

ORIGINAL ARTICLE

STUDY AND EVALUATION OF LIP-PRINT PATTERNS AMONGST THE HUMANOID POPULATION

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ABSTRACT:

Background: Indubitably, lip prints are one of the most core findings in a forensic study. Since the prints are exclusive to each discrete humanoid, they serve as the preliminary tool for identification of individuals. The prints remain non-distorted by any external factor inclusive of variations in environment, the prevalence of oral diseases or any form of external trauma. The core aim of the article was to establish different types of lip prints based on the age group and gender of the individual. **Materials and Methods:** As part of the study about 380 adults in the age group of 18 years to 35 years were subject to participation. Both males and females were involved in the study and lip prints were documented and evaluated for varied lip patterns. The materials utilized for the study comprised of a dark purple lipstick, highly durable paper, scotch tape, brush, and a high power magnifying glass lens. **Results:** The prevalence of the Type Ia pattern was observed among 31.05% of males and 33.68% of females. The occurrence of the Type Ib pattern was observed among 16.31% of males and 17.36% of females. The incidence of the Type II pattern was pragmatic among 24.21% of males and 20.52% of females. The type III pattern was perceived among 10.52% of males and 13.68% of the females. The type IV pattern was observed among 10.00% of the males and 8.42% of the females. The type V pattern was observed among the 7.89% of the males and 6.31% of the females. **Conclusion:** Even though there is a similarity in the type of lip pattern for each person, the lip prints are exclusive for every humanoid. Clearly, as a part of our study, the uniqueness of lip prints have been established. Furthermore, we discovered that Type I was the leading pattern in both the sexes and the Type V was the least prevalent pattern in both the sexes. The criminality enforcement agencies must deliberate lip print analysis as an imperative tool in human identification.

Keywords: Lip-print; Cheiloscopy; humanoid; documentation

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INTRODUCTION:

The documentation of every humanoid on the planet earth is a meticulous process with a firm foundation on the scientific doctrines.¹ One of the most vital professional responsibility of a dental health care personnel to the mankind is to address the issues of legal concern along with the oral investigations, and diagnosis and treatment of orofacial lesions. The most customary approaches of identification comprise of finger print studies like dactyloscopy and DNA studies, anthropometry, and distinction by blood groups and postmortem reports.² The reason for finger printing becoming the most vital part of human identification was its inimitable ability to be unique to each person. Similarly, the lip print of every discrete entity is exclusive to that humanoid and henceforth embraces a staunch potential for subjective identification.³ Even though the very preliminary unearthing of the uniqueness of the furrows on the humanoid lips was done by an anthropologist named Fischer in the early 1900s, the utilization of lip prints as a means of person documentation and differentiation was first endorsed in the

early 1930s by Edmond Locard.⁴ In the year of 1961, the very first documentation on the lip print took place in

Hungary. However, the very first idea of using it in forensic science and criminology took place in Poland when a lip pattern was discovered on a framed glass at the sight of a robbery. With the passage of time, it was finally established by two scientists in Japan that each individual has a unique set of an arrangement of lines and grooves on the lip. The grooves were designated as Sulci Labiorum and the lip prints as “Figura Linearum Labiorum Rubrorum”.

The significance of the lip prints is not only restricted to the discovery of criminalistics evidence but also serves to judge the character of the person and determine his age, gender, oral habits and a variety of accessory demographic factors. The contemporary study was commenced to determine the uniqueness of the lip patterns and establish the different types of lip prints based on the age group and gender of the individual.

AIM:

The core aim of the article was to establish different types of lip prints based on the age group and gender of the individual.

MATERIALS AND METHODS:

As part of the study about 380 adults in the age group of 18 years to 35 years were subject to participation. Both males and females were involved in the study and lip prints were documented and evaluated for varied lip patterns. The materials utilized for the study comprised of a dark purple lipstick, highly durable paper, scotch tape, brush, and a high power magnifying glass lens. The study had received a pre-ethical clearance from the technical committee. The study was independently conducted over a stretch of 5 months from September 2016 to January 2017. All the participants signed an informed consent form as a pre-requisite of the study. Some of the participants with anomalies of lips, deformities or allergies were not considered in the study. Each individual was provided with a dark purple colored lipstick and was requested to wipe their lips preliminarily and then apply the lipstick on their lips. The lip prints were recorded on a highly durable white paper.

The study of the documented lip prints was studied under the influence of a magnifying lens. The lip prints of each individual were divided into either of the following types classified by Suzuki and Tsuchihashi.

- Type Ia: Vertical longitudinal fissures - Complete
- Type Ib: Vertical longitudinal fissures - Incomplete
- Type II: Y-shaped branching
- Type III: Criss-cross pattern
- Type IV: Reticular grooves pattern.
- Type V: Undetermined

RESULTS:

A total of 380 subjects were encompassed in the study, comprising of 190 males and 190 females, in the age group of 18-25 years. Table 1 tabulates the distribution of Lip Patterns based on the sex of the individual.

