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Lip dimensions in gender identification - A novel method in children

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Abstract:

Introduction: *Lip print is the unique identification method after Fingerprint. With the help of lip print we can solve the crime cases because lip prints are more likely to be left on objects such as glass, plates, paper, cigarette butts, clothing, and the skin because saliva moisturises the lips and with the help of lip prints we can even identify the gender.*
Aim: The current study aims at understanding the link between gender determination and lip dimensions.
Materials and methods: *This study was conducted on the general population but the ages differs from 7 years to 20 year both male and female. Normal lipstick was used, lip print was collected in white sheet. The dimensions were measured with ruler*
Results: *The analysis performed in the current study clearly depicts that among the collected lip prints samples, males had larger dimensions than female lip print dimensions.*
Conclusion: *The study concluded that identification of both the male and female is possible with the help of lip print as male has the larger lip print compared to females.*

Key Words: *Innovative technology, Eco friendly, Lip print; Gender; Age; Determination*

Introduction:

Many mammals, including humans have lips. Lips are soft and movable, and they act as an opening for food intake as well as sound and speech articulation. Lip skin is very thin, with just three to five cellular layers, compared to the skin on the rest of the face, which has up to 16 layers. Lip skin has less melanocytes than skin with a lighter tone. The skin of the lips is hairless and lacks sweat glands. As a result, it lacks the normal protective layer of sweat and body oils that keeps the skin smooth, inhibits bacteria, and regulates body temperature.The difficulties that man faced in the early days in providing an individual's identity. Human identification is needed for personal, social, and legal reasons(1). Fingerprinting, which was invented in the previous century, is the only accurate method of human identification(2).However, murderers have become more mindful of advanced methods of crime prevention, prompting them to take extra measures such as wearing gloves(3). In such cases, reliable methods of criminal identification, such as fingerprint analysis, fail to create a positive identity(4). As a result, investigators may use adjuvant techniques like cheiloscopy as supporting evidence.In the assessment of gender and ethnicity, fingerprinting and DNA tests are often used(5). Lip print has normal lines which can be measured with ruler and pencil and markings are recorded(6) However, less well-known techniques such as lip prints must be used to improve the chances of identifying an individual(7). Lip prints have shown promise in sex identification because they are consistent over time

and are special to each person, including twins(8).Lip prints, in contrast to fingerprints, have long been thought to be peculiar to each person(9). Lip prints may be used as genetic indicators for a variety of congenital abnormalities in dermatoglyphics(10).Lip prints are much more likely to be discovered in rape situations and crime scenes involving glass, such as thefts. Lip prints are more likely to be left on objects such as glass, plates, paper, cigarette butts, clothing, and the skin because saliva moisturises the lips(11).It's also important to note that criminals have discovered that finger imprints left at the scene of a crime can be used to track them down(12).

As a result, criminals may use gloves to avoid leaving fingerprint marks in order to conceal their identity. As a result, a variety of other methods for resolving crimes can be used. With the help of the lip dimensions we can easily identify the gender because males usually have bigger mouths than females. Our team has extensive knowledge and research experience that has translate into igh (13), (14), (15), (16), (17), (18), (19), (20), (21),(22),(23),(24),(25),(26),(27),(28),(29),(30),(31),(32) .The aim of the study to find gender by using lip dimensions as a tool

Materials & methods:

This study was conducted among the general population of both male and female between 7 years to 18 years. Lip print was collected and segregated into 3 groups. Normal lipstick was used, lip print was collected in white sheet. The dimensions were measured with rulers. For all the lip print the thickness of the lip was measured at the center of the lip.

