Exploring victimization patterns with Latent Class Analysis: new approaches to elder abuse

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Background

- Elder abuse as a public health issue.
- Associated with adverse health and social outcomes.
- Findings are often complex and contradictory.
- Abuse as a multidimensional:
  - different abusive behaviours, victims, perpetrators and settings.
- Interventions efficacy can be enhanced by identifying patterns and configurations.

Objective

Identify victimization patterns and distinct elder abuse configurations
- abusive behaviours
- relationship with the perpetrator
## Methods

### Study design and setting

<table>
<thead>
<tr>
<th></th>
<th>Population based survey</th>
<th>Victims’ survey</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Sampling</strong></td>
<td>Probability sample stratified by seven geographic regions</td>
<td>Convenience sample of individuals using the services of four institutions</td>
</tr>
<tr>
<td><strong>Sample size</strong></td>
<td>1123</td>
<td>510</td>
</tr>
<tr>
<td><strong>Data collection</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Method</strong></td>
<td>Telephone interviews</td>
<td>Face-to-face interviews</td>
</tr>
<tr>
<td><strong>Instruments</strong></td>
<td>Structured questionnaire</td>
<td>Structured questionnaire</td>
</tr>
<tr>
<td><strong>Time period</strong></td>
<td>October 2012</td>
<td>November 2011 to March 2013</td>
</tr>
</tbody>
</table>

**Ageing and violence study (2011-2014)**
Departamento de Epidemiologia, Instituto Nacional de Saúde Doutor Ricardo Jorge Fundação para a Ciência e a Tecnologia (FCT) (PTDC/CS-SOC/110311/2009)
Methods

Stealing or using property without consent
Undue household appropriation

Physical aggression
Hindering of speaking or meeting someone

Threatening
Verbal aggression, insulting, humiliating
Ignoring or refusal to talk

Perpetrators
Spouse/partner
Children/grandchildren
Others (other family members, friends, neighbours, work colleagues, paid professionals and volunteers)

Measures

Financial

Physical

Psychological
Latent Class Analysis (LCA) was used to categorize victimization

- in the population-based (N=245) and in the victims’ sample (N=510);
- using 7 items measuring abuse and appointed perpetrators (3 items).

1. The number of distinct abuse subtypes (classes, k);
2. The relative size of each subtype (proportion of self-reported victims within each class); and
3. The distribution of characteristics within each subtype (probability of each of the items based on class membership, $\rho$).
Results

LCA: Population-based and victims’ survey

Physical aggression
Hindering of speaking
Household appropriation
Stealing or using property
Threatening
Verbal aggression
Ignoring
Perpetrator children/grandchildren
Perpetrator spouse/partner
Perpetrator other

6 Latent Classes
Results

LCA: Population-based survey

- Physical aggression
- Hindering of speaking
- Household appropriation
- Stealing or using property
- Threatening
- Verbal aggression
- Ignoring
- Perpetrator children/grandchildren
- Perpetrator spouse/partner
- Perpetrator other

Verbal by others 29%
Psychological by children 18%
Overlooked by others 18%
Stolen by others 15%
Verbal IPV 14%
Physical and Psychol. IPV 6%
Results

LCA: Victims’ survey

Physical aggression
Hindering of speaking
Household appropriation
Stealing or using property
Threatening
Verbal aggression
Ignoring

Perpetrator children/grandchildren
Perpetrator spouse/partner
Perpetrator other

Physical by children/grandchildren 29%
Physical IPV 26%
Physical and Psychol. by children 18%
Polyvictimization by others 16%
Physical abuse by others 6%
Physical and Psychol. IPV 4%

Pr = 0.87
Pr = 0.79
Pr = 0.76
Pr = 0.74
Pr = 0.72
Pr = 0.70
Pr = 0.68
Pr = 0.66
Pr = 0.64
Pr = 0.62
Pr = 0.60
Pr = 0.58
Pr = 0.56
Pr = 0.54
Pr = 0.52
Pr = 0.50
Pr = 0.48
Pr = 0.46
Pr = 0.44
Pr = 0.42
Pr = 0.40
Pr = 0.38
Pr = 0.36
Pr = 0.34
Pr = 0.32
Pr = 0.30
Pr = 0.28
Pr = 0.26
Pr = 0.24
Pr = 0.22
Pr = 0.20
Pr = 0.18
Pr = 0.16
Pr = 0.14
Pr = 0.12
Pr = 0.10
Pr = 0.08
Pr = 0.06
Pr = 0.04
Pr = 0.02
Pr = 0.00

