

## CORRELATION OF BLOOD GROUP, CHEILOSCOPY, DACTYLOGRAPHIC PATTERN AMONG PHYSIOTHERAPY TRIBAL STUDENT IN CHHATTISGARH.

Rajni Thakur<sup>1</sup>, Deepti Gautam<sup>2</sup>.

<sup>1</sup>Assistant Professor, Department of Anatomy, Pt.J.N.M.Medical College, Raipur, (C.G.)

<sup>2</sup>Assistant Professor, Department of Anatomy, Pt.J.N.M.Medical College, Raipur, (C.G.)

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**Corresponding author:** Rajni Thakur

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### Abstract

**Aim:** To establish between correlation of ABO blood group, cheiloscopy, dactylographic pattern.

**Materials and Methods:** This research was carried on 400 students 291 females and 109 males 17 to 27 years age groups in tribal belt Government Physiotherapy College in Chhattisgarh, India. In this research were Students selected those inbred were tribe belongs to Chhattisgarh state. Blood group, cheiloscopy, dactylographic pattern analysed and correlated according to Landsteiner, Suzuki and Tsuchihashi, Michael and Kuchen classification.

**Result:** We obtained were 400 tribe students which included 109 male and 291 female students. highest frequency was 221 "O" blood group, least frequency obtained "AB" 26 and total Rh positive 371 and Rh negative was 29, cheiloscopy pattern more frequency was observed in type II branched 209, dactylographic pattern, highest frequency in whorl 229, least common in 6 composite.

**Conclusion:** We knew that students framework cheiloscopy, dactylographic patterns and blood groups show paramount role in races, crime, forensic identification. Correlation of these three criterion, solely be worn in individual, races identification, but fairly, they can be worn to ratify facts in atrocity, misdeed where there are thoroughly trifling testimony.

**Keywords:** "O" positive, Worn, Tribes, Races, Agglutination, Chhattisgarh, Physiotherapy.

### Introduction

The identification of an individual is not only paramount from the perspective of crime, but also necessary for personal, social and legal sense<sup>1</sup>. ABO Group is divided into four types-"A", "B", "AB", "O", presence or absence of A&B agglutination, group "A" shows presence of agglutination "A", group "B" shows agglutination "B", group "AB" shows presence of both "AB" agglutination and group "O" shows absence of all agglutination<sup>2</sup>. Rh positive person, presence of antigen-D in the blood and absence of antigen D means RH negative<sup>3</sup>. Pervasive research on the pattern of blood group in Indian population concede "B" positive is the most prevailing blood group followed by "O" positive, "A" positive, "AB" positive<sup>4, 5</sup>. Every guy is convinced quality that makes them thoroughly specific from other<sup>6</sup>.

Labial mucosa, an element of the lingual mucosa is not glossy like the buccal mucosa or smooth palate, in labial mucosa many elevations and depressions forming a distinctive pattern called lip pattern<sup>7</sup>. This cheiloscopy was first distinguished in countries Poland and USA, the examination of these grooves

and furrows coeval on the red part or the vermilion border of the human lips is notorious as cheiloscopy<sup>8</sup>, which is important for forensic identification. Yasuotsuchichashi, classified cheiloscopy into six classes according to the shape and course of the grooves, just like dactylographic pattern, cheiloscopy are used for permanent identification, record<sup>9,10</sup>.

Dactylographic pattern is an impact of the curved lines of the skin at the end of a finger that is left on a shoal and made by dire an inked finger onto paper, these are epidermal ridges extricated in their cognative forms during the 3<sup>rd</sup> or 4<sup>th</sup> month of fetal life, these abide consistent from birth till death<sup>11</sup>. The use of cheiloscopy and dactylographic pattern is of outstanding importance, since doing a intimate identification by other means such as DNA analysis is refined and they are not convenient in rural and developing countries<sup>12</sup>.