Table 1 – Distribution of Lip Patterns based on the sex of the individual

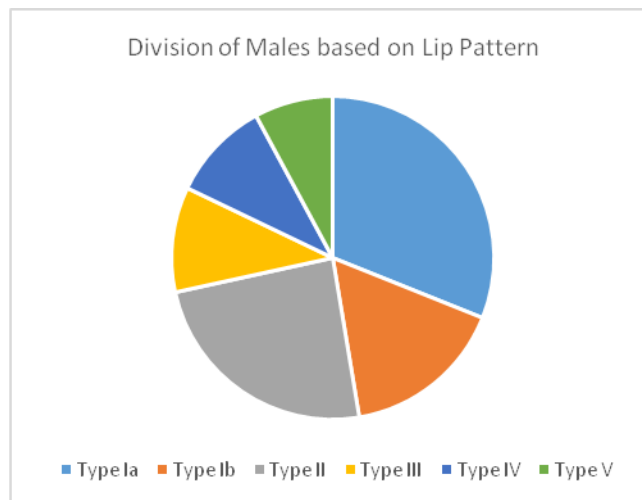
Lip Pattern	Male	Female
Type Ia	59	64
Type Ib	31	33
Type II	46	39
Type III	20	26
Type IV	19	16
Type V	15	12

The prevalence of the Type Ia pattern was observed among 31.05% of males and 33.68% of females. The occurrence of the Type Ib pattern was observed among 16.31% of males and 17.36% of females. The incidence of the Type II

pattern was pragmatic among 24.21% of males and 20.52% of females. The type III pattern was perceived among 10.52% of males and 13.68% of the females. The type IV pattern was observed among 10.00% of the males and 8.42% of the females. The type V pattern was observed among the 7.89% of the males and 6.31% of the females.

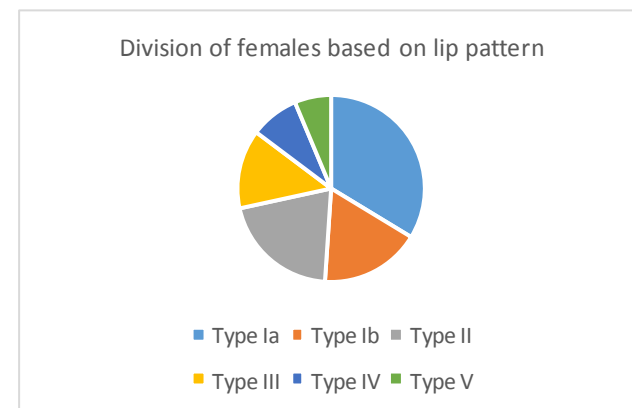
In the study, the most prevalent type of lip pattern in both the sexes was Type I and the least prevalent was Type V. The pie chart 1.0 below shows the division of males based on lip pattern.

Pie chart 1.0 - Division of males based on lip pattern



The pie chart 2.0 below shows the division of females based on lip pattern.

Pie chart 2.0: Division of females based on lip pattern



DISCUSSION:

Cheiloscopy has been designated as a forensic exploration procedure that is associated with the documentation and distinction of humanoids based on lips traces. Even though use of finger printing and DNA technique is far more common, it cannot be employed in all the cases of criminology or humanoid identification. Hence, it is

obligatory to apply diverse and dependable examinations like cheiloscopy.⁵

Our current study revealed that Type I was the leading pattern in both the sexes and the Type V was the least prevalent pattern in both the sexes. In a similar study conducted by Vahanwalla and Parekh, it was concluded that Type I was the most frequent pattern and while the second most frequent pattern was the Type II pattern.⁶ However, contradictory to that, Sivpathasundaram and his associates concluded that the most leading pattern was Type III in the Indo-Dravidian population.

Our study found that the prevalence of the Type Ia pattern was observed among 31.05% of males and 33.68% of females. The occurrence of the Type Ib pattern was observed among 16.31% of males and 17.36% of females. The incidence of the Type II pattern was pragmatic among 24.21% of males and 20.52% of females. The type III pattern was perceived among 10.52% of males and 13.68% of the females. The type IV pattern was observed among 10.00% of the males and 8.42% of the females. The type V pattern was observed among the 7.89% of the males and 6.31% of the females.

CONCLUSION:

Even though there is a similarity in the type of lip pattern for each person, the lip prints are exclusive for every humanoid. Clearly, as a part of our study, the uniqueness of lip prints have been established. Furthermore, we discovered that Type I was the leading pattern in both the sexes and the Type V was the least prevalent pattern in both the sexes. The criminality enforcement agencies must deliberate lip print analysis as an imperative tool in human identification.

REFERENCES:

1. Sharma P, Saxena S, and Rathod V. Cheiloscopy: The study of lip prints in sex identification. *J Forensic Dent Sci.* 2009; 1:24–7.
2. Gondivkar MS, Indurkar A, Degwekar S, Bhowate R. Cheiloscopy for sex determination. *J Forensic Dent Sci.* 2009; 1:56–9.
3. Sivpathasundaram B, Prakash PA, Sivakumar G. Lip prints (Cheiloscopy) *Indian J Dent Res.* 2001;12:234–7.
4. Saraswathi TR, Misra G, Ranganathan K. Study of lip prints. *J Forensic Dent Sci.* 2009; 1:28–31.
5. Caldas IM, Magalhaes T, Afonso A. Establishing identity using Cheiloscopy and palatoscopy. *Forensic Sci Int.* 2007; 165:1–9.
6. Vahanwalla SP, Parekh BK. Study on lip prints as an aid to forensic methodology. *J Forensic Med Toxicol.* 2000; 17:12–8.

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