Pr = 0.84
Results

LCA victims’ survey and victims characteristics

- Physical by children/grandchildren 29%
  - Widows
  - Women

- Physical and Psychol. by children/grandchildren 18%
  - Lived alone

- Physical IPV 26%
  - Married

- Physical and Psychol. IPV 4%
  - Single & Widows
  - Lived alone

- Polyvictimization by others 16%
  - > 60-69 years
  - > Independent for theirs ADLs

- Physical abuse by others 6%
  - > 80+ years
  - > Widows
  - > Men
  - > Needing help for theirs ADLs

- > 80+ years
- > Lived alone
Discussion

- Statistically and plausibly distinct **six different latent classes** (Population-based and victim’ survey).

- **Distinct victims’ groups**: elder abuse victims seeking help and individuals included in population-based studies.

- Appointed **perpetrators** may be the most relevant aspect

- **Victimization experiences associated with different victims’ characteristics.**
  - Women living alone being physically abused by their children and grandchildren.
  - Abuse grown old and IPV in older age?
  - Older males with dependency for their ADLs might be vulnerable to victimization experiences, particularly by individuals outside the nuclear family.
Obrigada
Gracias
Thank you

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anajoaocsantos@gmail.com
## Results

### Sample characterization

<table>
<thead>
<tr>
<th>Category</th>
<th>Population (N=245)</th>
<th>Victims (N=510)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Physical</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Physical aggression</td>
<td>14.8%</td>
<td>84.7%</td>
</tr>
<tr>
<td>Hindering of speaking or meeting someone</td>
<td>7.8%</td>
<td>22.5%</td>
</tr>
<tr>
<td><strong>Financial</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Stealing or using property without consent</td>
<td>26.5%</td>
<td>36.4%</td>
</tr>
<tr>
<td>Undue household appropriation</td>
<td>7.8%</td>
<td>25.8%</td>
</tr>
<tr>
<td><strong>Psychological</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Threaten</td>
<td>19.7%</td>
<td>38.6%</td>
</tr>
<tr>
<td>Verbal aggression, insulting, humiliating</td>
<td>46.5%</td>
<td>62.0%</td>
</tr>
<tr>
<td>Ignoring or refusal to talk</td>
<td>43.6%</td>
<td>36.6%</td>
</tr>
<tr>
<td><strong>Perpetrator</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Spouse/ partner</td>
<td>26.8%</td>
<td>48.2%</td>
</tr>
<tr>
<td>Children/grandchildren</td>
<td>21.0%</td>
<td>42.3%</td>
</tr>
<tr>
<td>Other</td>
<td>62.5%</td>
<td>9.5%</td>
</tr>
</tbody>
</table>
## Results

### LCA models population-based sample

<table>
<thead>
<tr>
<th>Number of classes</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
</tr>
</thead>
<tbody>
<tr>
<td>Class membership</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>probability</td>
<td>55%, 25%, 20%</td>
<td>18%, 27%, 28%, 27%</td>
<td>15%, 18%, 19%, 28%, 21%</td>
<td>15%, 14%, 18%, 29%, 6%, 18%</td>
</tr>
<tr>
<td>Log-likelihood</td>
<td>-1070.64</td>
<td>-1092.14</td>
<td>-1012.31</td>
<td>-995.23</td>
</tr>
<tr>
<td>$G^2$ Values</td>
<td>392.70</td>
<td>435.71</td>
<td>276.07</td>
<td>241.90</td>
</tr>
<tr>
<td>Entropy</td>
<td>92%</td>
<td>85%</td>
<td>91%</td>
<td>92%</td>
</tr>
<tr>
<td>AIC</td>
<td>456.71</td>
<td>521.72</td>
<td>384.07</td>
<td>371.90</td>
</tr>
<tr>
<td>BIC</td>
<td>568.75</td>
<td>672.27</td>
<td>573.14</td>
<td>599.49</td>
</tr>
<tr>
<td>SSABIC</td>
<td>467.31</td>
<td>535.96</td>
<td>401.96</td>
<td>393.43</td>
</tr>
<tr>
<td>df</td>
<td>991</td>
<td>980</td>
<td>969</td>
<td>958</td>
</tr>
<tr>
<td>BRLT ($p$)</td>
<td>3*4 (.01)</td>
<td>4*5 (.01)</td>
<td>5*6 (.01)</td>
<td>6*7 (.08)</td>
</tr>
</tbody>
</table>
## Results

