A112   Age-at-Death Estimation: Accuracy and Reliability of Age-Reporting Strategies

Christine Bailey, MA*, Western Carolina University, Cullowhee, NC 28723

Learning Overview: After attending this presentation, attendees will better understand the performance of different age-reporting strategies that can be used to report a final age estimation to law enforcement agencies.

Impact on the Forensic Science Community: This presentation will impact the forensic science community by providing insights regarding the efficacy of common aging methods and the different strategies relied upon to develop a final age range for unidentified human remains.

Age-at-death estimations are an informative aspect of biological profiles as they help law enforcement to narrow potential victim identifications. However, age-at-death estimation continues to be a challenge within forensic anthropology due to the uncertainty regarding method selection and the production of a final estimation for law enforcement.

The purpose of this research is to identify the age-reporting strategies that provide the most accurate and reliable (low inaccuracy and low bias) age-at-death estimations when evaluated by total sample, age-cohort (20–39; 40–59; 60–79), and sex. The age-reporting strategies in this study were derived from six age-at-death estimation methods and tested on 58 adult individuals (31 males and 27 females) from the William M. Bass Donated Skeletal Collection at the University of Tennessee, Knoxville. An experience-based approach in which the observer produced a final estimation using the data collected and their expert judgement was included to assess the appropriateness of experience-based estimations in medicolegal contexts.

The results demonstrate that the most accurate and reliable age-reporting strategy varied if the sample was evaluated as a whole, by age, or by sex. The most accurate and reliable strategy for the total sample was the experience-based approach (accuracy=80%, inaccuracy=6.1 years, bias=-0.6 years). When the sample was divided by age, Suchey-Brooks pubic symphysis performed the best for the 20–39 age-cohort (accuracy=89%, inaccuracy=8.8 years, bias=0.5 years), the experience-based approach for the 40–59 age-cohort (accuracy=85%, inaccuracy=5.6 years, bias=-0.1 years), and Buckberry-Chamberlain auricular surface for the 60–79 age-cohort (accuracy=100%, inaccuracy=7.9 years, bias=-5.3 years). Finally, when separated by sex, Hartnett pubic symphysis performed the best for males (accuracy=81%, inaccuracy=10.6 years, bias=-1.0 years), and the experienced-based approach performed the best for females (accuracy=89%, inaccuracy=4.9 years, bias=-0.4 years).

While none of the age-reporting strategies evaluated in this study were consistently the most accurate and reliable for all the sample categories, the experience-based approach performed well in each category. This research helps shed light on the performance of different age-reporting strategies and provides further support to the reliance on multiple aging indicators and professional judgment in developing a final age-at-death estimation.

Age-at-Death Estimation, Age-Reporting Strategies, Biological Profile