Assessment of lip print (*cheiloscopy*) patterns and its use for personal identification and crime investigation: A systematic review and Meta-Analysis

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Background: Human identification plays a vital role in crime investigation. Lip impressions are one of the signs that may be left at crime scenes, which aid in the precise documentation process.

Aim: The objectives of the current systematic review and meta-analysis are to provide a deeper understanding of the use of cheiloscopy as a reliable method in sex identification, and to establish the predominant lip print pattern found among different gender using theclassification proposed by Suzuki and Tsuchihashi.

Methods: Eligible studies were selected after searching PubMed, Scopus, Research gate, Science Direct, EBSCO and Google Scholar databases. Statistical analyses were performed using Comprehensive Meta-Analysis (CMA-V3). Proportions of lip print types per gender and 95% confidence Interval (CI) were estimated and t-test was used to compere the proportions of types of lip print between males and females. Heterogeneity and the risk of Bias analysis were performed chi-square and Egg's test respectively.

Result: The most likely lip print present among males in the selected studies was type III (30.2%), followed by type II (29.9%) and type I comprised one-fifth of the sample size (21.1%). While among females, almost one-third of were reported with type I lip print pattern (36.5%), followed by type II (28.9%). Furthermore, the results showed that the rate of type IV lip print pattern was similar between males and females (18.3% and 13.4%, respectively; P<0.059).

Conclusion: Along with the other traditional methods of human identification, this study proved the distinctiveness of lip print (cheiloscopy) as an adjuvant tool for human identification and sex determination and no identically similar lip-print patterns appeared in two subjects. Further studies with a larger sample size, different methodology of assessing lip print are needed to confirm the current findings.

Keywords: Lip print, Cheiloscopy, Forensic Dentistry, Personal identification

Biography

Dr. Mawada Hassan Abdelmagied has completed her studies at Department of basic sciences in Ajman University, College of Dentistry.