



Digital Approach for Lip Prints Analysis in Malaysian Chinese Population (Klang Valley): Gender Discrimination using Direct Photography Technique

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Abstract

Individual identification is an important aspect of forensic science, and it is quite challenging and requires multiple resources and evidence to support it. Cheiloscopy or the study of lip print is considered to be another additional tool for forensic identification. Lip prints on a drinker's glass, cigarette butt, or other evidence found at a crime scene may be linked to a suspect or victim. The study aims to determine the difference in lip print patterns between genders. A total of 423 subjects (213 males and 210 females) from the Malaysian Chinese population were sampled. The lipstick was applied to the subjects' lips, and lip printing was taken using a smartphone camera, which is a direct photography technique. Lip prints were divided into six sections and then classified according to the Suzuki and Tsuchihashi classifications. Statistical analysis indicated that there were significant differences in the lip print between genders ($p < 0.05$), in the upper-left, upper-right, lower-middle, and lower-left sections. Type IV was generally the dominant lip print pattern in Malaysian Chinese. Other patterns also showed a high frequency in both genders. The males were Type I, Type II, and Type III while the females were Type I, Type I, and Type II. Besides, gender differentiation can be determined by the frequency of the patterns in the major lip sections. This study may provide a preliminary idea on the use of lip prints in the determination of gender among the Malaysian Chinese in Klang Valley, Malaysia.

Keywords: *Cheiloscopy, Suzuki and Tsuchihashi Classification, Gender Determination, Lip Print, Digital Approach*