Sticks, Stones, and Words: Correlates of Violence and Survival

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What we have learned from the Adverse Childhood Experiences (ACE) Study is that...

Childhood Adversities are related to overweight, diabetes...
Impact of Childhood Adversities

Adverse Childhood Experiences

Neurodevelopmental and Biological Adaptation

Social, Emotional, and Cognitive Impairment

Adoption of Health-risk Behaviors

Disease, Disability and Social Problems

Early Death

Introduction - First Study - Second Study - Third Study - Conclusion
Research Questions

**First Study:** Do childhood adversities affect the Cortisol stress response (in patients with trauma spectrum disorders)?

**Second Study:** Do type and timing of childhood adversities matter for symptoms of dissociation (in patients with psychotic spectrum disorders)?

**Third Study:** The third study sought to clarify the impact of childhood adversities on illness severity, outcome measures in patients with psychotic spectrum disorders.
First Study:
The cortisol paradox of trauma-related disorders

Schalinski, Elbert & Kirschbaum
Background: The HPA axis

Hypothalamus

CRH

Pituitary Gland

ACTH

Adrenal Gland

Cortisol
Background:
Individuals who present with a trauma spectrum disorder frequently have an altered regulation of the hypothalamic-pituitary-adrenal (HPA) axis (see for a meta-analysis and reviews: Meewisse et al., 2008; Miller, Chen, & Zhou, 2007; Shea et al., 2005).

But there are inconsistencies about the direction (downregulation vs. hyperactivity of the HPA axis).

in short-term measure of Cortisol (Saliva: Shea et al., 2005)
in long-term measure of Cortisol (Hair: Steudte et al., 2011; 2013)

Both early life stress as well as the number of lifetime traumatic experiences seem to be powerful modulators of individual HPA axis activity.
Participants:

N = 43 female survivors of organised violence with Posttraumatic Stress Disorder (PTSD) and different levels of Childhood Adversities

The following traumatic event types were reported most frequently: Physical assault with life threat (72%), assault with a weapon (62%) and sexual assault (58%).
Method: „Phasic Cortisol Response“

Schematic Description of the Structured Interview and Physiological Assessment

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SD = 0:32 \text{ min} \\
SD = 0:49 \text{ min} \\
SD = 0:49 \text{ min} \\
SD = 0:56 \text{ min} \\
SD = 0:49 \text{ min}
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Method: „Long-term Levels of Cortisol“
Introduction

First Study

Second Study

Third Study

Conclusion

Results

Change in Salivary Cortisol

Heart Rate Change

Change in Systolic Blood Pressure

Change in Diastolic Blood Pressure

Time in Minutes in Relation to Trauma Assessment

Change in Salivary Cortisol in nmol/l

Heart Rate Change (in bpm)

Change in Systolic Pressure (in mm Hg)

Change in Diastolic Pressure (in mm Hg)

No Childhood Sexual Abuse
Childhood Sexual Abuse

*
Results

**Segment 1**

- **Severity of Childhood Adversities**
  - Median Quotient
  - Plot showing data points for Patient and Control groups.

- **Number of Different Traumatic Event Types**
  - Median Quotient
  - Plot showing data points for Patient and Control groups.

**Segment 2**

- **Severity of Childhood Adversities**
  - Median Quotient
  - Plot showing data points for Patient and Control groups.

- **Number of Different Traumatic Event Types**
  - Median Quotient
  - Plot showing data points for Patient and Control groups.
Results

![Image of hair strands]

- **Severity of Childhood Adversities**
  - **Median Quotient**
    - Patient: 0, 10, 20, 30, 40
    - Control: 0, 10, 20, 30, 40

- **Number of Different Traumatic Event Types**
  - **Median Quotient**
    - Patient: 0, 2, 4, 6, 8, 10
    - Control: 0, 2, 4, 6, 8, 10

- **Hair Cortisol Level**
  - **Segment 1: \( R^2_{adj} = 0.25 \)**
  - **Segment 2: \( R^2_{adj} = 0.35 \)**

