A BIOARCHAEOLOGICAL STUDY OF CHRONIC MAXILLARY SINUSITIS AND RESPIRATORY HEALTH IN TWO POST-MEDIEVAL POPULATIONS FROM THE NETHERLANDS

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INTRODUCTION

Maxillary sinusitis is an inflammation of the lower paranasal sinuses. It is one of the most common respiratory diseases, globally affecting humankind since at least 2000 BCE (Wells 1997). General patterns of occurrence in bioarchaeology have highlighted higher ratios among urban environments compared to rural ones, initially suggesting a link between maxillary sinusitis and air quality (Roberts 2007). However, many theories now link maxillary sinusitis to several other environmental and social factors (Bernofsky 2010). This preliminary study aimed to assess prevalence ratios in two Post-Medieval contexts from the Netherlands and to investigate the role of some contributing factors.

HYPOTHESES

- Higher frequency of sinusitis in the urban environment in comparison to the rural one
- Higher frequency of sinusitis among female individuals in the rural context, where women usually spent most of their time within the domestic environment

MATERIALS AND METHODS

A total sample of 105 adult individuals came from two different Dutch skeletal populations from the post-medieval period: the rural community of Middenbeemster (n=54) and the urban entre of Arnhem (n=51) (Figure 1). Individuals were chosen among those who did not show signs of dental or infectious diseases. The presence of chronic maxillary sinusitis was assessed according to Boocock et al. 1995 (Figure 2), using an endoscope on complete crania.

Figure 1. Map of the Netherlands. Middenbeemster is indicated by the square shape, Arnhem by the star shape.



Figure 2. Chronic maxillary sinusitis lesions referred to by Boocock et al. (1995).



RESULTS

Overall, Arnhem showed a higher frequency of sinusitis than Middenbeemster (Figure 3). To assess whether social and environmental factors could have affected sinusitis in the past, the correlation between the presence of pathological lesions, sex groups and age-at-death categories were investigated as well. Based on chi-squared analysis, no significant correlation was observed between sex groups (Figure 4).

Figure 3. Prevalence of chronic maxillary sinusitis among context.

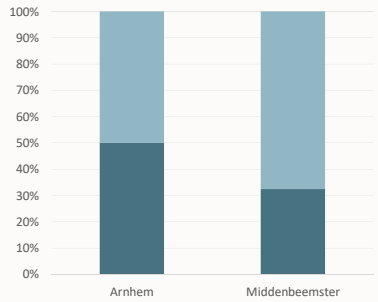
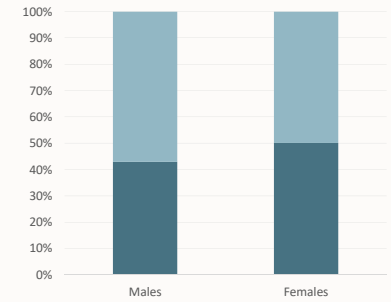


Figure 4. Prevalence of chronic maxillary sinusitis among sex groups.





DISCUSSION AND CONCLUSION

This research aimed to highlight the prevalence of chronic maxillary sinusitis in two Dutch post-medieval contexts. As hypothesized, Arnhem showed the highest occurrence ratio, suggesting that urban environments had a negative influence on the sinus health. Prevalence ratios were also investigated in relation to sex groups to assess whether sex-based differences in lifestyle and labour could affect the occurrence of the disease. Although literature review led to hypothesize otherwise (e.g. Roberts 2007), results highlighted no statistically significant differences in the frequency of sinusitis among sex groups. As in the Netherlands social roles were generally defined by sex (Wintle 2000), it is possible that such division was not enough to cause variations in the frequency of sinusitis in either Arnhem or Middenbeemster. However, this research may have been limited by a small sample size and should be reconsidered using a larger sample.

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