



G36 Accuracy of the Cameriere's Method on Age Estimation on the Libyan Population

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After attending this presentation, attendees will have novel information about age estimation using the Cameriere's method in the Libyan population with specific attention to the possibility of distinguishing people older or younger than 18 years of age, which is considered the legal age to be considered an adult in several countries.

This presentation will impact the forensic science community by demonstrating the accuracy of the Cameriere's method for age estimation in an area of the world where insufficient information on this topic is available. The Northern coasts of Africa play an important role in emigration from Africa to Europe. The availability of an accurate method to distinguish children from adults is fundamental from a legal and forensic point of view.

Since 2000, age estimation of living adults has become increasingly common in civil and criminal cases to address problems concerning the age of children in cases of adoption, criminals who refuse to provide their age, issues related to immigration and asylum requests to foreign countries, assessment of the capability of being imputable, prosecuting pedophilia, child pornography, and pensionable age for adults.

Estimating the age of a living person often requires an integrative approach that involves anthropology, forensic dentistry, and radiology. Human identification and aging using dentition have been well established in the forensic field, and several methods based on changes that occur in teeth during aging have been developed. The goal of this presentation is to validate, for the Libyan population, Cameriere's method based on 3rd molar analysis (I_{3M}). For this purpose, a sample of people from Tripoli, the capital city where different ethnic groups are represented in the population, was analyzed.

Panoramic radiographs (Orthopantomograms (OPTs)) of 420 Libyan people from different ethnic backgrounds, aged 14 years to 22 years, were analyzed. The samples were obtained directly by digital radiological technology and collected during January, February, and March of 2015. OPTs had been performed for clinical reasons, and consent to use them for research purposes was obtained from the patients or relatives for under-age children. Panoramic X-ray images with lost or extracted single-rooted teeth, fillings, crown restorations, severe caries, or other abnormal dental anatomy, which may have caused difficulty with the measurements, were excluded from this analysis. A total of 307 OPTs (163 females and 144 males) were finally examined. The results indicate that male and female I_{3M} values <0.08 are exclusively associated with individuals older than 18 years of age, whereas I_{3M} values >0.08 have a misidentification rate of 9%-11% (individuals older than 18 years of age can be classified in the younger group). An increase of the cut-off value to 0.09 does not affect the possibility of identifying individuals older than 18 years of age, and reduces misidentification to 2%-3%.

In conclusion, Cameriere's method correctly distinguished individuals under the age of 18 years when applied to the Libyan population. Only a small number of older individuals are incorrectly included into the younger group (<18 years), whereas none of the younger individuals is incorrectly included in the older category. This conclusion has important applications in the Libyan forensic context, in which the necessity for reliable and accurate age estimation techniques has never been greater than in the last five years, primarily due to armed conflicts within the country. The lack of a validated method for age estimation in the Libyan population is fundamental, both in world crime investigation and in emigration/immigration control at the national and international level.

Age Estimation, Teeth, Cameriere Method