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HEALTH, LIFE STYLE AND IDENTITY. THE BIOARCHAEOLOGICAL STUDY OF THE POPULATION FROM TRANSYLVANIA IN MIGRATIONS PERIOD (5TH-7TH CENTURIES AD)

ABSTRACT

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Table of Contents

Health, life style and identity. The bioarchaeological study of the population from Transylvania in the Migrations Period (5th – 7th centuries AD)

Keywords: bioarchaeology, Migrations Period, physical anthropology, demography, paleopathology, skeletal remains, osteology.

Bioarchaeology is the study of human remains from archaeological contexts (Larsen 2014). In the last forty years, bioarchaeological research has moved away from simple physical anthropology and, through the incorporation of various disciplines and theories, has developed into what is today a robust research domain. The inclusion of theoretical social sciences, on one side, and state of the art technologies, on the other side, has led to a strong advancement of bioarchaeological research in the recent years.

The subject of this thesis is the bioarchaeological study of a series of skeletal samples dated in the Migrations Period (5th-7th centuries AD), the period corresponding to the so-called Gepidic Kingdom, and excavated from north-west Romania. The samples included in our study are represented by the necropolises from Vlaha (Cluj County), Fântânele (Bistrița-Năsăud County), Galații Bistriței (Bistrița-Năsăud County), Carei (Satu-Mare County) and Nădlac (Arad County). The dating of these samples puts them from a historical point of view between the battle of Nedao (454 AD) and the incomming of the Avars and Slavs in the nowadays north-western Romanian territory.

The research objectives of this study put it in the realm of social bioarchaeology. In our study we aim to decipher information regarding aspects of a person's childhood, the diseases to which he/she was exposed in the course of his/her life, what physical actions he/she was undertaken, what was his/her diet. Our thesis is centred around three research questions: 1. What were the life-quality levels of these population groups? 2. Are there any differences in these levels between groups and between different time periods? 3. Can we infer aspects of identity from biological data?

The concepts of life-quality levels and identity are studied through the expression of three factors: diet, physical activity, and disease. Furthermore, the study of each of these variables is done using a multilevel approach, in relation to sex and age at death. From a methodological point of view, the research focuses on a series of funerary discoveries from the north-western territory of Romania, which can be included in the Merovingian cultural horizon existing in the area of Superior Tisza and the Carpathic Basin (Doboș 2013. 260). Most of these discoveries are cemeteries specific for this period (with an east-west orientation and with the graves displayed in parallel rows).

The osteological analysis caried out for each individual follows a protocol derived from published guidelines and protocols. Diet is inferred through the presence of skeletal features suggestive of metabolic and hematopoietic diseases like anaemia, scurvy, and rickets (Walker et al. 2009. 112; Brickley and Ives 2006. 169-170), along with the presence of dental disease like carious lesions, dental wear and enamel hypoplastic defects. Physical activity is inferred through the analysis of the presence of osteoarthrosis on the joints and the presence of entheseal changes. Exposure to disease is inferred through the presence of periostitic lesions, endocranial lesions, and new bone formation. Where possible, the timing of the pathological process was determined: for linear enamel hypoplasia we can infer the period when it was produced; for cribra orbitalia and porotic hyperostosis we can assess whether the lesion is active or inactive; for periostitic lesions, endocranial lesions, and new bone formation we note the degree of remodelling which is indicative for the healing of the lesions and their timing. Other pathological features are taken into consideration (like osteomyelitis, lytic lesions, cystic cavities and developmental defects). Skeletal measurements can point to a delay in skeletal development for children (if we compare the age at death derived from tooth eruption with that derived from long bone measurement), or can be used as a proxy for the nutritional status of an adult if we calculate the living height (Steckel 1995. 1906-1910). The population itself offers only a cross-sectional view of its individuals.

The results are explored at multiple levels: intra-populational (inside each population group under study), inter-populational (by comparing all the groups under study) and at a larger geographical level, by integrating comparative data published in neighbouring countries like

Hungary, Serbia or Slovakia and concerning populations contemporaneous to the population groups analysed in this study.

Our research was structured in three parts: first, a discussion of the theoretical framework, followed by a clear description of the methods used, and third, a multi-level interpretation of the results.

In Chapter 1 we defined bioarchaeology as a research domain and described its evolution and development in the last forty years. Following that, we went through several theoretical concepts which represent the theoretical background on which our research was carried out. The biocultural approach, individual life histories and osteobiographic profiles, life quality levels are all key theoretical concepts which we tried to operationalize through biological data.

