The role of Adverse Childhood Experiences (ACEs) in clinical disorders: A new assessment tool and evaluation of links with borderline personality symptoms

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Contents

List of tables

List of figures

Abbreviations

ACE(s)	Adverse Childhood Experience(s)
ACE Index	Adverse Childhood Experiences Index
ADHD	Attention deficit hyperactivity disorder
BPD (BPS)	Borderline Personality Disorder (Borderline-Persönlichkeitsstörung)
BSL	Borderline Symptom List
CML	Conditional Maximum-Likelihood
CoF	Center of force
CTT	Classical test theory
CTQ	Childhood Trauma Questionnaire
D	Depression (group)
DSED	Disinhibiting Social Engagement Disorder
DSM	Diagnostical and Statistical Manual of Mental Disorders
EC	Eyes closed
EFI	Esslinger Fitness Index
EN/en	KERF/ *pedi*MACE subscale *emotional neglect*
Eo	Eyes open
ETI	Early Trauma Inventory
HAM-D	Hamilton Depression Scale
ICD	International Statistical Classification of Diseases and Related Health Problems
IRT	Item response theory/probabilistic test theory
Hc	Healthy control (group)
HPA axis	Hypothalamic-puitary-adrenal axis
JVQ	Juvenile Victimization Questionnaire
KERF	Belastende Kindheitserfahrungen (Scale)
Loss	*Pedi*MACE subscale *parental loss*
MACE	Maltreatment and Abuse Chronology of Exposure
MACE-X	Maltreatment and Abuse Chronology of Exposure (75 items version)
Pea	*Pedi*MACE subscale *parental emotional violence*
Peer	*Pedi*MACE subscale *peer violence*
PEERE	KERF subscale *peer emotional violence*
PEERP	KERF subscale *peer physical violence*

***pedi*MACE**	*Pediatric* MACE interview
PET	Positron emission tomography
PPA/ppa	KERF subscale *parental physical abuse/ pedi*MACE *parental physical violence*
PN/pn	KERF/ *pedi*MACE subscale *physical neglect*
PNVEA	KERF subscale *parental nonverbal emotional abuse*
PTSD/PTBS	Posttraumatic Stress Disorder/Posttraumatische Belastungsstörung
PVA	KERF subscale *parental verbal abuse*
RAD	Reactive Attachment Disorder
RPQ	Reactive-Proactive Aggression Questionnaire
SDQ	Strengths and Difficulties Questionnaire
Shut-D	Shutdown Dissociation Scale
Sea	*Pedi*MACE subscale *emotional violence by sibling(s)*
Spa	*Pedi*MACE subscale *physical violence by sibling(s)*
Sway	Sway index
TESI	Traumatic Events Screening Inventory
UPID	University of California at Los Angeles Post-traumatic Stress Disorder Reaction Index
US	United States of America
V_COF	Relative path length per second
VEX	Violence Exposure Scale
WITP/witp	KERF/ *pedi*MACE subscale *witnessed physical violence toward parents*
WITS/wits	KERF/ *pedi*MACE subscale *witnessed violence toward siblings*

Seldom used statistical IRT parameters

σ	Item severity parameter
ξ	Person ability parameter

Summary

Many children and adolescents are confronted with aversive interpersonal experiences in the course of development (e.g. Felitti et al., 1998; Finkelhor, Turner, Shattuck, & Hamby 2013; Hecker, Hermenau, Isele, & Elbert, 2013; Iffland, Brähler, Neuner, Häuser, & Glaesmer, 2013), which dramatically impact on brain maturation (e.g. Teicher, 2000; Teicher, Andersen, Polcari, Anderson, & Navalta, 2002; Teicher, Rabi et al., 2010), mental and physical ill-health (e.g. Felitti et al., 1998; Herman, Perry, & Van der Kolk, 1989; Kessler, Davis, & Kendler, 1997). More recent enquiries have revealed a variety of event types, even beyond abuse and neglect, such as witnessed violence towards siblings or parents (Teicher & Vitaliano, 2011) and peer violence (Finkelhor, Turner, & Ormrod, 2006; Sansen, Iffland, & Neuner, 2014) being linked to mental health problems. Childhood adversities have been identified as especially psycho-toxic when experienced during early childhood (Dunn, McLaughlin, Slopen, Rosand, & Smoller, 2013; Jaffee & Kohn Maikovich-Fong, 2011; Kaplow & Widom, 2007) and in multiple forms (e.g. Chapman, Whitfield, Felitti, Edwards, & Anda, 2004; Dube et al., 2009; Felitti et al., 1998; Whitfield, Dube, Felitti, & Anda, 2005). Some researchers emphasized the importance of a more differentiated analysis of links between individual event types and distinct psychopathological dimensions, precisely considering the time of occurrence (e.g. Khan et al., 2015; Schalinski & Teicher, 2015). The development of the **M**altreatment and **A**buse **C**hronology of **E**xposure (**MACE**; Teicher & Parigger, 2011, 2015) precisely enabled such a nuanced assessment of several mayor interpersonal adversities with an additional focus on the timing of exposure.