### METHODS:

The current research was conducted on 400 students 291 females and 109 males 17 to 27 years age groups in tribal belt Government Physiotherapy College in Chhattisgarh, India. In this research were Students

selected those inbred were tribe belongs to Chhattisgarh state and healthy students. All the students were informed about the research, its method and objectives were explained in clear detail, they were made comfortable and obtained consent. We used White A4 sized paper, cellophane tape, Red lip stick, blue inked stamp orient paint, rollar and magnifying lens. We excluded those students were non tribal, not belonging to Chhattisgarh state, inflammation, lesion, trauma, orthodontic treatment, congenital abnormalities in lip, deformities, injuries, permanent scars in finger. Blood group, students obtained ABO process and each students bio data, cheiloscopy and dactylographic pattern were recorded, apply lipstick and glued portion of the cellophane tape was used to obtain the impression of the lip, immediately transferred onto paper by gently sticking the cellophane tape and analysis, each cheiloscopy was divided into six types, cheiloscopy classified according to Suzuki and Tsuchihashi<sup>13</sup>, Type – I Clear cut grooves running vertically across the lip, Type - I' The grooves are straight but they disappear half way, Type – II The grooves fork in their way(branched), Type – III The grooves intersect, intersecting, Type – IV The grooves are reticular, reticular, Type – V The grooves do not fall in any of the types from I to IV, undetermined. Dactylographic pattern, imprint of both hands fingers was taken, pattern was examined by using magnifying glass, dactylographic pattern were classified according to Michael's and Kucken's<sup>14</sup>. Loop, Whorl, Arch, Composite containing two or more forms.

#### OBSERVATION AND RESULTS:

In our current research conducted to determine, correlation between blood groups cheiloscopy and dactylographic patterns. We obtained were 400 tribe students which included 109 male and 291 female students. The students were examined and the results obtained were as follows;

Among 400 students,(table – 1) the chunk distribution of various blood groups was as follows – highest frequency was “O” blood group 221, than 114 “B” followed “A” 39 and least frequency obtained “AB’ 26.Total Rh positive 371 and Rh negative was 29, highest frequency Rh positive was “O” positive 211 and Rh negative more common was “O” negative 10 and least common “AB” positive 24 and “AB” negative 2.

Among 400 students,(table – 2) cheiloscopy pattern more frequency was observed in type II branched

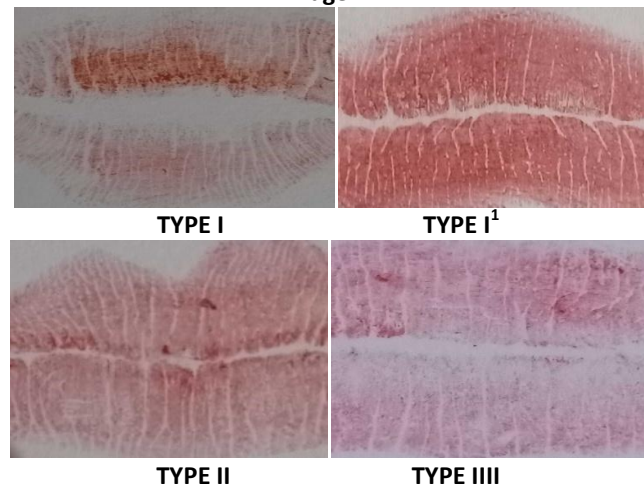
209, than 106 type I, followed 92 type I<sup>1</sup> than type IV 23, type III 22, least frequency 8 type V. Among 400 students,(table – 3) the chunk distribution of dactylographic pattern, highest frequency in whorl 229 than 112 loops, followed 62 arch and least common 6 composite.

Comparison between cheiloscopy and dactylographic pattern,(table – 4) highest frequent related type II 109 in whorl than type I also whorl 68 and type I<sup>1</sup>, type V, composite we got no any cases. Inter group comparison between cheiloscopy and blood groups, (table – 5) we found highest frequency in type II 123, “O” positive than type I 59, “O” positive followed type II, “B” positive and no any cases we found under type I “AB” negative, type I<sup>1</sup> “AB” negative, type III “AB” negative, type V “AB” negative. Inter group comparison between dactylographic pattern and blood groups,(table – 6) we found highest frequency in “O” positive 123 whorl than “O” positive 80 loops followed “B” positive 63 whorl after than “B” 32 arch and “AB” negative in arches, “A” negative, “B” negative, “AB” positive and negative, “O” negative in composite we found not any cases.