In Chapter 2, we described the historical and archaeological background, as well as the materials used in our study. After the death of Attila in 453 and the battle from Nedao (454) between the Huns and a coalition led by the Gepidic ruler Ardarich, the Gepids occupy the territory of former Dacia and persist as a rulling force in the area until 568. After the movement of the Avars to the central area of Europe, the Gepidic power structures disappear (Harhoiu and Gora 2000. 32). From an archaeological point of view, several archaeological findings are representative for this period.

Several findings dated in the first half of the 5th century AD are suggestive of the presence of a Gepidic ruling centre in the north-western territory of Romania. The earliest Gepidic findings from Transylvania, discovered near the ancient city of Napoca (nowadays Cluj-Napoca, Cluj County) and dated in the second half of the 5th century, indicate a powerful Gepidic center. The hoard from Cluj-Someșeni and the two inhumation graves from Apahida are considered without a doubt the most valuable archaeological findings connected to the Gepidic population. The powerful analogies seen between the items discovered in the first princely grave from Apahida (Apahida I) and the grave of Childeric from Tournai (France) (buried around 481-482) led to the dating of the later at the end of the 5th century AD (Opreanu 2008. 235; Opreanu 2009; Stanciu 2010. 840).

At the end of the 5th century, the European Merovingian Age culture is mainly characterized by the Reihengräberfelder/Reihengräberfriedhöfe or “row-grave cemeteries”.

Based on written sources, the cemeteries with these features discovered in Transylvania, the Tisza Region, and in Northers Serbia belong to the Gepids.

The archaeological sites included in our analysis are dated between the 5th and the 7th centuries AD. The necropolis from Carei "Bobald" counts 24 inhumation graves and is dated in the 6th century AD. The necropolis from Fântânele "Dâmbul Popii" counts 65 inhumation graves and is dated in the 6th century AD. At Galații Bistriței "La Hrube" 35 inhumation graves dated between the 6th and 7th centuries AD were unearthed. The necropolis from Vlaha "Pad" comprises 308 graves dated between the end of the 5th century AD and the first half of the 6th century AD. Last but not least, the necropolis from Nădlac is represented only by two individuals, dated in the 6th century AD.

In Chapter 3, we described the methods and guidelines used for the physical anthropological analysis of the human skeletal remains. Our goal was to select the most appropriate methods and apply them in an accurate way, in order to allow other researchers to understand our methodology and, consequently, to increase visibility and usability of our data.

In Chapter 4 we presented the results of our analysis, particularly from an anthropological point of view. We discussed the results from several points of view: at the level of all the samples taken together, which are representative for the Gepidic population in general; at the level of each sample in particular, and, within each sample, we zoomed in even more in order to see differences between men and women and different age groups.

In Chapter 5 we discussed our results and tried to decipher them from a social and behavioural point of view. We created osteobiographic profiles for the individuals where the available anthropological data allowed us to do so, and we discussed the main findings for each sample. Afterwards, we included in our analysis the anthropological data from other human skeletal remains from Hungary, Serbia and Slovakia and dated roughly in the same period as the population groups analysed by us. We tried to offer a comparative view between these populations and explored the data both at the level of each sample and between larger samples, grouped by chronological period.

From a demographic point of view, the Gepidic population analysed in our study is characterized by a higher number of deaths in the middle adult group, while the old adult range is hardly even represented. In the case of children, the highest number of deaths were seen

between 7 and 14 years. Only two new-borns were identified (at Vlaha). There were no differences between men and women in the mortality profiles. Moreover, men and women display overall an equal distribution, although at the level of each sample there were differences. For example, at Galații Bistriței, women account for 73% of the sample, while at Carei we identified only one female individual.

The distribution of disease and pathological changes offered an interesting view. Antemortem tooth loss (AMTL) affected particularly men (63% of cases were in male individuals) and an increase in the incidence of AMTL was seen from young adults, where 16% of the individuals were affected, to middle adults, where 19% were affected. Carious lesions were seen in 15% of all the individuals. The distribution within each sample varies, with Fântânele and Galații Bistriței showing a higher incidence (36% and 38%, respectively), and Vlaha and Carei showing lower numbers (10 and 14%, respectively). Interestingly, 22% of children at Fântânele displayed carious lesions. The four samples show different models, with males more affected at Carei and Fântânele, while at Vlaha and Galații Bistriței females show the highest caries frequency. Overall, more carious lesions were seen in the male population. At Fântânele and Galații Bistriței, the incidence of dental calculus was higher in the young adult population, while at Vlaha and Carei the incidence was higher in the middle adult group. Periodontitis affected more individuals overall at Fântânele and Galații Bistriței, compared to Vlaha and Carei.

