Life in Transition

An osteoarchaeological perspective on the impact of medieval socioeconomic developments in Holland and Zeeland

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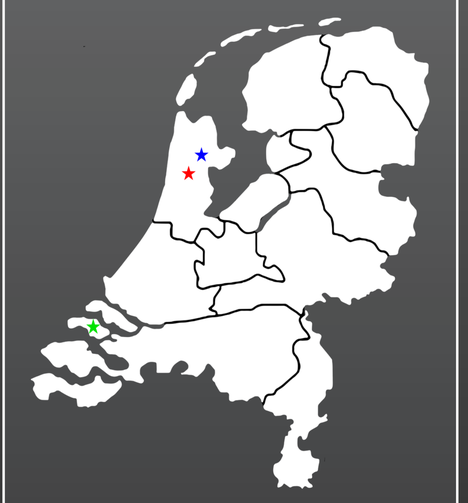

Figure 1: The Netherlands with Blokhuizen in blue, Klaaskinderkerke in green, and Alkmaar in red

Introduction

In the late medieval period, Holland and Zeeland developed from a scarcely populated area to a region characterised by urban centres and flourishing trade systems. Alterations in life style resulted in changes in patterns of disease, activity, and diet. From historical literature, the general trends and developments in Holland and Zeeland are known. However, how these changes affected individual people cannot be assessed from historical data alone. Hence, this research proposes a different approach to this subject by investigating the process from an osteoarchaeological perspective which allows a detailed examination of the physical and physiological consequences of medieval developments in Holland and Zeeland. This poster shows results of the analysis of 362 individuals from two rural villages (Blokhuizen, AD 1000-1200 and Klaaskinderkerke, AD 1200-1573) and from one urban site (Alkmaar, AD 1448-1572) (figure 1). Together, these skeletal collections can provide an osteoarchaelogical reflection of the socioeconomic developments in the medieval period in Holland and Zeeland.

Skeletal indicators

The focus of this study lies on the comparison of three key aspects of life between the three skeletal collections, which could have been impacted by the socioeconomic developments in the medieval period: disease, diet, and activity. Specific skeletal indicators are studied to assess change and development.

Disease
- Differences in prevalence of infectious diseases such as tuberculosis.
- Differences in prevalence of non-specific skeletal stress markers such as growth stunting, dental enamel hypoplasia, and cribra orbitalia (anaemia).

Activity
- Differences in distribution and prevalence of joint degeneration such as osteoarthritis indicating changes in mechanical loading.
- Differences in shape of the lower limb bones indicating changes in mobility levels and changes in sexual division of labour.

Diet
- Differences in dental caries prevalence and frequency indicating what food types were mainly consumed.
- Differences in the prevalence of diseases linked to nutritional stress such as vitamin D or vitamin C deficiencies.

Results

Disease: The prevalence of infectious disease is higher in the urban skeletal collection. Tuberculosis and signs of chronic respiratory disorders are only found in the city of Alkmaar (figure 2b, 2d). However, there are no significant differences in the prevalence of skeletal indicators of non specific stress. Cribra orbitalia (figure 2a) appears to be more common in the rural assemblages.

Activity: There are no significant differences in osteoarthritis between the sites, although hip osteoarthritis (figure 2c) appears to be slightly more common in Klaaskinderkerke. The analysis of bone shape of the legs suggests higher levels of mobility and a higher degree of sexual dimorphism in the early rural collection of Blokhuizen. The urban individuals appear to have the lowest mobility levels.

Diet: Caries prevalence and frequency is significantly higher in Alkmaar and these urban people develop the lesions earlier in life. Nutritional deficiencies are not found in Blokhuizen and Alkmaar, but are encountered in the later rural assemblage of Klaaskinderkerke (figure 2e), although the presence of vitamin D deficiency might have a more behavioral explanation.