Figure 1: lip print taken from 17 year old boy

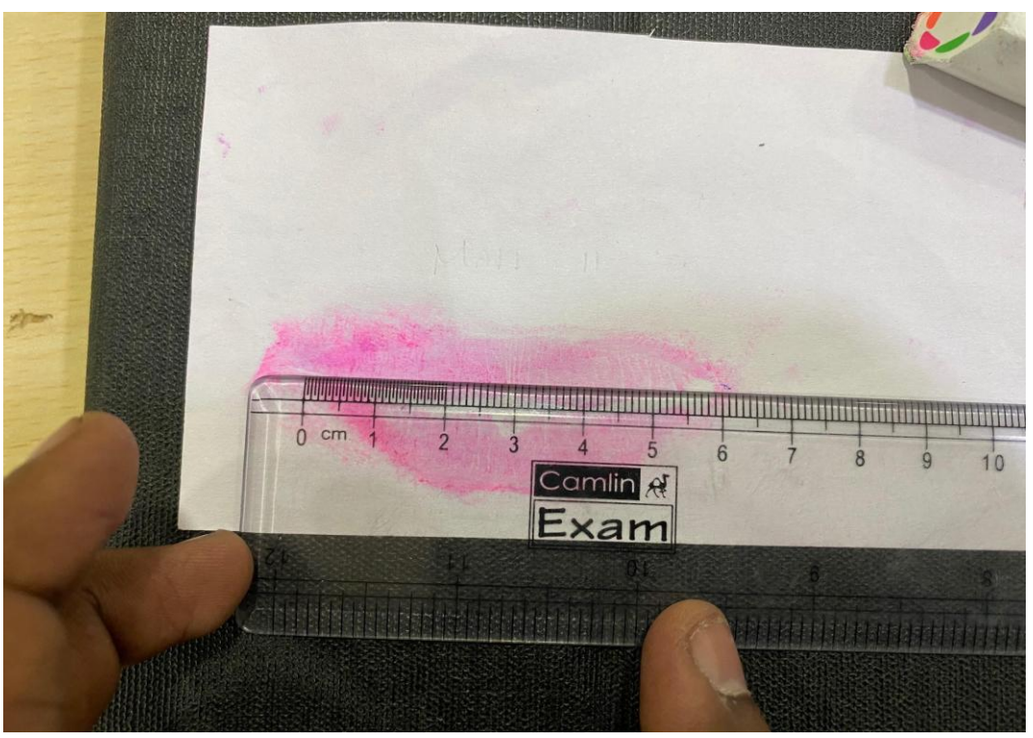

Figure2: Measurement taken in upper lip using ruler

Figure 3: Measurement taken in upper lip using ruler

Results:

At age 7 the length of both male and female is less than 5cmm and the breadth of male is less than 1cm and female is greater than 1cm. At the age 9 the length of both male and female is less than 5cm and the breadth of both male and female is less than 1cm. At the age 10 the length of both the male and female is less than 5cm and the breadth of male lip is greater than 1cm, the female lip is lesser than 1cm. At the age 12 the length of both male and female is more than 5cm and the breadth of male lip is more than 1cm, female lip is less than 1cm. At the age 14 the length of male lip is the same as female lip and the breadth of male is lesser than female lip. At the age 16 the length of both male and female is more than 5cm and the breadth of both male and female is greater than 1cm. At the age 17 the length of male and female are less than 5cm and the breadth of both male and female is more than 1cm. At the age 18 both the length of male and female is greater than 5cm and breadth of male and female is more than 1cm (Fig 4). At age 7 the length of both male and female is less than 5cm and the breadth of male is more than 1cm and female is more than 1cm. At the age 9 the length of both male and female is less than 5cm and the breadth of both male and female is less than 1cm. At the age 10 length of both the male and female is lesser than 5cm and the breadth of male lip is greater than 1cm, female lip is greater than 1cm. At the age 12 the length of both male and female is less than 5cm and the breadth of male lip is more than 1cm and female lip is more than 1cm. At the age 14 the length of male lip is lesser than 5cm and female lip is greater than 5cm and the breadth of male is more than 1cm and female lip is lesser than 1cm. At the age 16 the length of both male and female is more than 5cm and the breadth of both male and female is greater than 1cm. At the age 17 the length of male and female are less than 5cm and the breath of both male and female is more than 1cm. At the age 18 both the length of male and female is greater than 5cm and breadth of male and female is more than 1cm (Fig 5)..

