WP3 Individual Resilience
Health Related Outcomes of Disasters
Progress and plans 2017-2018

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WP3 Individual Resilience – Health Related Outcomes of Disasters

WP 3.1
Long term physical and psychological health following natural disasters.
Arna Hauksdóttir

WP 3.2
Atle Dyregrov

WP 3.3
Psychosocial support and intervention following natural disasters.
Ask Elklit
Data sources


• **Data from health registers.** Information on causes of mortality, morbidity (in-patient records) and pharmaceutical information (prescriptions and purchases of medicines), both for adults and children.
Progress in 2017
Completed articles in 2017

• Gissurardóttir ÓS, Hlodversdóttir H, Thordardóttir EB, Pétursdóttir G, Hauksdóttir A. Mental health effects following the eruption in Eyjafjallajökull volcano in Iceland – A population-based study. Scand J Public Health. 2018


Conferences

• 15\textsuperscript{th} Conference of European Society for Traumatic Stress Studies, University of Southern Denmark.

• Two presentations: Arna and Edda presenting.

• IDRiM2017 - the 8th Conference of the International Society for Integrated Disaster Risk Management, Iceland.

• Six presentations: Arna, Edda, Heiðrún presenting.
Research grant

- The Icelandic Research Fund

- Post doctoral grant 2018-2020: Edda Björk Þórðardóttir

- Project: Long-Term Morbidities and Comorbidities After Exposure to Trauma and Bereavement
Volcanic eruption and children’s health in Iceland – A population-based study
Study area

Map of Iceland showing the study area exposed to the volcanic eruption in southern Iceland, and the non-exposed control area in Skagafjörður, northern Iceland.

Close-up of the exposed area, with the Eyjafjallajökull volcano marked with an "x" and the low, medium and high exposure areas used in the study. The shading shows the estimated ash exposure during the eruption.
Participants 2010 and 2013

Exposed population in 2010 (N=1615)

Response rate exposed population in 2010 (N=1148)

71%

52 lost to follow-up

Exposed population in 2013 (N=1096)

Response rate exposed population in 2013 (N=874)

80%

Sample from a non-exposed population in 2010 (N=697)

Response rate non-exposed population in 2010 (N=510)

73%

35 lost to follow-up

Non-exposed population in 2013 (N=475)

Response rate non-exposed population in 2013 (N=381)

80%
Questionnaire

All participants
• Background (8)
• Symptoms (30)
• Sleep (5)
• Respiratory symptoms (13)
• Alcohol use (2)
• Intake of medicines (9)
• Well being of children (5+5+5)
• Mental health (GHQ - 12)
• Stress (PSS - 4)
****
• Experience of participation (txt)
• Other (txt)

In addition for exposed population:
• PTSD (4)
• Exposure (5)
• Behavior during eruption (5)
• Property damages (6)
• Support from professionals/others
• Positive consequences (7)

Well being of children
• Respiratory symptoms
• Stomach pain/ nausea
• Headache
• Anxiety/concerns
• Behavioural problems
• Depressed mood
• Sleep disturbance
Children's wellbeing in 2010

- Respiratory symptoms
- Stomach pain
- Anxiety
- Behaviour
- Headache
- Depressed mood
- Sleep disturbance

Non-exposed
Low exposure
Medium exposure
High exposure
## Children’s wellbeing and damages

<table>
<thead>
<tr>
<th>Children’s symptoms</th>
<th>No damage on house</th>
<th>Damage on house</th>
<th>OR (95% CI)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>% (n/N)</td>
<td>% (n/N)</td>
<td></td>
</tr>
<tr>
<td>Anxiety</td>
<td>25,2 (146/580)</td>
<td>37,5 (75/200)</td>
<td>1,78 (1,24 to 2,55)</td>
</tr>
<tr>
<td>Headache</td>
<td>28,8 (166/567)</td>
<td>37,6 (77/205)</td>
<td>1,42 (1,00 to 2,02)</td>
</tr>
<tr>
<td>Depressed mood</td>
<td>22,5 (131/583)</td>
<td>30,7 (62/202)</td>
<td>1,59 (1,09 to 2,30)</td>
</tr>
<tr>
<td>Sleep disturbance</td>
<td>23,8 (138/579)</td>
<td>23,9 (48/201)</td>
<td>1,19 (0,80 to 1,76)</td>
</tr>
<tr>
<td>Stomach pain</td>
<td>27,2 (158/580)</td>
<td>32,8 (67/204)</td>
<td>1,44 (1,00 to 2,02)</td>
</tr>
<tr>
<td>Behavior</td>
<td>19,4 (112/577)</td>
<td>18,4 (37/201)</td>
<td>1,05 (0,68 to 1,61)</td>
</tr>
</tbody>
</table>
## Children’s wellbeing 2010-2013