The first article of the present thesis (Isele, Teicher et al., 2014) delineates the development and psychometric testing of the German version of the MACE, the 'Belastende **K**indheits**erf**ahrungen' **(KERF**; Isele, Parigger, Ruf, Elbert, & Schauer, 2014) Scale, to make it accessible to German-speaking researchers and clinicians. The instrument was translated into German, slightly modified for reasons of cultural sensitivity, and validated, based on interview data from 165 adult females. Separate Rasch modeling was performed to iteratively optimize ten KERF-subscales. Correlational analysis with the Childhood Trauma Questionnaire (CTQ, Bernstein et al., 2003; Wingenfeld et al., 2010), verified the convergent validity of the KERF. Significant associations with psychopathology, in the sense of depressive, dissociative and borderline symptoms, revealed its construct validity and clinical relevance on subscale and overal level (for the instrument as a whole).

The second part of this thesis (Isele, Hecker et al., 2015) focuses on the evolution and validation of an interview version of this tool, applicable for children and adolescents approximately from elementary school age on; both for research purposes and to facilitate the more early identification of burdened children by clinical experts. The 45-items '***pedi**atric* **MACE** interview' (***pedi*MACE**; Isele, Ruf-Leuschner, Schauer, & Elbert, 2015) was evaluated on 411 Tansanian elementary school children. Ten subscales were modelled by separate Rasch analysis. Significant associations between these subscales as well as the overall instrument and measures of psychopathology, inter alia aggression and posttraumatic stress disorder (PTSD), were found.

The third part of the present thesis targets on the topic of developental epidemiology of childhood adversities and identified, in line with findings by Teicher and Parigger (2015), different event types varying in prevalence at distinct age periods. This again demonstrates the need of a detailed assessment of childhood advesities across the entire childhood and youth, in the style of the *pediatric* MACE interview.

The fourth part of this thesis (Isele, Schauer, Ruf-Leuschner, Kraus, Gruber, & Elbert, 2015) investigates on links between childhood adversities, measured by the KERF Scale, Borderline Personality Disorder (BPD) symptoms and postural balance performance, as a behavioral indicator of cerebellar functionning. Schauer, Teicher, Anderson, and Elbert (2015) hypothize that childhood adversities, such as experiences of early neglect and involved sensomotor-vestibular deprivation are detremental to cerebellar vermal development – a neurological structure associated with both BPD (Schauer, Eckart, Schmahl, & Elbert, 2015) and postural balance control (for review see Morton & Bastian, 2004). Our research, based on 72 adult females, including BPD patients, patients suffering from depression and healthy subjects, on event type level indicated the relevance of *parental non-verbal emotional abuse* and *sexual abuse* in association with symptoms of the BPD spectrum. Stress-based dissociation, partially maintained by impulsive aggression, resulted as a strong predictor of BPD symptom severity. Beyond childhood adversities we found postural balance performance linked to BPD, in an analysis among a subsample of 43 female participants.

Further research is needed on associations between adverse childhood experiences, neurobiological deficits and mental-ill health, in terms of BPD and beyond. The present thesis contributes to this project by developing and validating diagnostic tools to assess interpersonal childhood adversities in its breadth, plus the age of exposure. Furthermore there

is the option of profitably employing these tools for psychological assessment and interventions.