- **Correlation**
  - \( r = 0.38 \)

| Segment 1 (3 cm) | Segment 2 (3 cm) |
Conclusion

- **Short-term:** Distinct reactivity pattern for the group with childhood sexual abuse vs. without childhood sexual abuse
- **Long-term:** Positive relationship between childhood adversities as well as traumatic stress load and hair cortisol
- **Both** childhood adversities as well as traumatic stress contribute to increased levels of hair cortisol
- **Short-term and long-term** cortisol responses are capable to show both, down regulation in short-term levels (saliva cortisol), but increase in long-term (hair cortisol).
- **Early exposure** to adversities may results in a biological distinct phenotype
Second Study:
Type and Timing of Childhood Maltreatment and Severity of Shutdown Dissociation in Patients with Schizophrenia Spectrum Disorder

Schalinski & Teicher, 2014
Background:

Dissociation, particularly the shutting down of sensory, motor and speech systems, has been proposed to emerge in susceptible individuals as a defensive response to traumatic stress (Schauer & Elbert, 2010).

Compelling evidence shows that the exposure to adverse experiences in childhood, leads to an increase of dissociative symptoms in adults with schizophrenia (e.g., Goff et al., 1991).

A history of adverse childhood experiences is common in patients with severe psychopathology, especially patients diagnosed with psychotic disorders (Holowka, King, Saheb, Pukall & Brunet, 2003; Sar et al., 2009; Schäfer et al., 2006).
The defense Cascade Model

The diagram shows the transition from sympathetic dominance to parasympathetic dominance, represented by the terms: fright, fight, flight, freeze, flag, and faint. The axis represents the shutdown dissociation scale.

Shutdown Dissociation Scale - Interview

Item: Have you felt like you couldn’t hear for a while, as if you were deaf? When people were talking to you, did they sound far away?
Response:
(0) not at all
(1) once a month/or less
(2) several times a month
(3) several times a week

Schalinski, Schauer & Elbert, 2014; Schauer & Elbert, 2010
Research Questions:

Does the type of Childhood Adversity matter for Shutdown Dissociation?

Does the timing matter for Shutdown Dissociation?
Method:
Participants: \( N = 75 \) patients with psychotic spectrum disorder

Instruments:
**MACE** (= Maltreatment and Abuse Chronology of Exposure)- Scale (Isele et al., 2014; Teicher & Parigger, 2011)
**Shutdown-Dissociation Scale** (Schalinski, Schauer, & Elbert, submitted)
Results „Type of Adversity“

Sensitivity by Type of Maltreatment – shutdown_sum (cforest)

- Emotional Neglect
- Non-Verbal Emotional Abuse
- Parental Verbal Abuse
- Peer Emotional Abuse
- Peer Physical Abuse
- Physical Maltreatment
- Physical Neglect
- Sexual Abuse
- Witnessing Interparental Abuse
- Witnessing Sibling Abuse

Types of Maltreatment

Importance (± 95% CI)
Results „Timing“

Sensitive Period Analysis – shutdown_sum (cforest)

Explains 31% of the variation of Shutdown Dissociation
Conclusion

We found differential timing effects across the childhood with peak vulnerability occurring at 13-14 years of age.

The impact of specific types of childhood adversities on severity of shutdown dissociation:
Emotional neglect > exposure to peer emotional abuse > parental non-verbal emotional abuse > parental verbal abuse
Third Study:
Impact of Childhood Adversities on the Short-term Course of Illness in Psychotic Spectrum Disorders

Schalinski, Fischer & Rockstroh
Background

- Accumulating evidence shows that childhood adversities modify the course of mental disorders. It is still unclear, how early life stress affect the course in psychotic patients.
- Understanding factors that influence the short-term outcome (in inpatient settings) are important to unmask prognostic factors, and improve therapeutic strategies.
- By stratifying two groups of patients with low versus high childhood adversities, we compared indicators of illness severity (number of current comorbid psychiatric diagnoses), short-term symptom course across a 4 months period of observation.
Method
Participants
N = 62 inpatients with a diagnosis of psychotic disorder

Instruments
Using the **MACE Maltreatment and Abuse Chronology of Exposure (MACE) Scale** A comprehensive profile of types of childhood adversities should improve understanding of the pathways and consequences (Isele et al., 2014)

**Positive and Negative Syndrome Scale** (PANSS; Kay, Fiszbein, & Opler, 1987)
Using stringent criteria proposed by Andreasen and colleagues (2005), symptomatic remission was defined with a maintaining period of 3 months.
Results

72% report at least one type of childhood adversity

and

around half (53%) of the sample fulfilled the maltreatment and abuse criteria of two or more different types

