## A44 Cognitive Bias and the Order of Examination on Skeletal Remains

*Marion E. Davidson*, Metuchen, NJ 08840; Carolyn Rando, PhD, University College London, London WC1H 0PY, UNITED KINGDOM; Sherry Nakhaeizadeh, University College London (UCL), London WC1H 9EZ, UNITED KINGDOM*

**Learning Overview:** After attending this presentation, attendees will understand how the order of analysis utilized in a morphological examination of human skeletal remains can potentially influence the judgements and decisions of forensic anthropologists.

**Impact on the Forensic Science Community:** This presentation will impact the forensic science community by illustrating that cognitive bias can result from initial exposure to one aspect of skeletal remains and affect the final sex determination. This presentation will also discuss the importance of empirical research in cognitive bias to develop frameworks that incorporate an understanding of when such biases may influence the interpretation of evidence.

The National Research Council in the United States identified potential cognitive bias by experts as a complication facing the forensic science community and noted that fields utilizing subjective methods with human interpretation are particularly susceptible. Studies have demonstrated that cognitive bias because of exposure to extraneous contextual information exists in various forensic fields and can influence the judgement of examiners. Despite these results, there continues to be a shortage of empirical research into the extent of cognitive bias within the various stages of the forensic process, such as data collection, analysis, and interpretation. Although research into cognitive bias in forensic anthropology remains low, several studies have demonstrated that the determination of the biological profile and the analysis of trauma can be influenced by extraneous information or initial visual exposure to context. This study was designed to assess the potential of cognitive biases resulting from the initial visual exposure to one aspect of skeletal remains for sex determination and its effects on subsequent aspects as well as the final sex determination.

A pilot study was developed to assess the potential of cognitive bias in the frequently employed morphological sex determination methods as a result of the order of examination. A total number of 30 participants was divided into two groups and asked to assess one complete skeleton for both sex and age, employing only morphological methods of the skull and pelvis. Age at death was only included as a variable to provide a more realistic evaluation for the participants. Group A examined the skull, followed by the pelvis, while Group B examined the pelvis, followed by the skull. As cognitive bias occurs more predominantly in ambiguous cases, the skeleton utilized in this study displayed some amount of ambiguity, with the pelvis exhibiting strongly male features and the skull exhibiting indeterminate to female features. To minimize any potential influence on the decision-making process, participants in this study were not informed of the true nature of the experiment.

The results of the pilot study determined that the order in which the skeletal remains were examined influenced the participant's subsequent analyses and final sex determination. When analyzed in three categories (female/probably female, indeterminate, and probably male/male), the results indicated a difference in the sex determination of the two groups, depending on the order of the analyses. For example, Group A, after first examining the female/indeterminate skull, assessed the pelvis to be female at a rate of 53.30%, while Group B, examining the pelvis first, assessed it to be female at a rate of only 6.67%. Similar results were found in the final sex determination, with Group A assessing the skeletal remains to be female at 60.00%, while Group B assessed the skeletal remains to be female at only 13.30%. This presentation will present the results of this research and discuss the susceptibility of these methods to cognitive bias and the importance of studying these biases to mitigate the effects and improve the field of forensic anthropology.

**Forensic Anthropology, Cognitive Bias, Sex Determination**