No particular trend could be seen in the incidence of periosteal inflammation. Overall, 23% of the individuals display new bone formation on the long bones, which is indicative for an infection. The individuals from Carei were the most affected (42%), followed by Carei. At Vlaha, only 12% of the individuals displayed pathological changes, while at Fântânele this feature was not seen at all. However, a trend in the distribution of lesions in men and women could be inferred, as more men than women are affected at Vlaha and Carei, while at Galații Bistriței the women were more affected.

When looking at the distribution of osteoarthrosis in men and women across samples, we see men more affected at Carei and Fântânele and women more affected at Vlaha. We did notice however, that the spinal column is affected mostly in men at Carei, Galații Bistriței and Fântânele, while at Vlaha none of the male individuals displayed degenerative changes on the

vertebrae. The main stress factor for osteophytosis is loading and carrying of heavy weights (Capasso 1999. 40). This suggests that the physical activity of carrying weights was assigned to women, while at Carei, Fântânele and Galații Bistriței men were in charge of this physical activity.

The incidence of linear enamel hypoplasia and porotic hyperostosis show a similar trend. More individuals were affected at Fântânele and Galații Bistriței compared to Vlaha and Carei. In the latter two populations, subadults and young adults were more affected, while at Galații Bistriței middle adults displayed a higher prevalence of enamel defects. Overall, in all the samples, men were more affected than women. Similarly, porotic hyperostosis affected more individuals, particularly middle adults, at Fântânele and Galații Bistriței, while fewer individuals displayed these lesions at Vlaha and Carei, with affected individuals belonging especially to the subadult population.

A similar model can be seen with regard to the incidence of skeletal stress indicators, with the populations from Galații Bistriței and Fântânele being more affected (over 40% of the individuals) compared to Carei and Vlaha. However, the only five cases of scurvy that we identified were in the populations from Carei and Vlaha (with four cases seen at Carei). The higher incidence seen at Carei could suggest a local nutritional aspect, either in the form of a specific diet or lack of access to fresh fruit and vegetables (which represent the dietary source for vitamin C). However, a different trend was seen for porous lesions on the orbital roofs or cribra orbitalia. The individuals from Galații Bistriței and Fântânele were less affected than the ones from Vlaha and Carei.

In summary, our results indicate an overall lower level of quality of life in the population groups from Galații Bistriței and Fântânele compared to Carei and Vlaha, further suggesting a degradation of the life quality levels towards the end of the 6th century AD. The incidence of dental caries, periodontitis, linear enamel hypoplasia and porotic hyperostosis is higher among these populations. The prevalence of skeletal and dental stress indicators is much higher in these two populations. The only stress indicator with a slightly lower incidence at Fântânele and Galații Bistriței is cribra orbitalia. Moreover, the lack of a specific trend in the incidence of periosteal inflammation indicates that exposure to non-specific infectious diseases did not increase in the same manner as other stress indicators. Last but not least, the analysis of

osteoarthritic changes suggests that men and women were performing different physical activities in each population group, without a clear trend among communities, with the exception of Vlaha, where women seemed to be involved in activities like carrying heavy weights.

This study was unfortunately limited by the preservation of the human skeletal material and by lack of access to molecular analyses (stable isotope analysis). Due to these factors, we were not able to explore the concept of identity as we initially intended to do. However, these limitations can be overcome through future studies which could expand this analysis on other Gepidic human skeletal samples and include molecular analyses.

The importance of our study is given by three key attributes. First, it is one of the few studies undertaken in Romania that aimed to create an overview with regard to the anthropological characterization of a population. Our analysis was carried out on five skeletal samples representative for the population inhabiting north-western Romania between the end of the 5th century and the first half of the 7th century AD. Second, the analysis was performed using a working protocol designed by the author with the help of colleagues from the Institute of Anthropology in Bucharest and from the Molecular Biology Centre from Cluj-Napoca. This allowed us to create a comprehensive data base with all the biological attributes of each skeleton. We used methods and guidelines which are used by researchers all over the world, which does not only give more value to our results but also provides the possibility to further compare our data with similar ones from other countries. Third, we tried to offer an interpretation of our results from a social and cultural perspective, thus creating a bridge between the anthropological and archaeological points of view and facilitating the usability of these data in archaeological contexts. Fourth, with the help of our colleagues from the Molecular Biology Centre, we were able to reconstruct the complete mitochondrial genome of three individuals from Fântânele, Nădlac and Turda. The future publication of these results will allow us to contribute to the bigger picture of the genetic make-up of the European territory during the Great Migrations.

Our research focused on two main research objectives: the physical anthropological analysis of the sample and the assessment of life quality levels through several proxies. We consider that we succeeded in fulfilling both our objectives and through our study, we managed

to offer a glimpse in the life of four Gepidic communities and shed a bit of light on what is known as the “dark ages”.

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