.66%)	3000 (100%)

DISCUSSION

Identification of races, individual, living, dead is based on the theory that all individual are always unique and identification is necessary for so many cases unknown deceased person in homicide, suicide, accident, mass disaster and living individual who were missing or culprits hiding their identity, there where require individual detail so we will be used this parameter Cheiloscopy and dactylographic print for matching the details of lip prints in postmortem records, recorded races identification. Cheiloscopy and dactylographic print was very popular upcoming tool in crime, forensic investigation races identification. Hope so though DNA comparison, dactylographic prints, cheiloscopy, additional tools will be most commonly used, for identification.

According to J. Kasprzak[8] human identification was a main issue of civilization and the identification of unknown individual always one of the questionable parts of the society, the identification of any missing individual can aid tremendously in the process of grief resolution by family and friends, the old methods for personal identification include anthropometry, sex determination, estimation of age, measurement of height, identification with a specific individual, and differentiation by blood groups, these all methods even proven successful in many cases, Lip Print Pattern and Radiographic configuration of Frontal Sinus were also one among the other methods, which will be used as an aid in personal identification because of this was also Uniqueness.

Vahanwalla and Parekh[9] were found most frequent in their study in Mumbai, predominant type I among both the genders and that the patterns in different quadrants varied in males than in females. Sivapathasundharam, Prakash and Sivakumar[10] were found the lip prints of Indo-Dravidian population was predominant Type III. Singh H, Chhikara P[11] was found that an individual does not have a single type of lip print, but a mixture of different patterns and that no two individuals was similar type of lip-prints. Other research[12] in also was seen that lip-prints did not change on repeated sampling in the same individual. El Domiaty[13] found that even when two person exhibited the same type of groove in the same area of the lip, there were specificity difference between in the site and pattern of groove branching or reticulation. Verghese AJ Somasekar M[14] and Verghese AJ, Mestri SC[15] found that the most predominant pattern in females type IV and in males, it varied slightly. In our research we obtained 300 tribes students, most of case in 22- 22 years students in 167 and in female 109 and in 58 male and 100 (33.33%) were males and 200 (66.66%) were females, most common pattern was II branched 56.66% and least common types of V mixed indefinite 1.35%, in male most common type of lip pattern was II branched 60% and not obtained any cases in V mixed indefinite pattern, in case of female most common lip pattern was II 55% and least common lip pattern was V 2%.

Desai *et al.*[16], Nithin *et al.*[17] Nagasupriya *et al.*[18], Mutalik *et al.*[19], Reddy[20] and Rastogi[21], Ekanem *et al.*[22] all authors they found whorl pattern predominantly in males and loop pattern in females, they were explained that different racial and ethnic groups show difference in the predominant dactylographic pattern. Nadar[23] found that all the fingerprints were unique. Senn and Stimson[24] found that no two individuals were the same fingerprint, not even twins. In our research dactylographic pattern of ten fingers of all the 300 students total highest frequency number were whorl 2000 (66.66%) and least pattern was composite 10 (0.33%) and female and male highest number were obtained whorl 1500 (50%), 500 (16.66%) and least numbers were composite 5 (0.16%), 5 (0.14%).

CONCLUSION

In the present research, lip pattern more in II type and dactylographic pattern highest number of pattern was whorl, lip prints of our research students did not match with each other, lip prints were unique, so valid lip prints as valuable as finger prints, no significant difference in lip patterns of males and females. Traditional method cheiloscopy and dactylographic pattern can also serve as a very important tool in identification of tribal students and races. It very useful for all upcoming research scientist, forensic expert, anatomist, anthropologist.

List of abbreviations: None declared.

Competing interests: We have no competing interests.

Author's contribution: Dr. Rajni Thakur has made to conception, procedure, drafting the manuscript, covert images in JPG file, tabulation Dr. Deepti Gautam has made collection of sample, revising manuscript, arrange the image.

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