Child maltreatment - Long-term consequences for physical health

Prof. Dr. Jörg M. Fegert
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Introduction
Prevalence – Germany and internationally

- Witt et al.
- Stoltenbourgh et al.

- Emotional Abuse: 6.5, 6.7
- Physical Abuse: 7.6
- Sexual Abuse: 12.7
- Emotional Neglect: 18.4
- Physical Neglect: 22.5
Trauma-Development Heteropia

Schmid, Fegert, Petermann (2010)

- Substance Abuse
- Personality Disorders
- Affektive Disorders
- Bipolar Disorders
- Conduct Disorders
- Emotional Disorders
- Oppositional Defiant Disorders
- ADHD
- Anxiety
- NSSI Suizidality
- Attachment Disorders
- NSSI
- Substance Abuse
- Regulation Disorders
- Biologische Factors

Trauma-related disorders + biological Factors
# Trauma and Somatic disorders

## A Meta-Analytic Review of the Effects of Childhood Abuse on Medical Outcomes in Adulthood

**Holly L. Wegman, MA, and Cinnamon Stetler, PhD**

<table>
<thead>
<tr>
<th>Health Outcome Category</th>
<th>Example of Conditions in This Category</th>
<th>Number of Studies</th>
<th>Mean Effect Size ($d$)</th>
<th>95% Confidence Interval</th>
<th>Fail-Safe N</th>
<th>File-Drawer Effect?</th>
</tr>
</thead>
<tbody>
<tr>
<td>General symptoms/problems</td>
<td>Checklist of health problems</td>
<td>6</td>
<td>0.20</td>
<td>0.13–0.27</td>
<td>10</td>
<td>Yes</td>
</tr>
<tr>
<td>Number of surgeries or hospitalizations</td>
<td>Events requiring overnight hospital stay</td>
<td>6</td>
<td>0.18</td>
<td>0.09–0.27</td>
<td>6</td>
<td>Yes</td>
</tr>
<tr>
<td>Cardiovascular problems</td>
<td>Heart attack, stroke</td>
<td>7</td>
<td>0.66</td>
<td>0.63–0.70</td>
<td>120</td>
<td>Yes</td>
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<tr>
<td>Respiratory problems</td>
<td>Asthma, bronchitis</td>
<td>8</td>
<td>0.71</td>
<td>0.67–0.75</td>
<td>251</td>
<td>No</td>
</tr>
<tr>
<td>Gastrointestinal problems</td>
<td>Hernia, spastic colitis</td>
<td>10</td>
<td>0.63</td>
<td>0.59–0.67</td>
<td>148</td>
<td>No</td>
</tr>
<tr>
<td>Metabolic disorders</td>
<td>Diabetes, obesity</td>
<td>8</td>
<td>0.37</td>
<td>0.33–0.41</td>
<td>66</td>
<td>No</td>
</tr>
<tr>
<td>Gynecological problems</td>
<td>Irregular periods, yeast infections</td>
<td>5</td>
<td>0.06</td>
<td>–0.04–0.16*</td>
<td>n/a</td>
<td>n/a</td>
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<tr>
<td>Neurological problems</td>
<td>Migraines</td>
<td>3</td>
<td>0.94</td>
<td>0.89–0.99</td>
<td>55</td>
<td>No</td>
</tr>
<tr>
<td>Musculoskeletal problems</td>
<td>Arthritis, broken bones</td>
<td>3</td>
<td>0.81</td>
<td>0.76–0.86</td>
<td>48</td>
<td>No</td>
</tr>
<tr>
<td>Other</td>
<td>Autoimmune disorders</td>
<td>8</td>
<td>0.23</td>
<td>0.19–0.27</td>
<td>42</td>
<td>Yes</td>
</tr>
</tbody>
</table>

* Nonsignificant effect.