Schalinski, Fischer & Rockstroh, 2014
## Results

<table>
<thead>
<tr>
<th>Severity of Illness</th>
<th>Low Childhood Adversities (n = 29)</th>
<th>High Childhood Adversities (n = 33)</th>
<th>Statistics for Group Difference</th>
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<tr>
<td>Number of Individuals with Axis I Comorbidities</td>
<td>1 (3%)</td>
<td>16 (49%)</td>
<td>$\chi^2(1,62) = 15.73$ $p &lt; .001$</td>
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<td>Number of Individuals with Abuse or Addiction Diagnosis (ICD-10: F10- F19)</td>
<td>1 (3%)</td>
<td>12 (36%)</td>
<td>$\chi^2(1,62) = 10.09$ $p = .002$</td>
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Results

Remission Rate:
26% for the group with high Childhood Adversities vs. 39% for the group with low Childhood Adversities

Schalinski, Fischer & Rockstroh, 2014
Results

MCCB Cognitive Domain

- Speed of Processing
- Attention Vigilance
- Working Memory
- Verbal Learning
- Visual Learning
- Reasoning and Problem Solving
- Social Cognition
- Overall Composite Score

Nuechterlein et al., 2008; Schalinski, Carolus & Rockstroh, 2014
Results

**Working Memory**

![Graph showing working memory scores](image)

**Social Cognition**

![Graph showing social cognition scores](image)

References:

Schalinski, Carolus & Rockstroh, 2014
Conclusion of the Third Study

• Early life stress was associated with clinical complexity (higher rates of comorbidity)
• Positive and global symptoms were higher at 4 months follow-up in the group with high compared to the group with low exposure of childhood adversities ... and predicted an unfavorable symptomatic course.
• Childhood adversities were related to poorer performance in working memory and social cognition.

Schalinski, Carolus, & Rockstroh in prep; Schalinski, Fischer & Rockstroh, 2014
General Conclusion
Childhood Adversities are related to...

• distinct stress response (downregulation in short-term, but increased levels of Cortisol in long-term)
• type and timing of adversities matters for symptoms of dissociation
• poorer symptomatic outcome
• poorer cognitive performance (working memory & social cognition)
General Conclusion

• Childhood adversities in mental illness may constitute a subtype within various diagnoses (see review Teicher & Samson, 2013)

• The timing and type of early life stress may contribute as well for the striking variation of behavioral, emotional and cognitive psychopathology.

• ... hurtful words will injure my soul
Thanks y'all
DANKE

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Team der Station 33
Team der Station 34
  Thomas Elbert
Universität Konstanz
  vivo victims‘s voice
  Yolanda Fischer
References


Schalinski, Carolus, & Rockstroh in prep. The MACTRICS Consensus Cognitive Battery (MCCB): Environmental Effects on Cognition in Schizophrenia
References


the Maltreatment and Abuse Chronology of Exposure

MACE Scale
Parental & Verbal Abuse

Sometimes parents, stepparents or other adults living in the house do hurtful things. If this happened during your childhood (first 18 years of your life) please provide your best estimate of your age at the time(s) of occurrence.

1. Swore at you, called you names, said insulting things like your “fat”, “ugly”, “stupid”, etc. more than a few times a year.

Please check all ages that apply.

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18

X X X X

Parental Verbal Abuse
Some parents, stepparents or other adults living in the house do hurtful things. If this happened during your childhood (first 18 years of your life) please provide your best estimate of your age at the time(s) of occurrence.

6. Locked you in a closet, attic, basement or garage.
   Please check all ages that apply.

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Please indicate if this made you feel helpless or terrified.

Nonverbal Emotional Abuse
Teicher & Parigger, 2011

Sometimes parents, stepparents or other adults living in the house do hurtful things. If this happened during your childhood (first 18 years of your life) please provide your best estimate of your age at the time(s) of occurrence.

12. Spanked you with an object such as a strap, belt, brush, paddle, rod, etc. Please check all ages that apply.

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Please indicate if this made you feel helpless or terrified.

Parental Physical Abuse
Teicher & Parigger, 2011

Please indicate if the following happened during your childhood (first 18 years of your life). Please provide your best estimates of your age at the time(s) of occurrence. Please check all ages that apply.