Zusammenfassung

Viele Kinder und Jugendliche sind im Verlauf ihrer Entwicklung belastenden interpersonalen Erfahrungen ausgesetzt (z. B. Felitti et al., 1998; Finkelhor et al., 2013; Hecker et al., 2013; Iffland et al., 2013). Drastische Auswirkungen auf die Hirnentwicklung (z. B. Teicher, 2000; Teicher et al., 2002; Teicher, Rabi et al., 2010), die psychische aber auch die körperliche Gesundheit (z. B. Felitti et al., 1998; Herman et al., 1989; Kessler et al., 1997) sind die Folge. Neurer Untersuchungen zeigen, dass neben Missbrauchs- und Vernachlässigungserfahrungen auch bislang weniger berücksichtigte Ereignistypen, wie beispielsweise bezeugte Übergriffe auf Eltern oder Geschwister (Teicher & Vitaliano, 2011) und Peergewalt (Finkelhor et al., 2006; Sansen et al., 2014) mit psychischen Beeinträchtigungen assoziiert sind. Insbesondere sich in früher Kindheit (Dunn et al., 2013; Jaffee & Kohn Maikovich-Fong, 2011; Kaplow & Widom, 2007) und in multiplen Facetten (z. B. Chapman et al., 2004; Dube et al., 2009; Felitti et al., 1998; Whitfield et al., 2005) ereignende belastende Kindheitserfahrungen stellten sich als psycho-toxisch heraus. Einige Forscher betonen die Bedeutsamkeit einer differenzierteren Analyse der Zusammenhänge einzelner Stressoren mit verschiedenen psychopathologischen Dimensionen, unter Berücksichtigung des Zeitpunkts des Erlebens (z. B. Khan et al., 2015; Schalinski & Teicher, 2015). Die Entwicklung der **M**altreatment and **A**buse **C**hronology of **E**xposure (**MACE**; Teicher & Parigger, 2011, 2015), die relevante interpersonale Belastungen ausführlich und mit Fokus auf den Zeitpunkt des Geschehens erfasst, machte diese Untersuchungen möglich.

Der erste Artikel der vorliegende Dissertation (Isele, Teicher et al., 2014) beschreibt die Entwicklung und psychometrische Prüfung der deutschen Version der MACE, der Skala ‚Belastende **K**indheits**erf**ahrungen **(KERF;** Isele, Parigger et al., 2015)', um dieses Instrument deutschsprachigen klinischen Forschern und Praktikern zugänglich zu machen. Die MACE wurde ins Deutsche übertragen, leicht abgewandelt um Kultursensitivität zu gewährleisten, und an Interviewdaten von 165 erwachsenen Probandinnen validiert. Separate Rasch-Analysen führten iterativ zu einer Optimierung von zehn KERF-Subskalen. Korrelationsanalysen mit dem Childhood Trauma Questionnaire (CTQ, Bernstein et al., 2003; Wingenfeld et al., 2010) belegen die konvergente Validität der KERF. Signifikante Zusammenhänge mit Psychopathologie in Form depressiver, dissoziativer und Borderlinesymptomatik stellen die Konstruktvalidität und klinische Relevanz sowohl der Subskalen als auch des Gesamtinstruments heraus.

Der zweite Teil der vorliegenden Dissertation (Isele, Hecker et al., 2015) hat das Ziel eine für Kinder und Jugendliche, ca. ab dem Grundschulalter, einsetzbare Interviewvariante des Instruments zu entwicklen und zu validieren. Diese soll weiterführende Forschung ermöglichen und klinisch-psychologische Experten dabei unterstützen, belastete Kinder früher zu erkennen. Das 45-Items umfassende ‚***pedi**atric* **MACE** interview' (***pedi*MACE**; Isele, Ruf-Leuschner et al., 2015) wurde unter Verwendung von 411 Datensätzen tansanischer Grundschulkinder geprüft. Mittels separater iterativer Rasch-Analysen wurden zehn Subskalen moduliert. Für diese und das Gesamtinstrument, konnten bedeutsame Zusammenhänge mit Kennwerten für Psychopathologie, unter anderem in Form von Aggressivität und Posttraumatischer Belastungsstörung (PTBS), gefunden werden.

Der dritte Teil dieser Dissertation fokussiert die Entwicklungepidemiologie von balastenden Kindheitserfahrungen und ergab, in Übereinstimmung mit Befunden von Teicher und Parigger (2015), dass verschiedene Belastungsypen in unterschiedlichen Altersabschnitten vermehrt auftreten. Auch dieser Befund zeigt die Relevanz einer detaillierte Erhebung von in der gesamten Kindheit und Jugend erfahrenen Belastungen, im Stiel des *pediatric* MACE interviews, auf.