→ 24 Studies
Good Evidence for mental health outcomes, less for somatic health, esp. neglect
Mechanisms how CM affects the health throughout the lifespan
The "ACE" Pyramid represents the conceptual framework of the ACE-study. It provides evidence for mechanisms by which Adverse Childhood Experiences influence Health and Wellbeing throughout the lifespan.
Mechanisms how CM affects the health and wellbeing throughout the lifespan

Functional alterations:

- Childhood Verbal Abuse (Neuroimage 2011)
- Childhood Sexual Abuse (Biological Psychiatry 2009)
- Harsh Corporal Punishment (Neuroimage 2009)

Alterations HPA-Axis (Chiang et al. 2015):

- Early adversity leads to alterations in HPA functioning in childhood, adolescence and adulthood (Repetti, Robles, & Reynolds, 2011)

- Direction of the effects is complex
  - hypoactive and
  - hyperactive HPA activity

- Variations in type, severity and methods may explain differences

Mechanisms how CM affects the health and wellbeing throughout the lifespan
Neurocognitive Alterations (Kavanaugh et al. (2017)):

• Review of the literature

• 23 studies included
Neurocognitive Alterations (Kavanaugh et al. (2017)):

• Executive functions:

1. **Working Memory**
   - Being able to keep information in mind and then use it in some way. A child might use this skill to read a passage on an English test, hold on to the information, and use it to answer questions.

2. **Cognitive Flexibility** (also known as flexible thinking)
   - Being able to think about something in more than one way. A child might use this skill to answer a math problem in two ways or to find relationships between different concepts.

3. **Inhibitory Control** (includes self-control)
   - Being able to ignore distractions and resist temptation. A child might use this skill to keep from blurtiny out an answer in class. It helps kids regulate their emotions, and keep from acting impulsively.

Executive function is responsible for these five skills:

- Paying attention
- Organizing and planning
- Initiating tasks and staying focused on them
- Regulating emotions
- Self-monitoring (keeping track of what you’re doing)

Link to alterations in prefrontal Cortex
Neurocognitive Alterations (Kavanaugh et al. (2017)):

- Memory:
  - Link to alterations in hippocampus
  - and corpus callosum
Mechanisms how CM affects the health and wellbeing throughout the lifespan

Neurocognitive Alterations (Kavanaugh et al. (2017):

- Intelligence

- Language skills

- Visuo-spatial skills
Neurocognitive alterations influencing factors are:

- Duration of abuse/neglect
- Severity
- Type
- Timing during development
Pathomechanisms

Child maltreatment

Oxytocin
Endocannabinoids
Cortisol
Catecholamines
Monoamines

Health Behavior

Somatic Disorders

Mental Disorders

Loss of quality of life and life expectancy

IL-1β
TNF-α
IL-6
IFN-γ
Results
Sample

- Random Route approach
- Kish selection Grid
- N=2436
- Sex:
  - 46.7% male
  - 53.3% female
- Age: M=48.4 Jahre (14 - >90)

Instruments:
- CTQ
- Self – report of diseases
Prevalence of Diseases

- Obesity: 16.7%
- Diabetes: 6.6%
- Cancer: 4.4%
- Hypertension: 23.3%
- Myocardial Infarction: 2.4%
- COPD: 1.2%
- Stroke: 2.2%
Prevalence of Child Maltreatment

- Emotional Abuse: 6.5%
- Physical Abuse: 6.7%
- Sexual Abuse: 7.6%
- Emotional Neglect: 13.3%
- Physical neglect: 22.5%
- Any form of maltreatment: 30.8%
Obesity

<table>
<thead>
<tr>
<th>Abuses</th>
<th>none-minimal</th>
<th>low-moderate</th>
<th>moderate-severe</th>
<th>severe-extreme</th>
</tr>
</thead>
<tbody>
<tr>
<td>Emotional abuse ***</td>
<td>14.3%</td>
<td>25.6%</td>
<td>31.6%</td>
<td>30.2%</td>
</tr>
<tr>
<td>Physical abuse ***</td>
<td>15.4%</td>
<td>22.1%</td>
<td>25.9%</td>
<td>34.1%</td>
</tr>
<tr>
<td>Sexual abuse***</td>
<td>15.4%</td>
<td>21.0%</td>
<td>25.8%</td>
<td>31.5%</td>
</tr>
<tr>
<td>Emotional neglect **</td>
<td>14.8%</td>
<td>17.5%</td>
<td>21.2%</td>
<td>24.1%</td>
</tr>
</tbody>
</table>