<table>
<thead>
<tr>
<th></th>
<th>Exposed 2010 (n = 835)</th>
<th>Exposed 2013 (n = 541)</th>
<th>OR (95% CI)†</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>% (n/N)</td>
<td>% (n/N)</td>
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<tr>
<td>Respiratory symptoms</td>
<td>29.9 (236/788)</td>
<td>23.76 (115/484)</td>
<td>0.89 (0.82 to 0.98)</td>
</tr>
<tr>
<td>Stomach pain/nausea</td>
<td>28.5 (226/793)</td>
<td>25.8 (123/476)</td>
<td>0.97 (0.88 to 1.05)</td>
</tr>
<tr>
<td>Headache</td>
<td>28.3 (223/788)</td>
<td>25.9 (124/479)</td>
<td>0.92 (0.84 to 1.00)</td>
</tr>
<tr>
<td>Anxiety/concerns</td>
<td>19.0 (149/786)</td>
<td>25.2 (121/480)</td>
<td>0.94 (0.86 to 1.03)</td>
</tr>
<tr>
<td>Behavioral problems</td>
<td>31.1 (245/789)</td>
<td>17.8 (83/467)</td>
<td>0.98 (0.89 to 1.09)</td>
</tr>
<tr>
<td>Depressed mood</td>
<td>24.6 (195/793)</td>
<td>24.7 (118/478)</td>
<td>1.01 (0.92 to 1.10)</td>
</tr>
<tr>
<td>Sleep disturbance</td>
<td>24.0 (189/789)</td>
<td>21.9 (104/474)</td>
<td>0.98 (0.90 to 1.08)</td>
</tr>
</tbody>
</table>
Children's wellbeing in 2013
Conclusions

• A dose-response relationship between exposure and symptoms, with those in the more exposed areas at greatest risk for physical and psychological symptoms.

• No decrease in symptoms between 2010 and 2013.

• Children exposed to damages to homes at greater risk.

These results underline the importance of appropriate follow-up on children and identification of potential risk groups after a natural disaster.
Plans for 2018
Eyjafjallajökull volcano studies

• **Registry data:** Data analysis, writing of 2 manuscripts, based on the very comprehensive data set (registry data) on respiratory morbidity, sleep disturbances, anxiety and depression following the Eyjafjallajökull eruption – A population-based study.
Avalanche study (aim 1, questionnaire data): Submission/publication of 1 manuscript:

- Disaster-related risk factors associated with sleep disorders among Icelandic avalanche childhood and adult survivors, 16 years post-disaster.

Tsunami study (aim 2, registry data): Submission of manuscript 1:

- Utilization of drugs for sleep disorders during a 10-year follow-up among Swedish adult and childhood survivors of the 2004 Tsunami in South East Asia.
THE SAGA (Stress-And-Gene-Analysis) COHORT
A unique nationwide study on the impact of trauma on women’s health.

The target population are all women in Iceland, 18 years or older, (approximately 110,000 women)

Extensive web-based questionnaire on trauma history and health.

Prospectively followed for diagnoses of major physical diseases and mental disorders

Funded by the European Research Council and the Icelandic Research Fund
Specific aims

1. Lifetime prevalence of various trauma and major adversities among Icelandic women
2. Health consequences suffered by women exposed to trauma or major adversities
3. Genetic contribution to varying health trajectories following exposure to trauma
Measurements

- Pittsburgh Sleep Quality Index
- ACE - Adverse Childhood Experiences International Questionnaire
- The Life Events Checklist
- The Post-traumatic stress disorder Social support
- Depression
- Anxiety
- Charlson Comorbidities Index
- Perinatal depression
<table>
<thead>
<tr>
<th>Event</th>
<th>Happened to me</th>
<th>Witnessed it</th>
<th>Learned about it</th>
<th>Part of my job</th>
<th>Not sure</th>
<th>Doesn’t apply</th>
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</thead>
<tbody>
<tr>
<td>1. Natural disaster (for example, flood, hurricane, tornado, earthquake)</td>
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<td>2. Fire or explosion</td>
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<td>3. Transportation accident (for example, car accident, boat accident, train wreck, plane crash)</td>
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<td>4. Serious accident at work, home, or during recreational activity</td>
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<td>5. Exposure to toxic substance (for example, dangerous chemicals, radiation)</td>
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<td>6. Physical assault (for example, being attacked, hit, slapped, kicked, beaten up)</td>
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<td>7. Assault with a weapon (for example, being shot, stabbed, threatened with a knife, gun, bomb)</td>
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<td>8. Caregiving: a loved one’s illness or death</td>
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</table>
Women of Iceland
In 50 days – 15 000 women have registered