51. You felt that your mother or other important maternal figure was present in the household but emotionally unavailable to you for a variety of reasons like drugs, alcohol, workaholic, having an affair, heedlessly pursuing their own goals. Please check all ages that apply.

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Emotional Neglect
Teicher & Parigger, 2011

Please indicate if the following statements were true about you and your family during your childhood, and your age at the time(s) you felt this to be true. Please check all ages that apply.

62. You didn’t have enough to eat. Please check all ages that apply.

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Physical Neglect
Some parents, stepparents or other adults living in the house do hurtful things to your siblings (brother, sister, stepsiblings).
If this happened during your childhood (first 18 years of your life) please provide your best estimates of your age at the time(s) of occurrence. Please check all ages that apply.

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Intentionally pushed, grabbed, shoved, slapped, pinched, punched, or kicked your sibling (stepsibling). Please check all ages that apply.

Please indicate if this made you feel helpless or terrified.

Witnessing Violence to Siblings
Teicher & Parigger, 2011

Sometimes children your own age or older do hurtful things like bully or harass you. If this happened during your childhood (first 18 years of your life) please provide your best estimates of your age at the time(s) of occurrence. Please check all ages that apply.

40. Said hurtful things that made you feel bad, embarrassed or humiliated more than a few times a year. Please check all ages that apply.

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Please indicate ages when (if) the person doing this to you was a date.

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Peer Emotional Abuse
Teicher & Parigger, 2011

Sometimes children your own age or older do hurtful things like bully or harass you. If this happened during your childhood (first 18 years of your life) please provide your best estimates of your age at the time(s) of occurrence. Please check all ages that apply.

46. Intentionally pushed, grabbed, shoved, slapped, pinched, punched, or kicked you. Please check all ages that apply.

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|   |   |   |   |   | X | X | X | X |   |   |   |   |   |   |   |   |   |   |

Please indicate ages when (if) the person doing this to you was a date.

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|   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   | X | X |   |

Peer Physical Bullying
Teicher & Parigger, 2011

Sometimes intense arguments or physical fights occur between parents, stepparents or other adults (boyfriends, girlfriends, grandparents) living in the household. If this happened during your childhood (first 18 years of your life) please provide your best estimates of your age at the time(s) of occurrence. Please check all ages that apply.

32. Witnessed adults living in the household argue intensely with your father (stepfather, grandfather), say derogatory things to him, or threaten him with harm. Please check all ages that apply.

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Please indicate if this made you feel helpless or terrified.

Witnessing Interparental Violence
Sometimes adults or older individuals NOT living in the house do hurtful things to you. If this happened during your childhood (first 18 years of your life) please provide your best estimates of your age at the time(s) of occurrence. Please check all ages that apply.

28. Had you touch their body in a sexual way.
   Please check all ages that apply.

   1  2  3  4  5  6  7  8  9  10  11  12  13  14  15  16  17  18

   Yes
   No

   Please indicate if this made you feel helpless or terrified.

Sexual Abuse
Timing in Relation to Positive and Negative Symptoms in Schizophrenia
Freeze:
interruption of the ongoing perceptual and behavioral processes; turning all perceptual channels to the threatening stimulus; while the body prepares for active defense responses
FAST but less accurate
1. What happens in the brain and the body during the traumatic event?

Flight/ Fight
Sympathetic arousal (heart beat acceleration, skin conductance), release of adrenal hormones
1. What happens in the brain and the body during the traumatic event?

Fright/ Tonic immobility immobile behavior/ sensory stimuli are still perceived, if there is a chance to escape, victim may escape
1. What happens in the brain and the body during the traumatic event?

Flag/ Faint
Parasympathetic dominance: drop in heart rate, blood pressure, shutting down the perceptual processing, dizziness, analgesia; emotional numbness
1. What happens in the brain and the body during the traumatic event?

- direct physical contact with the perpetrator
- presence of body fluids (e.g., blood, sperm)
- depending on the victims own power for defense (e.g., children are more likely to show a “shutdown” response)
- contact with sharp objects (e.g., teeth, knife)
Results

Working Memory

Social Cognition

Schalinski, Carolus & Rockstreh, 2014
Results

Working Memory

Social Cognition

Importance of Exposure to Each Type of Adversity for 'Working Memory'

Importance of Exposure to Each Type of Adversity for 'Social Cognition'

Type of Childhood Adversity

Schalinski, Carolus & Rockstroh, 2014