H41 A Pilot Study in the Forensic Potential of the Health Index

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The goal of this presentation is to inform attendees about the potential utility of applying the Health Index to skeletal remains recovered from forensic contexts.

This presentation will impact the forensic science community by describing the results of a pilot study applying the health index to a small forensic sample of individuals with known backgrounds and health statuses. Further, a general comparison will be made of the overall health index score of an aggregate modern forensic population to health scores of past, bioarchaeological populations from North America.

In bioarchaeology the health index developed by Steckel et al. (2002), ranks aggregations of individuals clustered into sites, time periods, etc., in order to understand relative rankings in biological "health." However, Steckel and Rose (2002:62) speculate "if estimated for [single] individuals, it could be used to assess not only average health

but inequality of health within groups." Here, health is measured by a number of dental and skeletal variables including: age-at-death and stature, as well as presence and severity of dental and bony pathologies, degenerative joint disease and skeletal trauma (See Steckel et al. 2002 for further details).

Previous studies have had limited success when investigating applications of life history and activity pattern models to forensic remains. However, trends in skeletal pathology such as healed fractures, marked vertebral osteophytic activity, and/or poor dental care often appear in decedent's remains from similar cultural contexts such as homelessness and individuals with a history of drug addiction problems. The goal of this project is to apply the health index to a number of known forensic cases which include some background of the decedent's health prior to death. Doing so will not only demonstrate potential differences in antemortem health status among individuals, but this will also serve as a test of the forensic efficacy of the Health Index. Nearly 50 forensic cases with antemortem health statuses ranging from what would be considered "good" to "poor" have been assessed and the sample size will increase by time of presentation.

These contemporary individuals will also be grouped into a forensic population and compared to other ranked health index scores of past bioarchaeological populations (bioarchaeological health index scores obtained from Steckel and Rose (2002)). This will demonstrate the relative health of a modern North American forensic population in comparison to historical populations from North America.

Preliminary individual health index results suggest that while less healthy individuals generally score below those considered healthier, there does not appear to be a strong enough trend to recommend the health index as a tool for interpreting individual forensic antemortem health statuses. When considering a single forensic population, the group "% of max" falls above the bioarchaeological mean value (using n=65 archaeological sites), but within a one standard deviation interval. This suggests the health ranking is not significantly greater than North American bioarchaeological scores. This is also true when only considering bioarchaeological heath index scores of samples within the last 200 years (n=20). It may be important to note that a forensic sample is likely biased and thus not a true representation of the health status of the entire contemporary United States population from which it is derived. Further research based on the potential of these results may be to examine a larger U.S. population from a contemporary donated non- forensic sample and thus compare these health index scores of those of the forensic sample.

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