Image: 1



Image: 2



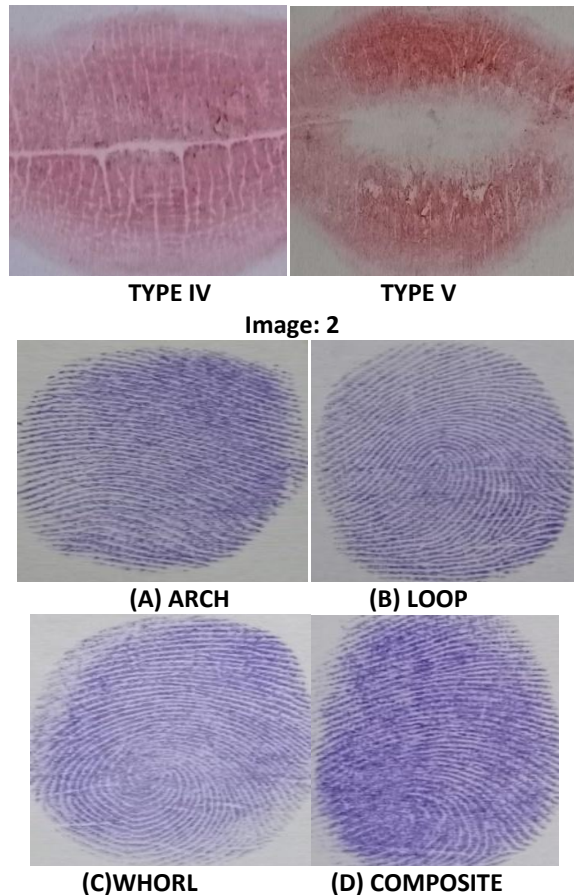


Image: 2

Table 1: Blood Group distribution in the tribe students.

Blood group	Rh factor		Total
	Rh positive	Rh negative	
A	30	9	39
B	106	8	114
AB	24	2	26
O	211	10	221
Total	371	29	400

Table 2: Cheiloscopy distributions in the tribe students.

Cheiloscopy pattern	Total
I Type	106
I <sup>1</sup> Type	32
II Type	209
III Type	22
IV Type	23
V Type	8

Table 3: Dactylographic pattern distributions in the tribe students.

Dactylographic pattern	Total
Loop	112
Whorl	220
Arch	62
Composite	8

Table 4: Correlation between cheiloscopy pattern and dactylographic pattern.

Cheiloscopy pattern	Dactylographic pattern				Total
	Loop	Whorl	Arch	Composite	
I	27	68	10	1	106
I <sup>1</sup>	11	16	5	0	32
II	67	109	30	3	209
III	2	10	9	1	22
IV	4	12	6	1	23
V	1	5	2	0	8
Total	112	220	62	6	400

Table 5: Correlation between Cheiloscopy pattern and blood group.

Cheiloscopy pattern	Blood group								Total
	A		B		AB		O		
	+	-	+	-	+	-	+	-	
I	8	2	30	1	4	0	59	2	106
I <sup>1</sup>	3	1	9	1	3	0	13	2	32
II	14	3	58	2	5	1	123	3	209
III	2	1	3	2	5	0	8	1	22
IV	2	1	5	1	6	1	6	1	23
V	1	1	1	1	1	0	2	1	8
Total	30	9	106	8	24	2	211	10	400

Table 6: Correlation between dactylographic pattern and blood group.

Dactylographic pattern	Blood group								Total
	A		B		AB		O		
	+	-	+	-	+	-	+	-	
Loop	6	4	10	1	4	1	80	6	112
Whorl	16	2	63	4	8	1	123	3	220
Arch	7	3	32	3	12	0	4	1	62
Composite	1	0	1	0	0	0	4	0	6
Total	30	9	106	8	24	2	211	10	400

