

## CORRELATION OF LIP PRINTS WITH BLOOD GROUPS IN FEMALES AMONG CHENNAI POPULATION

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### Abstract

**Introduction:** Lip prints are known as normal wrinkles and grooves present in the zone of transition of lip between the inner labial mucosa and outer skin. Cheiloscopy is a forensic investigation method that deals with identification of the lip prints of humans based on their grooves present. The aim of the study is to analyse the predominant lip print pattern and ABO blood group among females in Chennai population and to analyse the correlation between the lip patterns and blood group.

**Materials and methods:** The study group consisted of 30 females who were aged between 18-27 years. Lip prints, and ABO blood groups of each individual were recorded. Lip prints were classified, based on Suzuki and Tsuchihashi classification. The results were statistically analyzed by using the Chi-square test.

**Results:** The most predominant lip print among female population was Type I whereas the least common blood group is Type V and Type I'. The most predominant blood group among the female population was O+ve whereas the least common blood group is AB-ve.

**Conclusion:** Correlation of lip print and blood groups in our study did not show any significant association. Hence, these combinations cannot be used in individual identification, but rather, they can be used to substantiate facts in crimes where there are only few evidence

**Keywords:** Lip prints, blood group, female, Chennai population, forensic odontology, innovative technology, novel method

### Introduction

Forensic odontology is a branch of dentistry that deals with identification of deceased individual through teeth or related structures. The comparisons between postmortem findings and antemortem dental records have been a very reliable method used in identification of the individual in mass disaster situations (1). The role of a forensic odontologist is to initiate a person's identity through teeth structure, bite marks or lip prints which is considered as important evidence in identifying the deceased individual or the criminal. Forensic odontology has an important role in identifying abuse among persons of all ages, the people with bite marks and teeth chipped out due to trauma are some of the aspects they use to identify these cases (1,2). Forensic odontologists are highly experienced, they are specially trained dentists who help identify unknown remains and trace bite marks or a lip print of a specific individual. The forensic odontologist may be called in to do so by police officers, the medical examiner if there is any evidence related to lip print, bite marks etc (1-3). (4)

Lip prints are normal wrinkles and grooves present in the lip between the inner labial mucosa and outer skin. Cheiloscopy is a forensic investigation method which helps in identification of the lip prints of humans based on their grooves present. Lip prints may differ in appearance according to the pressure, direction and method used in making the print. (5). Lip prints are very useful in criminal investigation and personal identification, they are considered to be the most important mode of evidence, and are often correlated with fingerprints. As the lip prints do not change with time, this helps in accurately identifying the individual (4,5). No two lip prints are identical. (6). In a previous study a correlation was found between different blood groups and lip print prints except in Type I (vertical) lip print. (7). Correlation between Lip print prints and blood groups among the female population plays an important role in forensic identification. Our team has extensive knowledge and research experience that has translate into high quality publications (8), (9), (10), (11), (12), (13), (14), (15), (16), (17), (18), (19), (20), (21), (22), (23), (24), (25), (26), (27). The aim of the study is to analyse the predominant lip print pattern and ABO blood group among females in Chennai population and to analyse the correlation between the lip patterns and blood group.

### Materials and methods

A cross sectional study on lip prints and ABO blood group among females was conducted in Chennai in the year 2021. 30 female students of Saveetha dental college were included in the study. All healthy individuals in the age group of 18 to 27 years with known blood groups were included in this study. Individuals with lips free from any pathology and having absolutely normal transition zones between the mucosa and skin were considered in this study. Individuals with any disease, cuts, injuries and deformities on lips were excluded from this study. Informed consent was taken from all the individuals before commencement of the study.

The materials used in this study were pink or red colored lipstick and White paper. Method adopted for collection of lip prints as follows: Both upper and lower lips of the individual were cleaned and a red or pink colored lipstick was applied on the lips uniformly. Over the lipstick, a white paper was used for the impression of the lip prints. Subject was asked to make a lip impression in a normal resting position of the lips by pressing it in the center first and then pressing it uniformly towards the corners of the lips. Lip prints of both upper and lower lips were divided into six quadrants, lower middle quadrant was examined carefully and the print was identified according to the Suzuki classification. Lip print prints were also compared with blood groups. All the data was analyzed statistically using a SPSS software current version 23.0. The results were statistically analyzed by using the Chi-square test.

### Results

The present study was undertaken to investigate the prevalence and association of lip prints, blood groups among females. The most predominant lip print among female population was Type I whereas the least common was Type V and Type I' and the most predominant blood group among the female population was O+ve whereas the least common blood group is AB-ve.

Figure 1 represents the association between the blood group and type of lip print, among A+ve blood group 13.3% showed type I lip print, 6.7% showed type II lip print, 6.7% showed type III lip print, 3.3% showed type I' lip print and 0% showed type IV and type V, among A1+ve blood group 16.7% showed type I lip print, and 0% showed type II and type III type IV and type V, among AB-ve blood group 6.7% showed type I lip print, and 0% showed type II and type III type IV and type V, among B+ve blood group 6.7% showed type I lip print, 3.3% showed type V and 0% showed type II and type III type IV, among O+ve blood group 10% showed type I lip print, 10% showed type II lip print, 6.7% showed type III lip print, 10% showed type IV lip print and 0% showed type I' and type V. A Chi square test was done and it revealed a p value of more than 0.05 that was considered as insignificant. In our study there was no significant difference in the lip print patterns in both males and females and no significant correlation was observed between blood groups and lip print.

