H120 Craniometric Variation and the Challenges of Identifying Diverse Individuals in Florida

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After attending this presentation, attendees will be familiar with the craniometric variation among four diverse Caribbean and Latin American populations in relation to American White and Black individuals in order to understand the biological distances based on cranial morphology. The results may assist in the understanding of the similarities and differences among the crania of these populations to incorporate into forensic anthropological casework.

This presentation will impact the forensic science community by offering research into human cranial variation among diverse populations to improve identification methods for these populations within the United States and, specifically, in Florida.

The state of Florida is commonly ignored as a border state when it comes to issues and challenges in migrant death investigations. However, undocumented workers frequently arrive in Florida for labor, such as on produce farms. Individuals considered Latino or "Hispanic" encompass the largest minority group within the United States. In the 2010 U.S. Census, the total number of individuals who identified as "Hispanic" was almost 309 million individuals, with almost 19 million of those individuals living in Florida, making Florida hold the third largest population, following California and Texas, which are both located along the U.S.-Mexico border.[1]

This paper explores the craniometric variation among populations commonly found in Florida, including individuals from Mexico (n=134), Puerto Rico (n=78), Cuba (n=95), and Guatemala (n=87). Additionally, American White (n=115) and American Black (n=27) individuals were included from the Forensic Anthropology Databank, typically representing individuals who lived in the southeastern United States.

Eighteen standard cranial measurements were selected in a stepwise selection procedure and used for multivariate statistical analyses. Shape variables were created in SAS® 9.1.3 to include both males and females together allowing for an increase in total sample size. Mahalanobis D^2 and canonical discriminant analyses were performed to compare significant differences between the six populations. The results of the distance relationship suggests that the samples from Mexico and Guatemala together show the greatest biological distance from all other populations, primarily from Puerto Rico and Cuba, which supports regional differences among Latin America and the Caribbean. This distance is illustrated in a canonical variates analysis, illustrating 76.0% of the variation, showing that Mexico and Guatemala are separated on CAN1 (59.0% of the variation) from all other populations with a smaller maximum cranial length and greater bizygomatic breadth. While the samples from Puerto Rico and Cuba show less distance from the American White and Black populations, the Mahalanobis D^2 results and CAN2 (17.0% of the variation) demonstrate that Cuba is closest to the American Black population, with a greater basion-bregma height, and Puerto Rico is closest to the American White population with a shorter basion-bregma height.

Population histories through migration patterns and gene flow are factors that have contributed to biological variation throughout the history of Latin America and the Caribbean. This research explores the variation among diverse groups that are living in Florida and throughout the United States. By improving our understanding of the historical and current biological relationships among diverse groups living in close proximity, forensic anthropologists can better utilize ancestry data into their biological profiles for human identification.

Reference:

1. Ennis *et al.* 2011

Cranial Variation, Border Deaths, Identification

 ** Presenting Author*