**LCA population-based sample**

<table>
<thead>
<tr>
<th></th>
<th>Verbal by others</th>
<th>Psychological by children/grandchildren</th>
<th>Overlooked by others</th>
<th>Stolen by others</th>
<th>Verbal IPV</th>
<th>Physical and psychological IPV</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>29%(N=70)</td>
<td>18%(N=44)</td>
<td>18%(N=44)</td>
<td>15%(N=38)</td>
<td>14%(N=35)</td>
<td>6%(N=14)</td>
</tr>
<tr>
<td>Physical aggression</td>
<td>0.18 0.05</td>
<td>0.09 0.04</td>
<td>&lt; 0.005 &lt; 0.005</td>
<td>&lt; 0.005</td>
<td>0.23 0.07</td>
<td>0.78 0.14</td>
</tr>
<tr>
<td>Hindering of speaking/meeting</td>
<td>0.03 0.02</td>
<td>0.05 0.03</td>
<td>0.03 0.03</td>
<td>0.06 0.04</td>
<td>0.13 0.06</td>
<td>0.50 0.14</td>
</tr>
<tr>
<td>Threaten</td>
<td>0.29 0.06</td>
<td>0.29 0.07</td>
<td>0.01 0.02</td>
<td>&lt; 0.005</td>
<td>0.01 0.05</td>
<td>0.98 0.05</td>
</tr>
<tr>
<td>Verbal aggression</td>
<td>0.77 0.06</td>
<td>0.82 0.08</td>
<td>0.01 0.02</td>
<td>0.01 0.03</td>
<td>0.71 0.08</td>
<td>0.73 0.14</td>
</tr>
<tr>
<td>Ignoring or refusing to speak</td>
<td>0.38 0.06</td>
<td>0.73 0.08</td>
<td>0.99 0.03</td>
<td>0.08 0.11</td>
<td>0.15 0.07</td>
<td>0.30 0.13</td>
</tr>
<tr>
<td>Stealing</td>
<td>0.12 0.04</td>
<td>0.35 0.07</td>
<td>0.02 0.09</td>
<td>0.99 0.02</td>
<td>0.03 0.03</td>
<td>0.21 0.11</td>
</tr>
<tr>
<td>Undue household appropriation</td>
<td>0.16 0.05</td>
<td>0.07 0.04</td>
<td>0.06 0.04</td>
<td>&lt; 0.005</td>
<td>0.06 0.04</td>
<td>&lt; 0.005 0.01</td>
</tr>
<tr>
<td>Spouse/partner</td>
<td>0.17 0.05</td>
<td>&lt; 0.005</td>
<td>0.01 &lt; 0.005</td>
<td>0.01</td>
<td>0.99 0.01</td>
<td>0.99 0.03</td>
</tr>
<tr>
<td>Children/grandchildren</td>
<td>&lt; 0.005 0.01</td>
<td>0.99 0.01</td>
<td>&lt; 0.005 &lt; 0.005</td>
<td>&lt; 0.005</td>
<td>&lt; 0.005 0.01</td>
<td>0.22 0.11</td>
</tr>
<tr>
<td>Other</td>
<td>0.99 &lt; 0.005</td>
<td>0.18 0.06</td>
<td>0.99 0.01</td>
<td>0.99 0.01</td>
<td>0.02 0.06</td>
<td>0.01 0.04</td>
</tr>
</tbody>
</table>
## Results