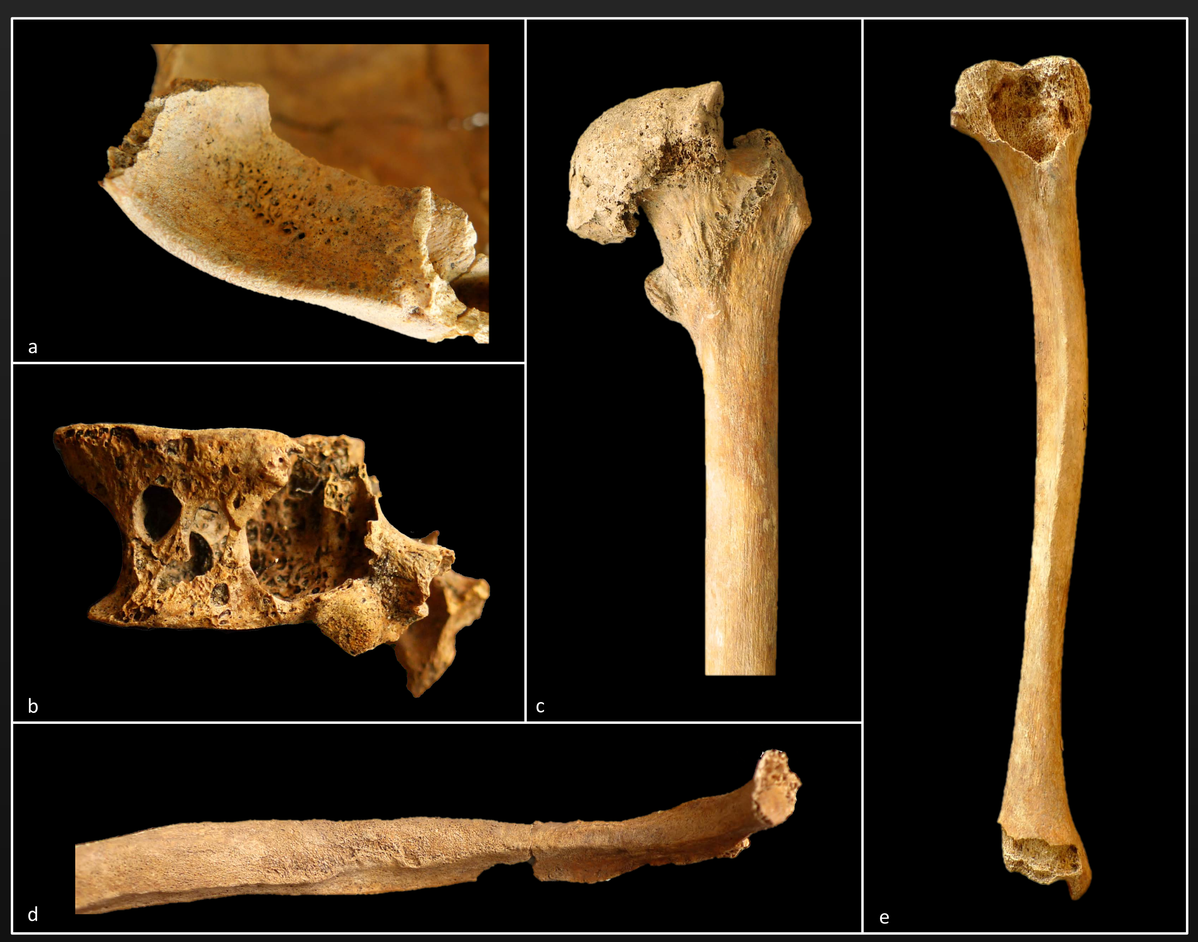

Figure 2: Skeletal lesion in three collections. a) Cribra orbitalia, b) Lytic lesion lumbar vertebra associated with tuberculosis, c) Osteoarthritis of the proximal femur, d) Rib lesions visceral surface associated with lung infection, e) Residual rickets R- tibia

Discussion and conclusion

The medieval socioeconomic developments appear to have had several consequences for the individuals. Infectious disease prevalence was found to be higher in the urban collection, most likely as a result of the changing living conditions (housing) and poorer hygiene. However, the prevalence of non-specific stress markers is similar across the three sites, suggesting that urbanisation did not result in more generalised stress in the urban population. Sources of stress were most likely different. Activity levels clearly changed: the later rural and urban individuals are less mobile than the early rural residents most likely due to a decrease in agricultural activities. However, levels of mechanical loading remained the same. This research also found dietary changes: the Alkmaar individuals were consuming more starchy and sugary foods than their rural counterparts. This can be related to food diversification and more access to exotics through the city market. The current analysis demonstrates that the medieval socioeconomic developments affected multiple aspects of individual lives. However, the differences between town and country are not as large as often assumed. The rural and urban living environments are different, but one is not necessarily better than the other.

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