Participants with obesity
Diabetes

Participants with diabetes

<table>
<thead>
<tr>
<th></th>
<th>none-minimal</th>
<th>low-moderate</th>
<th>moderate-severe</th>
<th>severe-extreme</th>
</tr>
</thead>
<tbody>
<tr>
<td>Emotional abuse **</td>
<td>5.8%</td>
<td>8.7%</td>
<td>13.7%</td>
<td>12.7%</td>
</tr>
<tr>
<td>Physical abuse ***</td>
<td>5.8%</td>
<td>9.0%</td>
<td>9.9%</td>
<td>19.8%</td>
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<tr>
<td>Sexual abuse ***</td>
<td>6.1%</td>
<td>3.9%</td>
<td>12.1%</td>
<td>16.7%</td>
</tr>
<tr>
<td>Emotional neglect **</td>
<td>5.1%</td>
<td>7.3%</td>
<td>11.8%</td>
<td>10.0%</td>
</tr>
<tr>
<td>Physical neglect ***</td>
<td>4.4%</td>
<td>8.1%</td>
<td>9.5%</td>
<td>13.3%</td>
</tr>
</tbody>
</table>
Cancer

Participants with cancer

<table>
<thead>
<tr>
<th></th>
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<th>low-moderate</th>
<th>moderate-severe</th>
<th>severe-extreme</th>
</tr>
</thead>
<tbody>
<tr>
<td>Emotional abuse ***</td>
<td>3.8%</td>
<td>3.3%</td>
<td>11.7%</td>
<td>11.3%</td>
</tr>
<tr>
<td>Physical abuse ***</td>
<td>3.7%</td>
<td>5.6%</td>
<td>9.9%</td>
<td>12.3%</td>
</tr>
<tr>
<td>Sexual abuse ***</td>
<td>3.9%</td>
<td>2.6%</td>
<td>5.3%</td>
<td>23.1%</td>
</tr>
<tr>
<td>Emotional neglect **</td>
<td>3.0%</td>
<td>5.6%</td>
<td>7.3%</td>
<td>6.9%</td>
</tr>
<tr>
<td>Physical neglect ***</td>
<td>2.9%</td>
<td>5.2%</td>
<td>7.0%</td>
<td>7.4%</td>
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</tbody>
</table>
Myocardial infarction

<table>
<thead>
<tr>
<th>Type of Abuse</th>
<th>none-minimal</th>
<th>low-moderate</th>
<th>moderate-severe</th>
<th>severe-extreme</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Emotional abuse</strong></td>
<td>2.0%</td>
<td>2.3%</td>
<td>6.4%</td>
<td>7.9%</td>
</tr>
<tr>
<td><strong>Physical abuse</strong></td>
<td>1.8%</td>
<td>4.2%</td>
<td>4.9%</td>
<td>11.0%</td>
</tr>
<tr>
<td><strong>Sexual abuse</strong></td>
<td>2.2%</td>
<td>3.2%</td>
<td>1.5%</td>
<td>9.4%</td>
</tr>
<tr>
<td><strong>Emotional neglect</strong></td>
<td>1.7%</td>
<td>2.3%</td>
<td>6.6%</td>
<td>4.3%</td>
</tr>
<tr>
<td><strong>Physical neglect</strong></td>
<td>1.4%</td>
<td>1.9%</td>
<td>4.0%</td>
<td>7.8%</td>
</tr>
</tbody>
</table>
Stroke

Participants with Stroke

<table>
<thead>
<tr>
<th></th>
<th>none-minimal</th>
<th>low-moderate</th>
<th>moderate-severe</th>
<th>severe-extreme</th>
</tr>
</thead>
<tbody>
<tr>
<td>Emotional abuse ***</td>
<td>1.9%</td>
<td>1.7%</td>
<td>7.5%</td>
<td>6.3%</td>
</tr>
<tr>
<td>Physical abuse ***</td>
<td>1.8%</td>
<td>2.8%</td>
<td>2.5%</td>
<td>12.2%</td>
</tr>
<tr>
<td>Sexual abuse **</td>
<td>1.9%</td>
<td>2.6%</td>
<td>3.1%</td>
<td>9.4%</td>
</tr>
<tr>
<td>Emotional neglect ***</td>
<td>1.5%</td>
<td>2.3%</td>
<td>5.4%</td>
<td>5.6%</td>
</tr>
<tr>
<td>Physical neglect ***</td>
<td>1.1%</td>
<td>2.3%</td>
<td>3.1%</td>
<td>8.3%</td>
</tr>
</tbody>
</table>
Participants with COPD

