H73 The Impact of Racial Metric Variation in the Pelvis on the Morphological Assessment of Sex

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The goal of this presentation is to explore whether or not racial metric variation in the pelvis affects the morphological assessment of sex.

This presentation will impact the forensic community by demonstrating that quantitative variation in the pelves of white and black Americans does not affect the accuracy of sex determination.

Previous research on determining race from the pelvis generally has focused on quantitative variation. Based on certain measurements of the pelvis, or of the os coxa, researchers have been able to discriminate race between white and black Americans in test samples with overall accuracies ranging from 58% to 83%. Also, several of these studies have found that the pelves of black Americans tended to be "smaller" or "narrower" than those of white Americans, though such differences were not always statistically significant.

Determination of sex from the morphology of the pelvis is based on the premise that, in many of the traits, females are larger (longer, wider, broader) than males. Yet, few studies have assessed whether the quantitative differences between the races affect, or are apparent in, the morphological traits used by anthropologists to determine the sex of the individual. In one notable exception, Patriquin et al. (2003) found significant differences between white and black South Africans in the accuracy of morphological traits for sex determination.

The purpose of the present study is to examine whether or not sex determination based on morphological traits is impacted by racial quantitative variation. Nineteen morphological traits were evaluated by two different observers in 876 os coxae. For this study, a random sample of 400 individuals was selected, composed of 100 of each race and sex category. Chi-square was used to assess the impact of race on: (1) the accuracy of sex determination based on all 19 traits collectively, (2) the evaluation of sex for the individual traits, and (3) inter-observer variation in sex assessment. The level of significance for all tests was $p < .05$.

Results indicate that race did not impact the accuracy of sex determination for either observer when all traits were considered together. However, race did affect the evaluation of sex for some individual traits. For Observer "A," significant variation existed in sex assessment between black and white individuals in 6/19 traits for males and 1/19 traits for females. For Observer "B," no significant difference in sex assessment between black and white males was noted for any trait; however, significant differences in sex determination existed in 3/19 traits in females. In the analysis of inter-observer variation, significant inter-observer differences were noted between the races for females when all traits were considered together, but not for males. When traits were assessed individually, 2/19 traits in males and 4/19 traits in females had significant inter-observer differences in sex determination between the races.

Though race affected the evaluation of sex in certain individual traits, the accuracy of sex determination was not impacted when all traits were considered collectively. Additionally, the traits that showed significant variation in sex assessment between the races generally were not related to the size of the pelvis, or to the pelvic inlet or outlet, as might be expected considering the reported size differences between white and black pelves. Instead, the traits affected by race were "discrete" (i.e., they are commonly evaluated as "present/absent"). Furthermore, of the nine traits that showed significant differences in sex assessment between the races, none overlapped between the observers; however, five of these traits were significant in the analysis of inter- observer variation. These results may indicate that the disparity in sex determination found in certain traits may be due as much to inter- observer differences in trait interpretation as to morphological dissimilarities between the races.

In conclusion, the objective of this research was not to be able to determine race from the pelvis, but to explore whether or not the quantitative differences in the pelves of white and black Americans affect the morphological assessment of sex. Results from this study indicate that they do not.

Reference:

Patriquin ML, Loth SR, Steyn M. Sexually dimorphic pelvic morphology in South African whites and blacks.Homo 2003;53(3):255-262.

Race, Sex Assessment, Pelvis

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