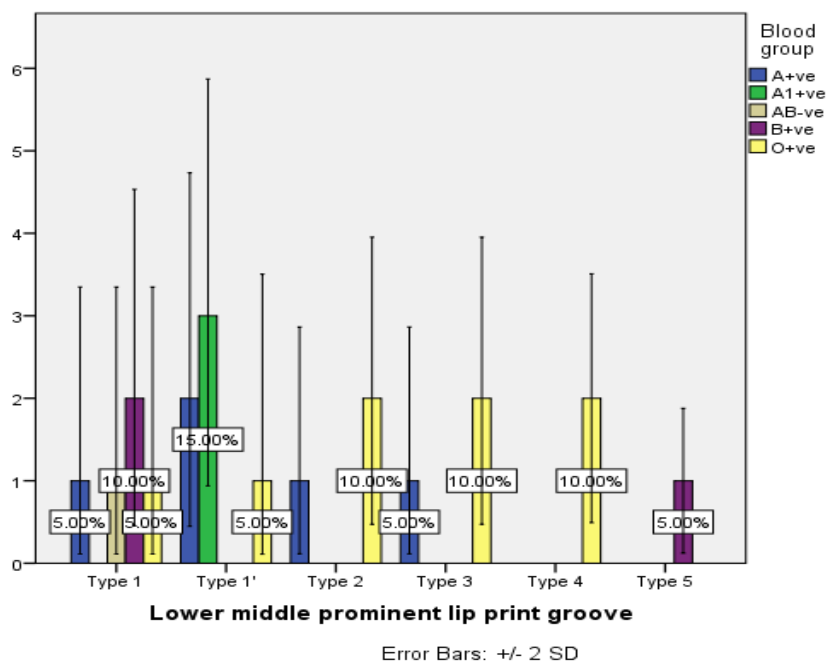


Figure 1: The bar graph represents the association between the blood group and type of lip print. X axis represents the type of lip print and Y axis represents the count. Blue denotes A+ve blood group, green denotes A1+ve blood group, grey denotes AB-ve blood group, purple denotes B+ve blood group and yellow denotes O+ve blood group. Type 1 lip

print pattern with A1 positive blood group was commonly seen in the participants. Pearson chi square test shows p value as 0.664, (p value > 0.05) Hence, it is statistically not significant.

### Discussion

Forensic odontology is a branch of dentistry that deals with identification of deceased individuals through teeth, lip print or rugae print . Lip prints are known as normal wrinkles and grooves present in the zone of transition of lip, that is between the inner labial mucosa and outer skin, examination of which is known as Cheiloscropy. Cheiloscropy is a forensic investigation method that deals with identification of the lip tracts of humans based on their grooves present .

In our study, Type I lip print print was found to be predominant females. The study done by ShainiBasheer et al in Kerala population shows similar findings as our findings (28) , the study also shows type 1 as the predominant print whereas the study by Verma P et al showed contrasting findings where the predominant print in type 2 (29) which was done among Sriganaganagar population .Studies conducted by GunasekaranS et al.in Tiruchengode population also found Type II to be the most predominant print among Indian males, which is in contrast to our study , while they found Type I to be the most prevalent among Indian females which is similar to our study (30)

Dongarwar RG et al conducted a study in Wardha based population and found that Type I was most common lip print prints among females which is in contrast to our study findings while Type IV and Type V lip print prints were common in males(31). In a previous study by Jain et al observed contrasting findings in Gujarati population which showed Type I' to be the most prevalent lip print print and the most uncommon print was Type IV which is also similar to our study findings (32) .In a previous study by Gaba R et al. showed that the lip prints prints were unique to each individual, and varied between males and females.

In our study the predominant blood group in lip print type I is A1+ve and in type 1 In the previous study by Srinivasulu et al (33)the predominant blood group is A+ve blood group for type 1 lip pattern which shows contrast findings compared to our study. Similarly the study by Sandhu et al (34) has also showed similar results as Srinivasulu where the predominant blood group is A+ve blood group for type 1 lip pattern . In the previous study done by Shaini et al (30) show that the predominant pattern for type 1 is A1+ve which shows similar results as our study results. In the present study Type I lip print print was predominant in the Chennai population and In our present study there is no correlation between lip prints, blood groups among chennai population. Limitations of the study is the less sample size and homogenous population. Further research should be done on larger population to conclude the results.

### Conclusion

From our study, we conclude that the Type I was the most common and Type V was the least common lip print pattern among the female population . O+ve blood group was the most predominant blood group and AB-ve the least common blood group among the female population , Correlation of lip print and blood groups in our study did not show any significant association. Hence, these combinations cannot be used in individual identification, but rather, they can be used to substantiate facts in crimes where there are only few evidence

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