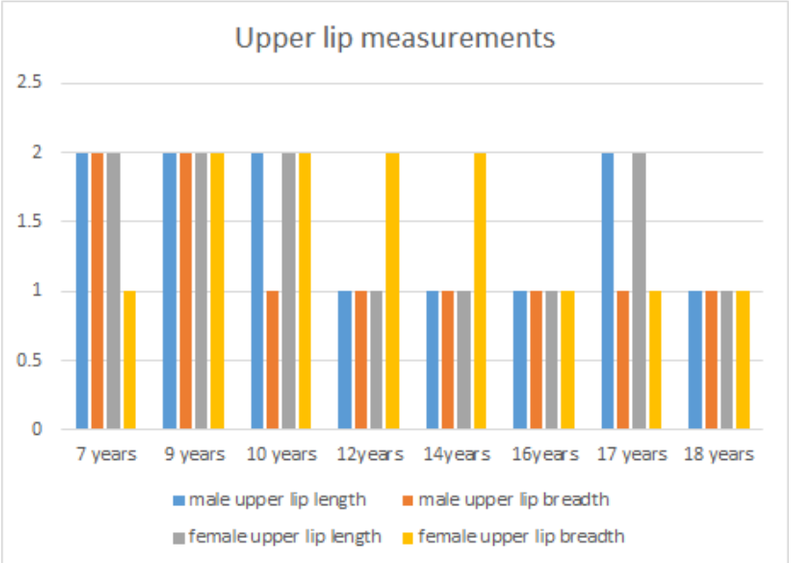

Figure4: The given bar graph shows the relation between male and females corresponding with their length and breadth of their upper lip. X axis represents age and Y axis represents their lip measurement. Blue colour represents Male upper lip length, Orange colour represents Male upper lip breadth, Grey colour represents female upper lip length, Yellow colour represents female upper lip breadth. At age 7 the length of both male and female is less than 5cmm and the breadth of male is less than 1cm and female is greater than 1cm. At the age 9 the length of both male and female is less than 5cm and the breadth of both male and female is less than 1cm. At the age 10 the length of both the male and female is less than 5cm and the breadth of male lip is greater than 1cm, the female lip is lesser than 1cm. At the age 12 the length of both male and female is more than 5cm and the breadth of male lip is more than 1cm, female lip is less than 1cm. At the age 14 the length of male lip is the same as female lip and the breadth of male is lesser than female lip. At the age 16 the length of both male and female is more than 5cm and the breadth of both male and female is greater than 1cm. At the age 17 the length of male and female are less than 5cm and the breadth of both male and female is more than 1cm. At the age 18 both the length of male and female is greater than 5cm and breadth of male and female is more than 1cm

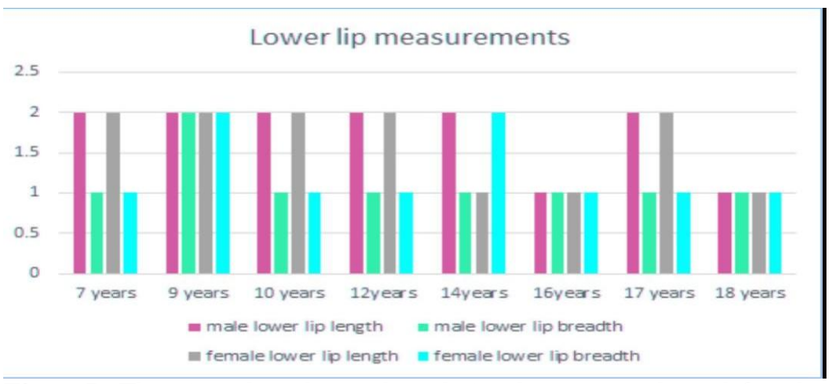

Figure5: The given bar shows the relation between male and female corresponding with their length and breadth of their lower lip. X axis represents age and Y axis represents their lip measurement. Pink colour represents Male lower lip length, light green colour represents Male lower lip breadth, Light grey colour represents female lower lip length, Sky blue colour represents female lower lip breadth. At age 7 the length of both male and female is less than 5cmm and the breadth of male is more than 1cm and female is more than 1cm. At the age 9 the length of both male and female is less than 5cm and the breadth of both male and female is less than 1cm. At the age 10 length of both the male and female is lesser than 5cm and the breadth of male lip is greater than 1cm, female lip is greater than 1cm. At the age 12 the length of both male and female is less than 5cm and the breadth of male lip is more than 1cm and female lip is more than 1cm. At the age 14 the length of male lip is lesser than 5cm and female lip is greater than 5cm and the breadth of male is more than 1cm and female lip is lesser than 1cm. At the age 16 the length of both male and female is more than 5cm and the breadth of both male and female is greater than 1cm. At the age 17 the length of male and female are less than 5cm and the breath of both male and female is more than 1cm. At the age 18 both the length of male and female is greater than 5cm and breadth of male and female is more than 1cm