<table>
<thead>
<tr>
<th>Type of Abuse</th>
<th>none-minimal</th>
<th>low-moderate</th>
<th>moderate-severe</th>
<th>severe-extreme</th>
</tr>
</thead>
<tbody>
<tr>
<td>Emotional abuse **</td>
<td>0,9%</td>
<td>1,3%</td>
<td>3,2%</td>
<td>6,3%</td>
</tr>
<tr>
<td>Physical abuse*</td>
<td>1,0%</td>
<td>1,4%</td>
<td>3,7%</td>
<td>3,7%</td>
</tr>
<tr>
<td>Sexual Abuse ***</td>
<td>1,0%</td>
<td>1,9%</td>
<td>0,0%</td>
<td>9,4%</td>
</tr>
<tr>
<td>Emotional neglect ***</td>
<td>0,7%</td>
<td>0,8%</td>
<td>3,3%</td>
<td>3,7%</td>
</tr>
<tr>
<td>Physical neglect ***</td>
<td>0,4%</td>
<td>1,7%</td>
<td>2,8%</td>
<td>3,2%</td>
</tr>
</tbody>
</table>
Number of types of child maltreatment

Smoking
Alcohol abuse
Depression
Anxiety
NSSI
Suicide attempts
Obesity
Diabetes
Cancer
Hypertension
Heart attack
COPD
Stroke
Anzahl Typen von Misshandlung

- Smoking
- Alcohol abuse
- Depression
- Anxiety
- NSSI
- Suicide attempts
- Obesity
- Diabetes
- Cancer
- Hypertension
- Heart attack
- COPD
- Stroke
Anzahl Typen von Misshandlung

Smoking
Alcohol abuse
Depression
Anxiety
NSSI
Suicide attempts
Obesity
Diabetes
Cancer
Hypertension
Heart attack
COPD
Stroke
Anzahl Typen von Misshandlung:

- Smoking
- Alcohol abuse
- Depression
- Anxiety
- NSSI
- Suicide attempts
- Obesity
- COPD
- Stroke
- Diabetes
- Cancer
- Hypertension
- Heart attack

Anzahl Typen von Misshandlung: 3
Anzahl Typen von Misshandlung

- Smoking: OR=9.6
- Alcohol abuse: OR=6.3
- Depression: OR=10.6
- Anxiety: OR=9.2
- NSSI: OR=5.6
- Suicide attempts: OR=7.3
- Obesity: OR=7.5
- Diabetes: OR=7.9
- Cancer: OR=9.6
- Hypertension: OR=9.2
- Heart attack: OR=5.6
- COPD: OR=7.3
- Stroke: OR=6.3

Häufigkeit der folgenden Gesundheitsprobleme in Abhängigkeit von der Anzahl von Misshandlungen: 0, 1, 2, 3, ≥4
Summary

- Any type of child maltreatment (including neglect) is associated with a higher risk of obesity, diabetes, cancer, hypertension, COPD, heart attack and stroke.

- Increasing intensity of the individual forms of maltreatment is associated with higher rates of all the diseases examined.

- The more forms of child maltreatment have been experienced, the higher the risk of all assessed diseases.
Limitations

• Cross-sectional design

• Survey by (retrospective) self-report of the participants

→ Longitudinal studies with clinical investigations necessary
Conclusions

• Child maltreatment (including neglect) is an underestimated risk factor for the leading causes of morbidity and mortality in Germany

• Presumably high interaction between psychological and somatic consequences of child maltreatment

• Comprehensive consequences at individual and socio-economic level

• Child maltreatment should be given more consideration in somatic medicine
Thank you!