Socioeconomic Position and Breast Reconstruction in Danish women

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Breast cancer incidence in Denmark - 2008

4275 diagnosed

37% mastectomized

10-15% reconstruction (200 women)

Source: www-dep.iarc.fr/NORDCAN/DK/frame.asp and www.DBCG.dk
Study population
-Nationwide Danish Registers

- Mastectomy only
  11,494 (86%)

- Immediate BR
  1885 (14%)

- Delayed BR
  1694

Overall
16,768

Excluded
3389

Study population
13,379

End of the study: November 2009
Purpose of the study

Investigate the relation of socioeconomic position and breast reconstruction

Hypotheses:

- Higher education
- Breast reconstruction more profound for immediate BR
- Different life circumstances in different age might influence the choice
- Hospital affiliation with plastic surgery department increase the likelihood of BR

Level of education

- **Short**: Basic school
- **Medium**: Secondary school and vocational education
- **Higher**: Over 12 years
Characteristics of the cohort

• Women with medium or higher education
  • Younger than 60 years
  • No Comorbidity
  • Working
  • Lived with someone
  • Had breast reconstruction
  • Hospital affiliation with plastic surgery services

• Women with higher education
  • Highest income
  • Premenopausal

• Breast Reconstructed
  • 90% had medium or higher education
Logistic regression model

Investigate the simultaneous influence of educational level on the likelihood of BR

- Age
- Tumor characteristics – (Tumor size, spread to lymph nodes, grade, receptor status, menopausal status)
- Comorbidity - (Charlson index)
- Socioeconomic factors – (Disposable income, affiliation to work market, cohabiting status)
- Hospital affiliation  - (With or without plastic surgery services)

- Immediate BR – all included  \( n = 13,379 \)
- Delayed BR – all with 3 years follow-up included  \( n = 11,520 \)
# Immediate Breast Reconstruction

## Adjusted OR, final model

<table>
<thead>
<tr>
<th>Education</th>
<th>N</th>
<th>OR</th>
<th>95% CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>-Short</td>
<td>15</td>
<td>1.00</td>
<td>-</td>
</tr>
<tr>
<td>-Medium</td>
<td>106</td>
<td>2.01</td>
<td>(1.13-3.56)</td>
</tr>
<tr>
<td>-Higher</td>
<td>70</td>
<td>2.10</td>
<td>(1.14-3.86)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Hospital affiliation</th>
<th>N</th>
<th>OR</th>
<th>95% CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>-No plastic surgery</td>
<td>41</td>
<td>1.00</td>
<td>-</td>
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<tr>
<td>-Plastic surgery consultant</td>
<td>5</td>
<td>0.47</td>
<td>(0.18-1.19)</td>
</tr>
<tr>
<td>-Plastic surgery department</td>
<td>145</td>
<td>4.02</td>
<td>(2.81-5.75)</td>
</tr>
</tbody>
</table>
Stratification in Age Groups
- Different overall life circumstances

• 30-44 years
  – Having children and getting established in the work market

• 45-59 years
  – Generally working and have achieved their professional position

• 60-80 years
  – Retiring
### Immediate Breast Reconstructions

#### Age Group (years)

<table>
<thead>
<tr>
<th>Age Group (years)</th>
<th>Education</th>
<th>OR</th>
<th>95% CI</th>
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<th>OR</th>
<th>95% CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>30-44 (n=1405)</td>
<td>Short</td>
<td>1.00</td>
<td>-</td>
<td>1.00</td>
<td>-</td>
<td>1.00</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>Medium</td>
<td>0.94</td>
<td>(0.31-2.91)</td>
<td>3.59</td>
<td>(1.38-9.34)</td>
<td>1.52</td>
<td>(0.54-4.26)</td>
</tr>
<tr>
<td></td>
<td>Higher</td>
<td>0.95</td>
<td>(0.29-3.08)</td>
<td>4.01</td>
<td>(1.49-10.47)</td>
<td>1.03</td>
<td>(0.26-4.15)</td>
</tr>
</tbody>
</table>
## Delayed Breast Reconstruction

### Adjusted OR, final model

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</tr>
</thead>
<tbody>
<tr>
<td>Short</td>
<td>137</td>
<td>1.00</td>
<td>-</td>
</tr>
<tr>
<td>Medium</td>
<td>730</td>
<td>1.52</td>
<td>(1.23-1.86)</td>
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<tr>
<td>Higher</td>
<td>414</td>
<td>1.41</td>
<td>(1.12-1.77)</td>
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</table>

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<tr>
<td>No plastic surgery</td>
<td>518</td>
<td>1.00</td>
<td>-</td>
</tr>
<tr>
<td>Plastic surgery consultant</td>
<td>149</td>
<td>1.13</td>
<td>(0.92-1.39)</td>
</tr>
<tr>
<td>Plastic surgery department</td>
<td>614</td>
<td>1.45</td>
<td>(1.26-1.66)</td>
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## Delayed Breast Reconstructions

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<td>1.00</td>
<td>-</td>
<td>1.00</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>Medium</td>
<td>1.03</td>
<td>(0.65-1.64)</td>
<td>1.43</td>
<td>(1.09-1.88)</td>
<td>2.45</td>
<td>(1.55-3.89)</td>
</tr>
<tr>
<td></td>
<td>Higher</td>
<td>1.02</td>
<td>(0.62-1.65)</td>
<td>1.32</td>
<td>(0.97-1.78)</td>
<td>2.28</td>
<td>(1.30-3.99)</td>
</tr>
</tbody>
</table>
Education and socioeconomic position

Overall increased odds ratio for breast reconstruction with increased education level

- Complex correlation with other SEP factors → knowledge related part
- Reflecting the ability to
  - Communicate and access appropriate health services
  - Receptive to health education messages
Effect modification of age

Youngest (30-44 years)
- Other demands and requirements
- Active health consumers
- More importance in maintaining femininity and attractiveness
- Regardless educational level

Oldest (60-80 years)
- Cohort effect
- More modest demands
- Passive health consumers
- Provider bias
- Tends to receive suboptimal information
- Education might therefore be of more importance
Conclusion

• The option of breast reconstruction seems unequally distributed in Denmark
• Higher education and being affiliated to a hospital with a plastic surgery department significantly increased the likelihood of BR
• All eligible patients in principle have free access to BR
  – The information on BR differs
A challenge for treating clinicians to ensure that all eligible women, regardless of social position, age or residence, receive similar information and options.
Thank you for your attention