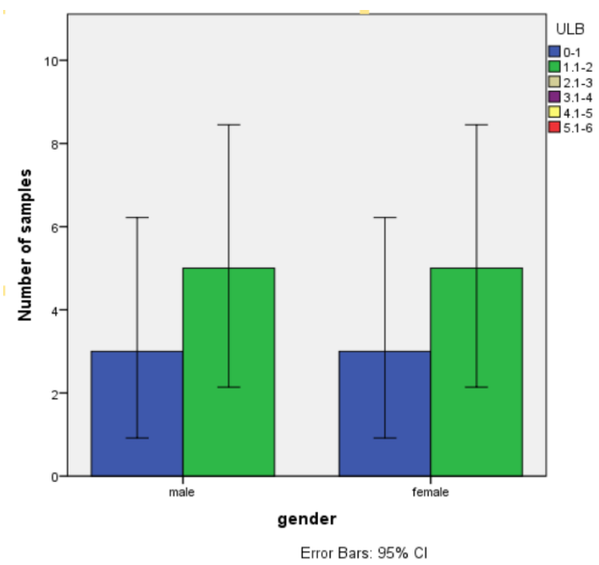

Figure 6: Bar chart represents the association between gender and Upper lip Breadth. Blue denotes the value from 0 - 1 cm and green denotes the value from 1.1 - 2 cm. X - axis represents the gender and Y - axis represents the number of samples. Out of 10 samples that had an upper lip breadth of about 1.1 - 2 cm, 5 samples belonged to male and 5 samples belonged to females. Hence, both male and female have an upper lip breadth of 1.1 - 2 cm. Association between gender and upper lip breadth was done using Chi square test. P value - 1 (> 0.05), hence statistically insignificant.

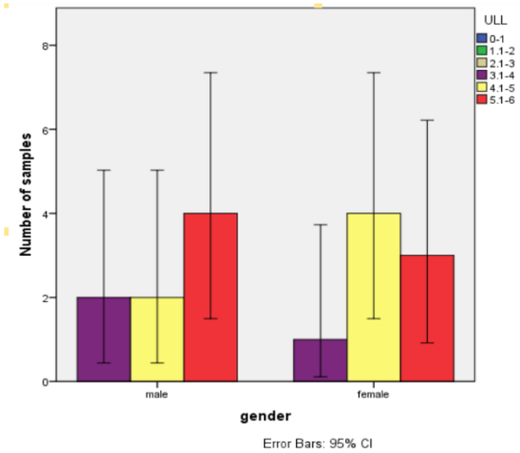

Figure 7: Bar chart represents the association between gender and Upper lip length. Purple denotes the value from 3.1 - 4 cm, yellow denotes the value from 4.1 - 5 cm and red denotes the value from 5.1 - 6. Xaxis represents the gender and Y - axis represents the number of samples. Out of 7 samples that had an upper lip length of about 5.1 - 6 cm, 4 samples belonged to male and 3 samples belonged to females. Hence, male have a higher frequency of upper lip length of 5.1 - 6cm. Association between gender and upper lip length was done using Chi square test. P value - 0.565 (> 0.05), hence statistically insignificant.