## DISCUSSION:

There is a trifling oddity that identifies an individual, cheiloscopy and dactylographic pattern and blood groups are exclusive and perpetual biological characteristics that are unremitting from birth to death of an individual. The present research was endeavoring to correlation between cheiloscopy and dactylographic pattern and blood groups among the tribal students in Chhattisgarh. In India, "B" positive is the most trivial blood type, followed by "O". Our research reveal "O" positive more trivial. Bhavana et al<sup>15</sup> and Bharadwaja et al<sup>16</sup> found that more prevalent "O" and loop, followed by combination "B" and loop. The cheiloscopy are unique and do not transformation amid the life of a human<sup>17</sup>. Notwithstanding, any considerable trauma on the lips may lead to disfigure, defect, malady. Any surgical treatment cede to legitimate the malady, it may

disturb the size, shape of the lips, through revamp the pattern and morphology of the grooves<sup>18</sup>. Sonal-Nayak<sup>19</sup> found type I, type III pattern was dominant. Preeti Sharma<sup>20</sup> found on medical students of Meerut type IV pattern. Nethu Telagi et al<sup>21</sup> found in his research type II being predominant in both sexes. Saraswathi et al<sup>22</sup> found that intersecting pattern of cheiloscopy pattern was more common in both males and females. Sharma et al<sup>20</sup> found that Type I and Type I' lip patterns were most commonly seen in females and that Type IV was seen most commonly in males. Nagasupriya et al<sup>23</sup> found that branched with loop, arch and whorl in males, "B" positive blood group-loop, Type IV and "O" blood group-loop, Type I cheiloscopy pattern were predominant. Srilekha n et al<sup>24</sup> found earlier, reticular type of cheiloscopy was more prominent in subjects with "B" positive blood group, and vertical cheiloscopy in subjects with "O" positive blood group. In our research we obtained highest frequency was "O" blood group 221, than 114 "B" followed "A" 39 and least frequency obtained "AB" 26. Total Rh positive 371 and Rh negative was 29, highest frequency Rh positive was "O" positive 211 and Rh negative more common was "O" negative 10 and least common "AB" positive 24 and "AB" negative 2. Cheiloscopy pattern more frequency was observed in type II branched 209, than 106 types I, followed 92 type I<sup>1</sup> than type IV 23, type III 22, least frequency 8 type V. Dactylographic pattern scrutiny used ancient. Two dactylographic patterns even in a given special have been found to have the same ridge pattern and this remains unchanged throughout life<sup>15</sup>. Idiomatic dactylographic pattern offers an exemplary of forensic investigations, today electronic dactylographic pattern identification has been laboring among law accomplish agencies throughout the worlds<sup>23</sup>. Adamu LH et al<sup>10</sup> and Mutalik VS et al<sup>25</sup> conducted frequency of loop was predominant followed by whorl and arch types. In our research we observed among 400 students, the chunk distribution of dactylographic pattern, highest frequency in whorl 229 than 112 loops, followed 62 arch and least common 6 composite.

#### CONCLUSION:

Cheiloscopy and dactylographic pattern, highest frequent related type II 109 in whorl, type V in composite we got no any cases. Cheiloscopy and blood groups, we found highest frequency in type II 123, no any cases we found under type I "AB" negative, type I<sup>1</sup> "AB" negative, type III "AB" negative, type V "AB" negative. Dactylographic pattern and

blood groups, we found highest frequency in "O" positive 123 whorls, "O" negative in composite we found not any cases. We knew that cheiloscopy and dactylographic pattern and blood groups play an important role in races identification, anatomy, crime, forensic identification. Correlation of these three frameworks in our research, these combinations cannot only be worn in individual identification, but fairly can be worn to endorse authenticity in felony, misdemeanor, where there is little testimony.

**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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#### REFERENCES:

1. Dinesh Shankar j, Ganapathi N, Yoithap prabhunath T R et al. Lip prints: Role in forensic odontology. Dental Science-Review Article. 2013, vol: 5 issue: 5, p: 95-97.
2. Guyton AC, Hall JE. Text book of Medical Physiology. 11th ed. Pennsylvania: Elsevier Saunders.
3. Telagi N, Mujeeb A, Spoorthi BR, Naik R. Cheiloscopy and its patterns in comparison with ABO blood groups. J Forensic Dent Sci. 2011 Jul-Dec; 3 (2): 77-80.
4. Chandra T, Gupta A. Prevalence of ABO AND Rhesus Blood Groups in North India. J Blood Disorders Transf. 2012; vol: 3; issue: 5; p 3-5.
5. Gadwalker SR, Sunil Kumar N, Ravidhar. Distribution of Blood Groups in and around Bellary, Karnataka. Indian Journal of clinical practice, practice; vol. 24, no. 3; 2013 Aug; p247-250.
6. Bushra karim, devanand gupta. Cheiloscopy and blood groups: aid in forensic identification, the saudi

