

A STUDY ON EFFICACY OF LIP PRINT PATTERNS (CHEILOSCOPY) AND SEXUAL DIMORPHISM: AN AID TO CRIME INVESTIGATIONS

INTRODUCTION

Crime is a global menace, and its rate is on the increase. Criminals use several techniques to evade law enforcement. As procedures for investigating crime are becoming more technical and sophisticated, criminals are also evolving in their techniques, with the aim to beat the law. This observation, therefore, justifies the need for further research in forensic science to explore new methods of individual identification, which is the key issue in crime investigation.

Cheiloscopy is a Greek word derived from, 'cheilos' means lips, 'skopein' means to see, so the cheiloscopy is the study of lip print pattern in human beings. In forensic science, lip print pattern gives important information which helps in sex determination.

Fingerprints, postmortem reports, and DNA fingerprinting have been used successfully for personal identification in the field of forensic science. Lip prints can be helpful in positive identification of a person and can be used to verify the presence or absence of a person at the crime scene.

The wrinkles and grooves on labial mucosa, called sulciligabiorum, form a characteristic pattern known as lip prints. The study of lip prints is referred to as cheiloscopy. Similar to fingerprints, lip print is also unique to an individual. DNA profiling is the most accurate method of forensic identification but fingerprints and lip prints can also be used as an additional tool. The groove patterns present on the human lips are unique to each individual and analogous to fingerprints. The study of these grooves or furrows present on the red part of lips is known as cheiloscopy. Lip prints are similar to fingerprints, palm prints and footprints where individual characteristics of grooves and furrows are used for identification. Lip prints are unique and do not change during the life of a person. It has been verified that they recover after undergoing alterations like trauma, inflammation and diseases like herpes and that the disposition and form of the furrows does not vary with environmental factors.

CRIME DETECTION THROUGH LIP PRINTS

As we know by now that lip prints are unique and so will not change during the life time of the person, the traces of lips should be looked for on cutlery and crockery items, on the window or door glass and on several cases photograph or letters. Further the lip prints being uniform throughout the life and characteristic of a person can be successfully used to verify the presence or absence of a person from the crime, provided there has been consumption of beverages, drinks, usage of cloth, tissues or napkin at the crime scene. Lip prints can also possibly be found alongside the teeth marks on any food particles or in cases of rape on the various surfaces of the skin on the victim or suspect if there was any defence tackle by the victim. Lip prints can most importantly be found in cigarette buds which appear to be found in most of the crime scenes. These lip prints can be most frequently seen during murders, rapes and burglaries.

The rise in the criminal cases per day has made lip prints an indispensable tool for forensic scientists to punish the culprits. The lip prints can look similar in two different individuals, but

their intersection, branching pattern, and reticulation will be different from one another. In various studies, lip prints were found to be unique and have been accepted as a valuable tool in identification. However, in various crime scenes lip prints are available on various living and non-living things they are not effectively evaluated. The practice of lip print analysis can be considered inconsistent worldwide due to failure of a strong argument for reliability.

REVIEW OF LITERATURE

Numerous studies that have attempted to identify the details of lip print patterns

Lip prints have been used for identification of a person since 19th century, since 19th century, Fischer was the first to describe it in 1902. The use of lip prints in personal identification and criminal investigation was first recommended in France by Locard .

In 1950, Snyder also suggested the idea of using lip prints for identification of an individual. Lip prints can be found on surfaces such as glass, paper, clothing, cutlery or cigarette butts. Even the invisible lip prints can be used and can be lifted using aluminium and magnetic powder. The edges of the lips have sebaceous glands with sweat glands in between therefore, secretions of oil and moisture enable development of 'latent' or persistent lip prints, analogous to finger prints. Lip prints found at criminal investigation site can help in identifying the individual and solving the cases.

The biological phenomenon of systems of furrows on the red part of human lips was first noted by anthropologists; R. Fischer was the first to describe it in 1902.

In 1932, one of the France's greatest criminologist Edmond Locard, recommended the use of lip print for identification of a person. The idea of using lip print for identification was first suggested by Le Moyne Snyder in the year 1950. He introduced a case in which lip prints helped the crime scientist in an unusual way. Dr. Martins Santos in 1960 proposed that these lip characteristics could be used in personal identification and devised a simple system for classifying lip prints.

In 1967, Suzuki made a detail investigation of the measurement of lips, the use and the color of rouge and method of its extraction to obtain useful data for forensic application. Later in 1971 Suzuki and Tsuchihashi, conducted a study and they devised their own classification. Mc Donell in 1972 conducted a study on lip prints between two identical twins and reported that two identical twins seemed to be indistinguishable by every other means but they had different lip prints.

Cottone in 1981, reported in his book Outline of Forensic Dentistry, that cheiloscopy is one of the special techniques used for personal identification.

In 1990, Kasprzak conducted research for the period of 5 years on 1500 persons to elaborate the practical use of lip prints. It was during the period 2000-2012 that the study was carried out by several researchers from other countries and also in India. Different aspect of lip prints like stability, morphological patterns and sex determination among different groups of population. So all this research suggesting that the cheiloscopy can be used as an adjuvant technique.

OBJECTIVES OF THE STUDY

1. To evaluate the efficacy and uniqueness of lip print patterns for sexual dimorphism
2. To examine the Gender specific identification over the lip print patterns.
3. To explore the sexual dimorphism as a key tool in investigate criminal cases.

SIGNIFICANCE

1. The Findings from this study will contribute to a better understanding of lip print patterns which helps in personal identification tool.
2. This study help in identify the most predominant lip print pattern among the population.
3. This cheiloscopy study can be used to develop more effective in solving criminal cases.

RESEACH METHODOLOGY

The study will be consisting of sampling size - 500 (250 males & 250 females) among the population of Tamil Nadu. Data will be collected through Simple random sampling technique. Subjects with any inflammation, trauma, congenital deformity or any other disease of the lips and with any known hypersensitivity to the lipstick were excluded from the study. The data was collected by utilizing pretested structured questionnaire that included demographic details and lip print patterns. The data was collected by personal interview and examination techniques by the investigator. Lip prints are obtained with lipstick & classified according to Suzuki & Tsuchihashi classification. Samples collected and Analyse statistically through SPSS tool (Statistical Package used for social sciences). Further study finds the difference between the lip prints of male as well as of female.

RESEARCH OUTCOMES

The research will establish the lip prints are the anatomical structure which are constant and can be used as a tool for identification. Different quadrant shows different type of pattern in male as well as in female lip print is unique for each individual and can be used in personal identification & gender identification. The study of lip print patterns is an emerging area in forensic science which can add up to already existing techniques of identification in investigating crime. Cheiloscopy used as a key tool in sexual dimorphism and it can be useful for the forensic investigator to investigate any criminal case.