Gender differences in inequalities in asthma: The North West Adelaide Health Study

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& the North West Adelaide Health Study Team
Asthma and social inequalities

Inequity in health:

“the systematic and potentially remediable differences in health across population groups defined socially, economically, demographically or geographically.”

International Society for Equity in Health
Asthma and social inequalities

- Not all population groups experience chronic conditions, eg. asthma, equally
- Societal determinants of health may directly influence incidence and management of chronic conditions
The North West Adelaide Health Study

- Biomedical cohort study
- Established in 2000
- Collaboration between The Queen Elizabeth Hospital, Lyell McEwin Health Service, South Australian Department of Health, University of Adelaide, University of South Australia
- Designed to assess prevalence of priority conditions, risk factors and determinants across continuum, and progression over time
Methods

- Households randomly selected from Electronic White Pages
- Approach letter sent to households
- CATI
- Person last to have birthday, aged 18+ years, selected
- Appointment made to attend clinic
- Information pack sent including questionnaire
Data collection

- **Telephone**
  - Demographics, Chronic conditions, Risk factors
- **Self-completed questionnaire**
  - Health care utilisation, Quality of life
- **Clinic assessment**
  - Blood pressure, Height and weight, Waist and hip circumference, Fasting blood test (glucose, lipid profile, HbA1c, creatinine), Lung function spirometry, Skin allergies
Response rate - Stage 1

Initial sample
n=10096

Eligible sample
n=8213

Interviewed
n=5850

Attended clinic
n=4060

Ineligible
n=1883
18.7%

Non-contacts
n=215
2.6%

Refused interview
n=2148
26.2%

Refused clinic
n=1790
30.6%

Attended clinic / interviewed
= 69.4% participation rate

Attended clinic / eligible sample
= 49.4% response rate
Chronic Disease Continuum

Improved health status / Deteriorating health status

- Not at risk
- At risk
- Previously undiagnosed
- Diagnosed without comorbidity
- Diagnosed with comorbidity
- Death

Primary prevention

Delay
Early detection
Secondary prevention

Delay
Early Detection Care
Tertiary Prevention
Chronic disease continuum:

**Asthma**

- **At risk**: 52.9%
- **Previously undiagnosed**: 2.7%
- **Diagnosed**: 9.4%
Prevalence of Asthma by Gender

NWAHS, 18+ Years
Prevalence of Asthma by Age Group and Gender

NWAHS, 18+ Years
Prevalence of Asthma by Smoking Status and Gender

NWAHS, 18+ Years
Prevalence of Asthma by Education Level and Gender

NWAHS, 18+ Years
Prevalence of Asthma by Marital Status and Gender

NWAHS, 18+ Years
Prevalence of Asthma by Income and Gender

NWAHS, 18+ Years
# Multivariate odds ratios (ORs) for factors associated with asthma - MALES

<table>
<thead>
<tr>
<th>Education</th>
<th>OR</th>
<th>(95% CI)</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Post-secondary</td>
<td>1.00</td>
<td></td>
<td></td>
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<tr>
<td>Secondary</td>
<td>1.47</td>
<td>(1.09 - 1.99)</td>
<td>0.01</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Work Status</th>
<th>OR</th>
<th>(95% CI)</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Employed</td>
<td>1.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Unemployed</td>
<td>1.74</td>
<td>(1.30 - 2.34)</td>
<td>&lt;0.001</td>
</tr>
</tbody>
</table>
# Multivariate odds ratios (ORs) for factors associated with asthma - FEMALES

<table>
<thead>
<tr>
<th>Age groups</th>
<th>OR</th>
<th>(95% CI)</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>18 - 34 years</td>
<td>1.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>35 – 54 years</td>
<td>0.85</td>
<td>(0.62 – 1.16)</td>
<td>0.30</td>
</tr>
<tr>
<td>55 – 64 years</td>
<td>0.62</td>
<td>(0.39 – 0.99)</td>
<td>0.05</td>
</tr>
<tr>
<td>65 years and over</td>
<td>0.75</td>
<td>(0.50 – 1.12)</td>
<td>0.16</td>
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<table>
<thead>
<tr>
<th>Income</th>
<th>OR</th>
<th>(95% CI)</th>
<th>P-value</th>
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</thead>
<tbody>
<tr>
<td>Up to $20,000</td>
<td>1.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>$20,001 - $40,000</td>
<td>0.89</td>
<td>(0.62 – 1.26)</td>
<td>0.50</td>
</tr>
<tr>
<td>$40,001 - $60,000</td>
<td>0.54</td>
<td>(0.35 – 0.83)</td>
<td>0.004</td>
</tr>
<tr>
<td>Over $60,000</td>
<td>0.49</td>
<td>(0.32 – 0.75)</td>
<td>0.001</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Smoking status</th>
<th>OR</th>
<th>(95% CI)</th>
<th>P-value</th>
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</thead>
<tbody>
<tr>
<td>Non-smoker</td>
<td>1.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ex-smoker</td>
<td>1.52</td>
<td>(1.13 – 2.05)</td>
<td>0.006</td>
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<tr>
<td>Current smoker</td>
<td>1.28</td>
<td>(0.91 – 1.78)</td>
<td>0.15</td>
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</table>
Conclusion

- The prevalence of asthma is higher among women than men.
- The relationship between asthma and socioeconomic factors differs for men and women.
- The way social inequalities are measured among men and women, eg. by education, income, employment status, will affect conclusions about associations between socioeconomic factors and asthma.
Contact details

- North West Adelaide Health Study website
  http://www.nwadelaidehealthstudy.org

- Population Research & Outcome Studies Unit
  (SA Department of Health)