Urbanization and Mortality Risk in Late Medieval London

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Urbanization

- Late Medieval London
  - High population density
  - Elevated risk of infection
  - Unsanitary living conditions
  - Precarious food supplies
Urbanization

- Transitional periods and health
- Patterns of health associated with urbanism
- Previous bioarchaeological studies
  - Mean age-at death & lifetables
Research Questions

- Do urban adults face elevated risk of death compared to rural adults in medieval England?

- Are there sex differences in mortality in urban and rural environments in medieval England?
Methods
Skeletal Assemblages

St. Mary Spital Cemetery (SRP98)

- Urban
- London, England
- c. 1120-1539
- \( n = 333 \)
Methods

Skeletal Assemblages

St. Peter’s Cemetery (BOH)

- Rural
- Barton-upon-Humber, Lincolnshire, England
- c. 1150-1500
- $n = 150$
Methods

- Sex determination
  - Pelvis and skull morphology

- Age-at-death estimation
  - Transition analysis
  - ADBOU age estimation software
Methods

Hazard Analysis

- Gompertz model with “urban” covariate
  \[
  h_i(\text{t}_i | x_i, \rho) = h(\text{t}_i) e^{(x_i, \rho)}
  \]
  \(x: 0 = \text{rural} \quad 1 = \text{urban}\)

- Likelihood ratio test
  \[
  \text{LRT} = -2[\ln(L_{\text{urban}}) - \ln(L_{\text{baseline}})]
  \]
Results

Age-at-Death Distribution

% of sample

Age at death (years)


SRP98

BOH
## Results

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Estimate (95% CI)</th>
<th>-2LLR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adults</td>
<td>0.238 (0.059, 0.407)</td>
<td>6.022</td>
</tr>
<tr>
<td></td>
<td>(p = 0.014)</td>
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<tr>
<td>Females</td>
<td>0.284 (0.022, 0.525)</td>
<td>4.236</td>
</tr>
<tr>
<td></td>
<td>(p = 0.040)</td>
<td></td>
</tr>
<tr>
<td>Males</td>
<td>0.170 (-0.087, 0.406)</td>
<td>1.505</td>
</tr>
<tr>
<td></td>
<td>(p = 0.220)</td>
<td></td>
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</tbody>
</table>
Results

- **Adults** - *elevated* risks of mortality in the urban environment

- **Females** - *elevated* risks of mortality in the urban environment

- **Males** - *similar* risks of mortality in both environments
Conclusion

- Deleterious living conditions in London compared to Barton
  - Population density
    - Waste disposal and pollution
    - Susceptibility to infection
    - Water contamination
  - Famine
Conclusion

- Rural to urban migration
- Elevated risk of infection
- The migration process
- Young adult females
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