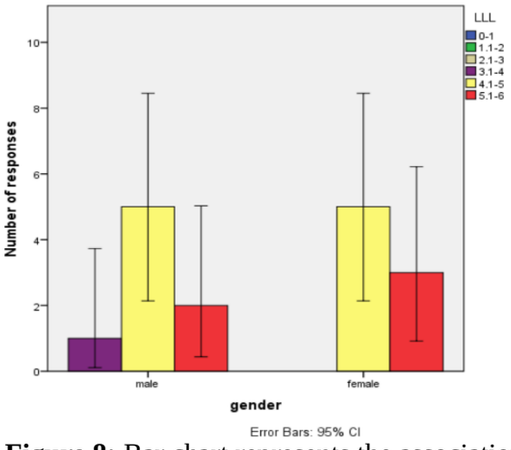

Figure 8: Bar chart represents the association between gender and Lower lip length. Purple denotes the value from 3.1 - 4 cm, yellow denotes the value from 4.1 - 5 cm and red denotes the value from 5.1 - 6. X axis represents the gender and Y - axis represents the number of samples. Out of 10 samples that had a lower lip length of about 4.1 - 5 cm, 5 samples belonged to male and 5 samples belonged to females. Hence, both male and female have an equal lower lip length of 4.1 - 5 cm. Association between gender and lower lip length was done using Chi square test. P value - 0.549 (> 0.05), hence statistically insignificant.

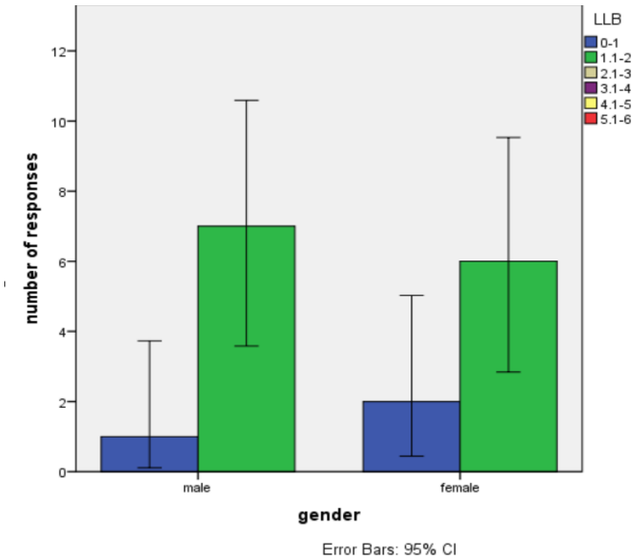

Figure 9: Bar chart represents the association between gender and Lower lip Breadth. Blue denotes the value from 0 - 1 cm and green denotes the value from 1.1 - 2 cm. X - axis represents the gender and Y - axis represents the number of samples. Out of 13 samples that had a lower lip breadth of about 1.1 - 2 cm, 7 samples belonged to male and 6 samples belonged to females. Hence, male have a higher frequency of lower lip breadth of 1.1 - 2 cm. Association between gender and upper lip breadth was done using Chi square test. P value - 0.522 (> 0.05), hence statistically insignificant.

Discussion:

The present study focused on analysing the role of lip prints in gender determination by novel method and we discovered that generally type 4 lip print was more prominently present in the lip prints of males and it was also generally bigger than those of female lip prints among the lip prints collected in the current study. In many previous studies they have used lip print to determine the gender(33). In previous studies they have found that males generally have bigger mouths than females and in present study we have found that males having big lip print compared to females(34). In previous studies they have found that small age people have lesser lip print and in present study we have found that even small age people have big lip print(35). In previous studies they have found that more of type 4 print is seen in females than males(36). In previous studies they found that in the north Indian community, sexual dimorphism in lip print patterns was discovered among different groups. Type II and Type III were the most common patterns among Brahmin males, while Type IV and Type I' were the most common patterns among Brahmin females. In the Jat culture, Type III was the most common pattern in males, while mixed patterns were more prevalent in females(37). Vahanwala et.al conducted a study on 140 people of Indian origin and confirmed that the most of the males having larger lip print than female in the studied population, and in that taking both the upper and the lower lip together is type II (28.59%)(38).

So, the relationship between lip prints and gender determination is specifically demonstrated in the current study. The present study possesses limitations such as the short period of follow-up, small sample size and it deals only with one particular parameter. Further studies with a large sample size, focus on many parameters like demographic details, age parameters and analysis on the various complications associated with novel methods, and with a long period of follow-up time should be done to significantly demonstrate the correlation between lip prints and gender determination that taking both the upper and the lower lip together is type

Conclusion:

The study concluded that identification of both the male and female is possible with the help of lip print as male has the larger lip print compared to females

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CONFLICT OF INTEREST: NIL

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