Incidence and the causes of unintentional non-fatal injuries at a commune in the Central Highlands - Vietnam, 2013

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Global distribution of deaths by leading cause groups, by gender, 2004

Injuries caused 5.8 millions deaths, 2000

UI ranked the sixth leading causes of death, 2004

Source: The Global Burden of Diseases, WHO, 2004
## Non-fatal injury rate per 100,000 by causes and regions (VNIS 2010)

<table>
<thead>
<tr>
<th>Injury causes</th>
<th>Red River Delta</th>
<th>Northern Midlands and Mountains</th>
<th>North Central Coast</th>
<th>Central Highlands</th>
<th>South Central Coast</th>
<th>Mekong River Delta</th>
<th>All</th>
</tr>
</thead>
<tbody>
<tr>
<td>Traffic accident</td>
<td>845.0</td>
<td>1205.2</td>
<td>1020.6</td>
<td>901.0</td>
<td>1156.4</td>
<td>798.7</td>
<td>1010.4</td>
</tr>
<tr>
<td>Fall</td>
<td>372.0</td>
<td>794.6</td>
<td>479.7</td>
<td>255.4</td>
<td>525.0</td>
<td>424.7</td>
<td>519.7</td>
</tr>
<tr>
<td>Sharp objects</td>
<td>188.7</td>
<td>356.5</td>
<td>155.3</td>
<td>55.7</td>
<td>78.9</td>
<td>284.1</td>
<td>212.7</td>
</tr>
<tr>
<td>Animal bite</td>
<td>68.8</td>
<td>96.2</td>
<td>132.0</td>
<td>60.2</td>
<td>99.9</td>
<td>242.5</td>
<td>128.4</td>
</tr>
<tr>
<td>Obtuse/ falling objects</td>
<td>73.5</td>
<td>78.8</td>
<td>80.7</td>
<td>26.9</td>
<td>40.3</td>
<td>82.7</td>
<td>69.9</td>
</tr>
<tr>
<td>Fighting</td>
<td>28.3</td>
<td>51.3</td>
<td>86.0</td>
<td>43.3</td>
<td>51.7</td>
<td>64.5</td>
<td>58.2</td>
</tr>
<tr>
<td>Burn</td>
<td>38.6</td>
<td>121.4</td>
<td>18.6</td>
<td>11.3</td>
<td>73.0</td>
<td>21.1</td>
<td>53.5</td>
</tr>
<tr>
<td>Electric shock</td>
<td>13.5</td>
<td>2.1</td>
<td>8.0</td>
<td>0.0</td>
<td>32.3</td>
<td>19.3</td>
<td>13.1</td>
</tr>
<tr>
<td>Total</td>
<td>1635.5</td>
<td>2717.2</td>
<td>1998.4</td>
<td>1364.4</td>
<td>2138.9</td>
<td>1962.3</td>
<td>2092.0</td>
</tr>
</tbody>
</table>
Objectives of the study

- To describe the incidence of non-fatal unintentional injury in the defined community
- To identify the causes and possible related factors of the injuries
- To identify the pattern of seeking medication of the injured people
- To evaluate the impact of injury on the economic status of the injured people
Methods

- **Study design**: cross-sectional design
- **Study subject**: people with unintentional non-fatal injuries
- **Sample size**: 
  
  $$n = \frac{4 (r) (1-r) (f) (1.05)}{[(e^2) (p) (n_h)\]}$$

  ⇒ $n = 747$ households
  
  ⇒ $750$ households = 30 clusters x 25 households
Study settings
Sampling frame and method

Dak Ha town:
16 sub-communes

Probability Proportional to Size (PPS)

30 clusters

Randomly chose the households

25 households each cluster
Ethical consideration

- Ethical clearance letter

- Verbal consent to respondents:
  - Study objectives
  - Confidential of the information given
  - Acceptance to participate in the study
Incidence per 1,000 person-years by gender, Dak Ha town, 2013

- Male: 41.4
- Female: 22.7
- Both sexes: 31.8

- Response rate: 748/750 households = 99.7%
- n = 2989 individuals
Distribution of injured cases by month in Dak Ha town 2012-2013
Distribution of injured cases by month in Dak Ha town 2012-2013

- Vietnam Lunar New year
- Christmas and New Year
- Southern Independent Day and Labor Day Festival
Percentage of injury by cause and gender, Dak Ha town 2013

- Poisoning
- Burns and scalds
- Falls
- Animal attack
- Accident caused by machine cutting or piercing
- Road traffic accident and transport-related
- Electric shock

Percentage

Female

Male

Percentage
## Risk factors

<table>
<thead>
<tr>
<th>Factor</th>
<th>p - value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td>0.004</td>
</tr>
<tr>
<td>Age-group</td>
<td>0.182(*)</td>
</tr>
<tr>
<td>Education</td>
<td>0.009</td>
</tr>
<tr>
<td>Occupation</td>
<td>0.001</td>
</tr>
<tr>
<td>Ethnic</td>
<td>0.002</td>
</tr>
<tr>
<td>Family annual income</td>
<td>0.037</td>
</tr>
</tbody>
</table>

* Not statistics significant
First place of treatment

- Traditional practitioner
- Private provider
- Commune health centre
- District health centre
- Provincial hospital
- Central hospital
- Unknown

Percentage
<table>
<thead>
<tr>
<th>Economic cost</th>
<th>n</th>
<th>Total</th>
<th>Average</th>
</tr>
</thead>
<tbody>
<tr>
<td>Out of work/school (days)</td>
<td>95</td>
<td>2896</td>
<td>63</td>
</tr>
<tr>
<td>Treatment at government health facilities (days)</td>
<td>44</td>
<td>675</td>
<td>15</td>
</tr>
<tr>
<td>Caregivers (days)</td>
<td>68</td>
<td>995</td>
<td>15</td>
</tr>
<tr>
<td>Expenses for medical treatment (VND)</td>
<td>95</td>
<td>436,108,000</td>
<td>5,012,736</td>
</tr>
</tbody>
</table>

Expenses for indirect cost???
Conclusions

- Incidence rate: male > female
- Leading causes: road traffic accident and transport-related and falls
- Risk factors: gender, education, occupation, ethnic, family annual income
- Economic burdens: injured people + the caregivers
Significance of findings

- First community-based survey in the region
- Vietnam unintentional injury prevention program should aim towards road traffic accident and transport-related and falls
- Further study is needed for identify the risk factors
Thank you for your attention!