Der vierte Teil der vorliegenden Doktorarbeit (Isele, Schauer et al., 2015) untersucht Zusammenhänge zwischen aversiven Kindheitserfahrungen, erhoben mit der KERF, den Symptomen der Borderline-Persönlichkeitsstörung (BPS) und der Fähigkeit zur posturalen Gleichgewichtskontrolle, als Indikator cerebellarer Funktionalität. Schauer, Teicher et al. (2015) gehen davon aus, dass sich in der Kindheit erlebte Belastungen, wie frühe Vernachlässigungserfahrungen, im Sinne einer sensomotorisch-vestibulären Deprivation, negativ auf die Entwicklung des Kleinhirn(wurm)s auswirken. - Eine Struktur, die sowohl mit der BPS (Schauer, Eckart et al., 2015) als auch mit posturaler Gleichgewichtskontrolle (Morton & Bastian, 2004) in Verbindung gebracht wird. Unsere Untersuchung, an insgesamt 72 erwachsenen Borderline-Patientinnen, Patientinnen mit einer depressiven Symptomatik und gesunden Kontrollprobandinnen, konnte auf Eventtypenlevel insbesondere *parentale non-verbale emotionale Gewalt*erfahrungen und *sexuelle Übergriffe* als mit BPS-Spektrumsymptomen assoziiert herausarbeiteten. Belastungsassoziierte Dissoziation, partiell durch impulsive aggressive Verhaltensweisen aufrecht erhalten, stellte sich als ein starker Prädiktor der BPS-Symptomschwere heraus. Basierend auf Analysen an einer 43 Probandinnen umfassenden Teilstichprobe zeigte sich die Fähigkeit zur postauralen Gleichgewichtsleistung als mit der BPS-Symptomschwere assoziiert.

Die Zusammenhänge zwischen belastenden Kindheitserfahrungen, neurobiologischen Devianzen und Psychopathologie, hinsichtlich BPS und darüber hinaus, bedürfen weiterer Forschung. Die im Zuge dieser Dissertation erarbeiteten und validierten Instrumente zur umfassenden Erhebung von interpersonalen Kindheitsbelastungen, inklusive der Zeiträume des Geschehens, leisten hierfür einen wertvollen Beitrag. Ferner können diese gewinnbringend im psychodiagnostischen- und psychotherapeutischen Arbeitsfeld eingesetzt werden.

Records of achievement

Article 1. **KERF – ein Instrument zur umfassenden Ermittlung belastender Kindheitserfahrungen - Erstellung und psychometrische Beurteilung der deutschsprachigen MACE (Maltreatment and Abuse Chronology of Exposure) Scale**

Dorothea Isele, Martin H. Teicher, Martina Ruf-Leuschner, Thomas Elbert, Iris-Tatjana Kolassa, Katharina Schury und Maggie Schauer (publiziert in *Zeitschrift für Klinische Psychologie und Psychotherapie, 2014, 43* (2), 121-130.

My contributions:

- substantial contribution in the development/ translation of the instrument (see appendix)
- development of additional material of the instrument (see appendix)
- carried out and supervised a part of the clinical interviews
- conducted the statistical analysis
- drafted the manuscript

Manuscript 2. **Assessing exposure to adversities in children: The pediatric Maltreatment and Abuse Chronology of Exposure Interview**

Dorothea Isele, Tobias Hecker, Katharin Hermenau, Martina Ruf-Leuschner, Maggie Schauer, James Moran, Martin H. Teicher, & Thomas Elbert (manuscript re-submitted for publication)

My contributions:

- substantial contribution in the development of the instrument (see appendix)
- development of additional material of the instrument (see appendix)
- carried out a minor part of the clinical interviews
- conducted the statistical analysis
- drafted the manuscript

Manuscript 3. **Exposure patterns in minors- a brief note on the developmental epidemiology of childhood adversities**

Originally part of the manuscript (2) ***Assessing exposure to adversities in children: The pediatric Maltreatment and Abuse Chronology of Exposure Interview***

Dorothea Isele, Tobias Hecker, Katharin Hermenau, Martina Ruf-Leuschner, Maggie Schauer, James Moran, Martin H. Teicher, & Thomas Elbert,

but separated during the revision process.

My contributions (see manuscript 2):

- carried out a minor part of the clinical interviews
- conducted the statistical analysis
- drafted the manuscript

Manuscript 4. **Borderline personality disorder symptoms in relation to adverse childhood experiences and balance performance**

Dorothea Isele, Maggie Schauer, Martina Ruf-Leuschner, Benjamin Kraus, Markus Gruber, & Thomas Elbert (manuscript under revision)

My contributions:

- carried out and supervised an important part of the clinical interviews
- conducted the statistical analysis
- drafted the manuscript

The formatting and formal criteria partly may differ from the original manuscripts, in order to enable uniformity and coherence within the present thesis.

