



A75 Comparing Dental Indicators of Developmental Stress in Unidentified Migrant Remains to Narratives From Living Migrants: A Cross-Disciplinary Approach

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Learning Overview: After attending this presentation, attendees will understand how skeletal indicators of childhood stress in unidentified migrants can be used in conjunction with narratives from living migrants to aid the humanitarian efforts at the United States-Mexico border.

Impact on the Forensic Science Community: This presentation will impact attendees by discussing the importance of using cultural data collection methods in addition to skeletal data collection methods in humanitarian forensic contexts.

Individuals can biologically embody an adverse sociocultural environment. At a populational level, this can result in physiological health inequalities between groups. This project is an investigation of the concept of embodied inequality in the timing, severity, and duration of Linear Enamel Hypoplasia (LEH) in the dentition of modern presumed migrant individuals found deceased along the Texas-Mexico border and modern White individuals who donated their skeletal remains to the Texas State Donated Skeletal Collection (TXSTDSC). Additionally, narratives collected during interviews with migrants waiting for asylum decisions along the United States-Mexico border are compared to the skeletal data. Using cultural anthropological narratives in conjunction with the biological stress data can be impactful and humanizing, and it can aid in highlighting the ongoing humanitarian forensic crisis at the border.

For analysis of LEH, 30 mandibular canines (15 male, 15 female) were chosen from unidentified migrants curated by Operation Identification (OpID) at Texas State University and 29 mandibular canines (13 male, 16 female) were chosen from donated individuals from the TXSTDSC. These specific teeth are the most likely to show LEH if early life stress is experienced. Teeth were not used from migrants if the individual was positively identified, if DNA sequencing was pending, or if dental analyses had not yet been completed by OpID staff. All canines were viewed under a DinoLite™ for observation and measurement of macroscopic LEH and were subsequently viewed under a scanning electron microscope for identification of microscopic LEH. All LEH was measured and age-at-formation of the stress episode was calculated.

All interviews were conducted at a shelter along the United States-Mexico border, which will remain unnamed to protect the identity of the participants. All permissions were acquired (IRB #17-025). The purpose of the interviews was to better understand the journey that migrants undergo on the way to the United States, and a focus was placed on those who lost a loved one somewhere along the way. Interviews were conducted as conversations, with the participants being allowed control over the flow of the discussion and no pre-established round of questions were asked. Narratives were analyzed for content specifically mentioning children and childhood experiences.

Out of 29 skeletal individuals from the TXSTDSC, 10 (34%) possessed macroscopic LEH and 24 (83%) possessed microscopic LEH. In the migrant individuals, 29 (97%) possessed a macroscopic LEH and 28 (93%) possessed a microscopic LEH. Males (3.13 years) and females (3.34 years) in the TXSTDSC possessed different averages as did the males (3.86 years) and females (3.00 years) curated by OpID. These results can be potentially framed in the biocultural context of child upbringing in Central America versus the United States; however, emphasis is placed on the staggering difference in the stress experiences of migrants and White Americans. Migrants that die while attempting to cross the United States-Mexico border have been experiencing physiological stress since early childhood. This is also reflected in the narratives recounted from living migrants at shelters in Mexico. They discuss the danger and stressful situations their families undergo while living in Central American countries, ranging from threats to murder.

Cross-disciplinary approaches and skeletal stress data are uncommon pairings in forensic anthropology, but they can be quite useful in humanitarian forensic contexts. Narratives can add documented human experiences to quantitative data, which can ultimately yield a more humanitarian or humanizing approach, rather than oversimplifying and inferring stress experiences that cannot be directly observed. Furthermore, while this project does not attempt to positively identify deceased migrants, skeletal stress data and living narratives can aid the ongoing humanitarian crisis at the border in other ways, such as bringing attention to the reasons for migration, the biological costs of migration, and informing policy changes based on quantified and experiential data.

Physiological Stress Indicators, Living Narratives, Operation Identification