

**The socio-demography of populations of
Hungarian Conquest Era and Arpadian
Age in the Trans-Tisza Region**

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Paleosociographic analysis revealed the social paradigm shift of moving from paganism (10th century) to Christianity (11th century). From a demographic point of view the distribution of grave enclosures was restructured, reflecting social changes. Beside the finer details of life span, the analysis of all four cemeteries showed significant cultural tendencies which may be reflective of all the Hungarian population of the period.

1. The introduction of a new aspect in paleosociographic research tools; the use of the *socio-economic status mark* of grave enclosures, and
2. the hypothetical acceptance or rejection of the *lower life expectancy of those of lower socio-economic status in the population*, and vice-versa.

Contemporary sociological research shows that social status – or the place that individuals and groups have in the social structure – can have a measurable effect on life expectancy (cf., Andorka 1997). Among life expectancy characteristics, the author of this study examined chances of mortality, and the mortality proportions of various cohorts given the above. It was assumed that the grave enclosures are related to the social status of the given individuals such that those who had enclosures were of significantly higher social status than those who were buried without such. The study shows that for all four cemeteries there is a lower rate of infant mortality for those with higher life chances, who made up the sub-sample of those buried in enclosures.

The correlation of enclosures to mortality can be studied from a different aspect as well. It can be assumed that enclosures were given to those individuals whose death was followed by a deeper grieving, and whose death was a greater loss to the community and the family. Grieving was more significant for family supporters, older children or young women and men of marrying age, or for those who died during child labor (cf., László 1999). This second assumption can be supported with the data of the cemetery analysis, or more specifically with the positive correlation of young adults' enclosures with mortality. This is so in light of the assumption that the death of young adults was seen as a greater loss in the community.

Given the complexity of the society, it can be safely assumed that the two phenomena had their effects in unison. Enclosureless burial of those of low social status – and the subsequent higher infant mortality rate of the enclosureless populations as a result of lower status and poorer life chances – existed alongside the provision of enclosures for those who represented a greater loss, hence the higher instances of enclosures for family supporters and those about to marry.

Introduction

From their beginning, Hungarian anthropological studies have integrated goals regarding populations in the Carpathian Basin during the Hungarian Conquest era and the Arpadian Age. This study contributes to that literature by analyzing findings from 10th and 11th century cemeteries in the Trans-Tisza region. Through paleodemographic and paleosociographic analyses of cemeteries with large numbers of graves in Püspökladány-Eperjesvölgy, Hajdúszoboszló-Árkoshalom, Ibrány-Esbó halom and Szegvár-Oromdűlő, the study attempts to interpret the characteristics of the given cemeteries on an inter-population level.

One of the problems obstructing anthropological research on the Conquest and Arpadian Age is the relatively low number of units (skeletal remains) that can be studied. Given this difficulty, analysis of cemeteries with numerous graves has a great significance. The studied cemeteries have a total of 1467 skeletal remains that can be analyzed and dated. Through non-definitive methods it can be established that among these are the remains of 474 adult males and 402 adult females.

Material and methods

The age at death of the sub-adult units was established according to the methods of Schour and Massler (1941) and Johnston (1961). Age at death and sex of the adult population was established using the methods of Nemeskéri, Harsányi and Acsádi (1960), Acsádi and Nemeskéri (1970), and Sjøvold (1975). Establishment of sex also incorporated the system of the ilium preauricularis region (Szathmáry 1993). Beyond use of the above, the age and sexualization of human remains in Szegvár-Oromdűlő made use of a combination of other methods (described in detail in the methodology chapter) in relation to the anatomical characteristics of available remains. Following Baer and Harris (1969), the age of adulthood was defined at 23 years. Based on the results of craniological examinations, mortality tables were drawn based on the methods of Acsádi and Nemeskéri (1970). The estimation of population size was based on Ubelaker's formula (1989). The analysis of archeological remains and social characteristics of

the population was based on the paleosociographic work of Kinga Éry and Alán Kralovánszky (Kralovánszky 1959; Éry and Kralovánszky 1960; Éry and Kralovánszky 1963; Kralovánszky 1968). The study of the four cemeteries led to further methodological developments (see the summary of aims).

Results

The researcher defined six aims at the beginning of the study. The presentation of research results follows the structure of those aims.

3. The *paleographic analysis* of the full population of four cemeteries (with large numbers of graves) from 10th and 11th century cemeteries in the Trans-Tisza region.

The description of the study of the four cemeteries includes the interpopulation level paleodemographic characteristics of the populations. Beyond the individual level data, the mortality tendencies, which reflected the chronopopulation life chances, also proved to be important. The comparison of mortality tendencies led to the collection of information on the similarities and differences in the use of the cemeteries over two centuries, as well as data that is appropriate for interpopulation analysis.

Utilizing the oft-used Coale and Demény (1966) East level 5 and West level 5 models for comparing Carpathian Basin series, and the data from tables on the Arpad Era (10th to 12th centuries), the results of cemetery analysis clearly indicate that among the demographic characteristics of the four studied cemeteries, those of children and the 0-year subset are far lower than what should be expected. Although it would be reasonable to correct for infant mortality in the sample for the paleodemographic analysis of the cemeteries, the models used do not offer a sound starting point for such, given that they base calculations on early Middle Ages mortality proportions on demographic date from the late Middle Ages and later periods. Mortality relations (survival chances) cannot be naturally assumed to decline when we move backward through time, and for this reason the logic used to build those models must be seriously questioned.

4. The use of the study of the mortality median and of groups with exceptional mortality rates (the so called *crisis groups*) in the paleodemographic analysis.

The study of the four cemeteries led to the use of two further methodological advancements.

The concept of *mortality median* defines that age where 50 percent of the population has deceased. The mid-value shows that age at which half the population has deceased. Comparison of the mortality median for the 0-15 age group and the 0-22 age group shows whether the mortality tendency changes in early adulthood.

The marks of critical periods of age can be regarded as *crisis groups*. The crisis groups are established as those age cohorts showing exceptional peaks in the mortality curves of the studied populations. An important aspect in their separation is to have numerous age cohorts put together to form given groups, and for their mortality data to graphically peak from the mortality trends of the population as a whole. Study of the crisis groups can be utilized for interpopulation comparisons.

5. Testing of the model for *continuous and discontinuous paleodemographic characteristics* in the 10th and 11th century population.

Through the graphic analysis of the crisis groups the author attempted to establish continuous and discontinuous aspects of the studied populations and to describe demographic models based on such. The research showed that craniological data must be used in choosing models. As a result the author could not rely solely on (and exclusively construct) the paleodemographic model as described in the research plan. The utilized model – which made use of both paleodemographic and craniological data – became a *population history* model.

The populations in the four cemeteries provided an ideal sample. Based on the characteristic population in the Ibrány-Esbó halom cemetery, the author suggests that 10th-11th century cemeteries showing similar breaks in population history be called *Ibrány type cemeteries*. Based on the characteristic population of the Püspökladány-Eperjesvögy cemetery, it is recommended. Based on the characteristic population of the Püspökladány-Eperjesvögy cemetery, it is recommended that those 10th-11th century cemeteries showing continuous (break-free) population development be called Püspökladány types.

6. The paleosociographic analysis of cemetery enclosures in Püspökladány-Eperjesvögy, Hajdúszoboszló-Árkoshalom, Ibrány-Esbó halom and Szegvár-Oromdűlő.