### LCA models victim’ survey sample

<table>
<thead>
<tr>
<th>Number of classes</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
</tr>
</thead>
<tbody>
<tr>
<td>Class membership</td>
<td>24%, 48%</td>
<td>10%, 20%</td>
<td>10%, 20%, 28%</td>
<td>6%, 26%, 28%,</td>
<td>6%, 18%, 4%,</td>
</tr>
<tr>
<td>probability</td>
<td>28%</td>
<td>29%, 42%</td>
<td>17%, 26%</td>
<td>17%, 26%, 4%</td>
<td>17%, 26%, 3%,</td>
</tr>
<tr>
<td>Log-likelihood</td>
<td>-2571.42</td>
<td>-2480.86</td>
<td>-2417.12</td>
<td>-2399.65</td>
<td>-2383.25</td>
</tr>
<tr>
<td>G² Values</td>
<td>641.79</td>
<td>460.66</td>
<td>333.19</td>
<td>298.24</td>
<td>265.45</td>
</tr>
<tr>
<td>Entropy</td>
<td>92%</td>
<td>92%</td>
<td>91%</td>
<td>91%</td>
<td>90%</td>
</tr>
<tr>
<td>AIC</td>
<td>705.79</td>
<td>546.66</td>
<td>441.19</td>
<td>428.24</td>
<td>474.45</td>
</tr>
<tr>
<td>BIC</td>
<td>841.29</td>
<td>728.74</td>
<td>669.85</td>
<td>703.48</td>
<td>739.26</td>
</tr>
<tr>
<td>SSABIC</td>
<td>739.71</td>
<td>592.25</td>
<td>498.45</td>
<td>497.15</td>
<td>498.03</td>
</tr>
<tr>
<td>df</td>
<td>991</td>
<td>980</td>
<td>969</td>
<td>958</td>
<td>947</td>
</tr>
<tr>
<td>BRLT (p)</td>
<td>3*4 (.01)</td>
<td>4*5 (.01)</td>
<td>5*6 (.01)</td>
<td>6*7 (.04)</td>
<td>7*8 (.07)</td>
</tr>
</tbody>
</table>
## Results

### LCA victim’s survey sample

<table>
<thead>
<tr>
<th></th>
<th>Physical by children/ grandchildren</th>
<th>Physical IPV</th>
<th>Physical and psychological by children</th>
<th>Polyvictimization by others</th>
<th>Physical abuse by others</th>
<th>Physical and psychological IPV</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>29%(N=148)</td>
<td>26%(N=133)</td>
<td>18%(N=96)</td>
<td>16%(N=85)</td>
<td>6%(N=29)</td>
<td>4%(N=19)</td>
</tr>
<tr>
<td>Physical aggression</td>
<td>0.87 0.04</td>
<td>0.87 0.04</td>
<td>0.79 0.04</td>
<td>0.74 0.12</td>
<td>0.85 0.08</td>
<td>0.79 0.03</td>
</tr>
<tr>
<td>Hindering of speaking/meeting Threaten</td>
<td>0.10 0.03</td>
<td>0.22 0.05</td>
<td>0.19 0.04</td>
<td>0.33 0.12</td>
<td>0.05 0.05</td>
<td>0.35 0.04</td>
</tr>
<tr>
<td>Verbal aggression</td>
<td>0.03 0.06</td>
<td>0.25 0.10</td>
<td>0.96 0.04</td>
<td>0.84 0.13</td>
<td>0.08 0.10</td>
<td>0.99 0.01</td>
</tr>
<tr>
<td>Ignoring or refusing to speak Stealing</td>
<td>0.16 0.04</td>
<td>0.16 0.04</td>
<td>0.50 0.05</td>
<td>0.48 0.15</td>
<td>0.02 0.05</td>
<td>0.56 0.05</td>
</tr>
<tr>
<td>Stealing</td>
<td>0.31 0.06</td>
<td>0.20 0.05</td>
<td>0.55 0.05</td>
<td>0.63 0.13</td>
<td>0.31 0.10</td>
<td>0.32 0.04</td>
</tr>
<tr>
<td>Undue household appropriation</td>
<td>0.24 0.05</td>
<td>0.15 0.04</td>
<td>0.42 0.04</td>
<td>0.23 0.11</td>
<td>0.10 0.06</td>
<td>0.23 0.04</td>
</tr>
<tr>
<td>Spouse/partner</td>
<td>&lt; 0.005</td>
<td>&lt; 0.005</td>
<td>&lt; 0.005</td>
<td>&lt; 0.005</td>
<td>0.04 0.02</td>
<td>0.02 0.01</td>
</tr>
<tr>
<td>Children/grandchildren</td>
<td>0.99 &lt; 0.005</td>
<td>&lt; 0.005</td>
<td>&lt; 0.005</td>
<td>0.99 &lt; 0.005</td>
<td>0.03 0.01</td>
<td>0.02 0.01</td>
</tr>
<tr>
<td>Other</td>
<td>&lt; 0.005</td>
<td>&lt; 0.005</td>
<td>&lt; 0.005</td>
<td>&lt; 0.005</td>
<td>0.99 0.02</td>
<td>0.99 0.01</td>
</tr>
</tbody>
</table>