Long-term consequence of injury on self-rated health

Bjarne Laursen

SAFETY2010, London
Background

Knowledge on long-term consequences of injury on health is vital when injury prevention policies and emergency care are planned. However, few studies have described health consequence associated with injury during many years. This study analyses the relationship between injury and self-assessed health 10 years post-injury.
Objective

- To quantify the relationship between injury and self-assessed health up to 10 years after the injury
- To determine whether the relationship between injury and health depends on gender, educational level, and injury type
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Methods

• Data linkage between Health Interview Survey data (year 2000 and 2005), hospital registers, and population data (education)

• Persons aged 16-64 years who participated in interviews were included (n=22,414)
• For these, earlier unintentional injuries were found in hospital data 1995-2005
• Head injuries, neck injuries, back injuries, bone fractures, and inpatients with other injury diagnoses were included
• Self-rated health and self-reported depression were used as outcome measure
• Injury, injury type, time since injury and injury setting were used as explanatory variables
• Covariates: gender, age, education, chronic illness, interview year
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The cohort design (injured)

1995

2000 Survey 22,486 invited

2005 Survey 21,832 invited
### Results – population data

<table>
<thead>
<tr>
<th></th>
<th>Injured (incl. &lt;1y)</th>
<th>Not injured</th>
</tr>
</thead>
<tbody>
<tr>
<td>All</td>
<td>2,965</td>
<td>19,449</td>
</tr>
<tr>
<td>Men</td>
<td>1,665</td>
<td>9,451</td>
</tr>
<tr>
<td>Women</td>
<td>1,300</td>
<td>9,998</td>
</tr>
<tr>
<td>Poor or very poor health</td>
<td>221</td>
<td>863</td>
</tr>
<tr>
<td>Depression</td>
<td>274</td>
<td>1,326</td>
</tr>
</tbody>
</table>
## Injury types

<table>
<thead>
<tr>
<th>Type of Injury</th>
<th>Number</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Head injury</td>
<td>327</td>
<td>11.0</td>
</tr>
<tr>
<td>Neck injury</td>
<td>268</td>
<td>9.0</td>
</tr>
<tr>
<td>Back injury</td>
<td>84</td>
<td>2.8</td>
</tr>
<tr>
<td>Bone fractures</td>
<td>1,911</td>
<td>64.5</td>
</tr>
<tr>
<td>Other, inpatients</td>
<td>375</td>
<td>12.7</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Setting</th>
<th>Number</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Work related</td>
<td>317</td>
<td>10.7</td>
</tr>
<tr>
<td>Home or leisure</td>
<td>2,142</td>
<td>72.2</td>
</tr>
<tr>
<td>Traffic</td>
<td>506</td>
<td>17.1</td>
</tr>
</tbody>
</table>
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Odds ratio for poor health and depression

Years since last injury

General health

Depression
### Prevalence of poor health by gender and injury

#### Graph:
- **Y-axis:** %
- **X-axis:** Injury, No injury
- **Categories:** Male, Female
- **Conditions:** Poor general health, Depression

#### Table:

<table>
<thead>
<tr>
<th>Condition</th>
<th>Gender</th>
<th>Injury</th>
<th>No injury</th>
</tr>
</thead>
<tbody>
<tr>
<td>Poor general health</td>
<td>Male</td>
<td>6%</td>
<td>4%</td>
</tr>
<tr>
<td>Depression</td>
<td>Female</td>
<td>12%</td>
<td>8%</td>
</tr>
</tbody>
</table>

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Prevalence of poor health by education and injury

- Poor general health
- Depression

<table>
<thead>
<tr>
<th></th>
<th>Injured</th>
<th>Not injured</th>
</tr>
</thead>
<tbody>
<tr>
<td>Compulsory</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vocational</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Higher</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

%
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Odds ratio for poor health and depression

- Head
- Neck
- Back
- Bone fracture
- Other, admitted

General health
Depression
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Odds ratio for poor health and depression

- Work
- Home, leisure
- Traffic, motorised
- Traffic, other

General health
Depression

<table>
<thead>
<tr>
<th>Activity</th>
<th>General health</th>
<th>Depression</th>
</tr>
</thead>
<tbody>
<tr>
<td>Work</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Home, leisure</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Traffic, motorised</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Traffic, other</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Discussion

• Injury categories are wide, including different severity levels
• Effect of injuries may be underestimated due to non-responders
• The retrospective cohort design excludes dropouts due to death or emigration
• Only self-rated health was assessed
• Comorbidity and old injuries may be confounders
• Effect of hospital treatment was not studied
Conclusions

The effect of injuries on general health declined during time, but was present still after 5-10 years.

Gender and education had no influence on the effect of injury on general health, however women had more depression due to injuries.

Traffic injuries increased the frequency of depression, in particular among non-motorised.

Toft AMH, Møller, H Laursen B:

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Thank you for your attention!
Injuries included

Head injuries (ICD-10: S02, S04, S06, S07, S08)
Neck injuries (ICD-10: S12-S17)
Back injuries (ICD-10: S22.0, S22.1, S23.0, S23.1, S23.3, S24, S32-S34, T08, T09)
Bone fractures (ICD-10: S42, S52, S62, S72, S82, S92, T10, T12)
Other inpatients with injuries (ICD-10: S00-T75)
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Prevalence of self-reported health problems the last 14 days

- Head injury
- Neck injury
- Back injury
- Bone fracture
- No injury