

# A study of lip print patterns among students of different ethnic groups at the university of Dundee, Scotland

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## ABSTRACT

**Introduction:** Lip prints are unique to an individual and can be used in criminal investigations and forensic identification. Although separate studies have previously been carried out in different population groups, there are no studies dealing with the different ethnicities by using standard methods of collection and analysis. **Aims:** The aims were: First, to compare the results when using quadrants against sextants to locate any differences and determine which method is more appropriate, secondly, to find a possible link between ethnic group and predominant lip print pattern, and thirdly, to assess the reproducibility of lip print classification. **Materials & Methods:** 85 students ranging from 17 to 35 years of age were included in this study. They were classified into 5 ethnic groups, namely, White, Black, Asian, Arab and Mixed. Their lip prints were taken using dark lipstick and transparent adhesive tape. Each print was then divided into quadrants and sextants and analysed using Tsuchihashi's classification. **Results:** 1) Lip print classification with quadrants yielded different results from classification using sextants. 2) There is strong evidence of an association between lip print types and ethnic groups. 3) Intra-examiner reproducibility was substantial and inter-examiner reproducibility was moderate. **Conclusion:** 1) Due to greater discriminatory power, it is recommended to use sextants for lip print analysis rather than quadrants. Sextants allow for a better representation of the lip types present. 2) Type I was the most frequent pattern in the White, Arab and Mixed groups, while Type IV was most common in the Black and Asians groups. Type III was least common in the White group, Type I in the Black and Asian groups, Type IV in the Arabs and Types IV and V in the Mixed group. 3) Lip print classification is reproducible.