- dental journal, oct 2014, vol 26, issue 4, pages 176-180.
7. Telagi n, mujib a, spoorthi b r, naik r. cheiloscropy and its pattern in comparision with abo blood group. J forensic dent sci 2011, vol 3, issue 2, pages 77-80.
  8. Dr. Annie j. Verghese, dr. M somasekar, dr. Umesh babu r. A study on lip print types among the people of kerala, j indian acad forensic med, 32(1).
  9. Annie j verghese, shashidhar c mestri. A study of efficiency of lip prints as an identification tool among the people of Karnataka in india, sj indian acad forensic med. July- sep 2011, vol 33, issue 3.
  10. Adamu lh, taura mg, hammam wo, ojo sa, dahiru au, sadeeq aa,ibrahim ad, Association of lip print and sex among Nigerians. Niger j basic clin sci 2012, vol 9, issue 2, pages 79-83.
  11. Dennis e.o eboh, finger print patterns in relation to gender and blood group among students of delta state university, Nigeria, jecej journals, 2013, vol 12, issue 2, pages 82-86.
  12. Srilekha n, anuradha a, vijay srinivas g, sabitha devi r, correlation among lip prints pattern, finger print pattern and abo blood group, journal of clinical and diagnostic research, mar 2014, vol 8, issue 3,pages 49-51.
  13. Bushra karim, devanand gupta. Cheiloscropy and blood group, aid in forensic identification, the Saudi dental journal, oct 2014, vol 26, issue 4, pages 176-180.
  14. M. Murugan, t. Karikalan. A study of correlation between the pattern of finger prints and lip pribts. Journal of evolution of medical and dental sciences 2014; vol3, issue 56, oct 27, pages 12768-12772, doi: 10.14260/jemds/2014/3694.
  15. Bhavana D, Ruchi J, Prakash T, Kalyan JL. Study of fingerprint patterns in relationship with blood group and gender- a statistical review. Res J Forensic Sci. 2013; 1 (1): 12 – 7.
  16. Bharadwaja A, Saraswat PK, Aggarwal SK, Banerji P, Bharadwaja S. Pattern of finger-prints in different ABO blood groups. JIAFM. 2004; 26(1): 6 – 9.
  17. Sivapathasundaram B. Prakash PA, Siva Kumar G Lip prints (Cheiloscropy). Indian J Dent Res 2001; 12:234-7.
  18. Acharya B, Sivapathasundaram B. Forensic odontology. In: Rajendran R, Sivapathasundaram B. Shafer's text book of oral pathology. 6th ed. Reed Elsevier India Private limited 2006. P. 1224.
  19. Vahanwala S, Nayak CD, Pagree SS. Study of lip prints as aid for sex determination. Medico-Legal Update. 2005; 5:93-8.
  20. Sharma P, Saxsena S, Rathode V. Cheiloscropy: The study of lip prints in sex identiflication. J Forensic Dent Sci 2009. vol: 1; Issue: 1; p 24-27.
  21. Telagi N, Mujeeb A, Spoorthi BR, Naik R. Cheiloscropy and its patterns in comparison with ABO blood groups. J Forensic Dent Sci. 2011 Jul-Dec; 3 (2): 77-80.
  22. Saraswathi TR, Mishra G, Ranganathan K. Study of lip prints. J Forensic Dent Sci. 2009; 1:28-31.
  23. Nagasupriya A, Dhanapal R, Reena K, Saraswathi TR, Ramachandran CR. Patterns - "A crime solver". J Forensic Dent Sci. 2011; 3(1): 3–7.
  24. Srilekha n, anuradha a, vijay srinivas g, sabitha devi, correlation among lip print pattern, finger pattern and abo blood group journal of clinical and diagnostic research, mar 2014, vol 8, issue 3, pages 49-51.
  25. Mutalik V, Menon A , Jayalaxmi N, Kamath A , Raghu AR. Utility of cheiloscropy, rugoscopy, and dactyloscopy for human identification in a defined cohort. JFDS 2013; 5(1): 2-6.