Introduction

- Establishing a biological profile is an important component of a forensic anthropologist’s job.
- Helps narrow list of missing persons and with positive ID.
- Sex estimation is especially important because other profile methods are sex-specific (i.e., ancestry, stature, age).
- Walker (2008) and Klales et al. (2012) are popular methods used by practitioners to estimate sex.
- Testing reliability of methods is key for acceptance and compliance with the Daubert ruling and NAS report.
- Present research tests reliability of the methods and examines the role of experience.

Materials and Methods

Sample

- Data collected from 222 black and white males and females from the historic Hamann-Todd (HTH) and the modern Bass donated skeletal collections (UTK) (Table 1).

<table>
<thead>
<tr>
<th>Traits</th>
<th>SPC</th>
<th>VA</th>
<th>MA</th>
<th>G</th>
</tr>
</thead>
<tbody>
<tr>
<td>HTH</td>
<td>Scored: 54</td>
<td>56</td>
<td>56</td>
<td>112</td>
</tr>
<tr>
<td>UTK</td>
<td>Scored: 54</td>
<td>56</td>
<td>56</td>
<td>110</td>
</tr>
</tbody>
</table>

- Phenicke (1969) traits as described in Klales et al. (2012) (Figure 1):
  - Subpubic concavity/contour (SPC).
  - Ventral arc (VA).
  - Medial aspect of the ischio-pubic ramus (MA).
- Walker (2008) traits as found in Buikstra & Ubelaker (1994) (Figure 2):
  - Supra-orbital margin (SO).
  - Nuchal crest (N).
  - Mastoid process (M).
  - Mental eminence (ME).

Scoring

- Traits were scored on an ordinal scale from one to five by three observers with multiple levels of experience using the descriptions/illustrations from each method.

Discussion & Conclusions

- Classification accuracy varied by experience level (Table 3).
  - Overall the more experienced observers achieved higher classification accuracy for both methods, with the exception of the Walker method for the UTK collection in which Scorer C achieved better classification than Scorer B.
- Experience and greater training increased the validity (classification accuracy) of the methods.
  - Classification was higher for the pelvis than the skull.
  - Sex bias was low (< 0.90).
- The ME has been considered difficult to score and reliability in other research has been lower than those found here.
  - Reliability was likely high in this study because the majority of individuals were scored between 2-4 (cluster around the median) by all observers.
  - The lack of extreme scores (1 or 5) indicate Walker’s images may not include the full range of variation found in this trait and/or it is difficult to score.

Acknowledgements

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