”Our brains are sculpted by our early experiences.

Maltreatment is a chisel that shapes a brain to contend with strife, but at the cost of deep, enduring wounds.“

(Teicher, 2000)

I. Introduction

1. Adverse childhood experiences

1.1. Definition and epidemiology

Adverse and traumatic experiences harmfully impinge on both mental (e.g. Felitti et al., 1998; Hermenau, Hecker, Schauer, Ruf, Elbert, & Schauer, 2011; Kessler et al., 1997) and somatic health (Glaesmer, Brähler, Gündel, & Riedel-Heller, 2011; Pace & Heim, 2011; Sommershof et al., 2009). In particular adversities experienced during early life (Cloitre, Stolbach, Herman, van der Kolk, Wang, & Petkova, 2009) and not least at the hands of others (e.g. Briere, Kaltman, & Green, 2008; Kessler et al., 1995) create an immense and chronic burden.

It is childhood maltreatment (CM), defined as '[a]ny act or series of acts of commission or omission by a parent or other caregiver that results in harm, potential harm, or threat of harm to a child' (Leeb, Paulozzi, Melanson, Simon, & Arias, 2008; *p.* 11), that constitutes the core dimensions of interpersonal childhood adversities. Sexual, physical and psychological abuse as well as neglect, or lack of supervision, are taken into account (Leeb et al., 2008). However, interpersonal adverse childhood experiences are not restricted to these maltreatment criteria, in the narrow sense, but go far beyond. Inter alia, peer victimization (Finkelhor et al., 2006; Sansen et al., 2014) or witnessed domestic violence, have a substantial impact on mental health (Teicher & Vitaliano, 2011).

Adverse childhood experiences (ACEs) have alarmingly high prevalence rates across many cultures: An investigation in the United States (US) among 9508 adults revealed that 52% of the participants experienced at least one ACE type during their childhood and adolescence; 11% reported psychological, 11% physical and 22% sexual abuse (Felitti et al., 1998). The past-year maltreatment exposure rate in a sample of 4503 US minors was quoted at 14% (Finkelhor et al., 2013). The total rate of physical victimization for minors across childhood and adolescence, including assaults through the hands of underage offenders and outside the domestic context, was 41% (Finkelhor et al., 2013). In a representative German study lifetime childhood abuse was reported for 34% of 2500 assessed adults (Iffland et al., 2013). For Tanzania (in a non representative sample) 95% of 409 pupils reported lifetime corporal punishment at the hands of caregivers or teachers (Hecker et al., 2013).

Distinct ACE types are likely to co-occur (Dong, Anda, Dube, Giles, & Felitti, 2003; Dong et al., 2004; Finkelhor et al., 2013; Wingenfeld et al., 2010). The exposure to most forms of

adversities increases the risk of becoming re-victimized by a factor of two or three (Finkelhor et al., 2013). Dong et al. (2004) even reported an increase in likelihood by the factor two to eighteen. This co-occurrence to some extend goes back on social and familial factors (Anda et al., 2002; Belsky, 1980; Dube, Anda, Felitti, Croft et al., 2001). Some researchers postulate a cascading conjunction of victimization and re-victimization, mediated by exposure-based distress (Cuevas, Finkelhor, Clifford, Ormrod, & Turner, 2010).

Science revealed a systematically varying prevalence of victimization across different developmental phases (Finkelhor, Ormrod, & Turner, 2009). In socially challenging time frames, for example when minors are entering or changing schools, the risk of being exposed is particularly elevated (Finkelhor, Ormrod, Turner, & Holt, 2009). There are hints at systematic differences in prevalence in the course of childhood between distinct victimization types (Finkelhor, Ormrod & Turner, 2009; Teicher & Parigger, 2015): Neglect, for example, seems to occur steadily across childhood and youth, whereas the prevalence of parental physical abuse reaches a peak between the age of five to seven years (Teicher & Parigger, 2015).

In spite of pressing ethical reasons for developing a better understanding of childhood adversities, we still lack reliable data on the epidemiology of this stressors, including several major interpersonal event types. This is not latest due to the till recent failure of psychometrically validated, comprehensive instruments in this field (Finkelhor et al., 2013).

1.2. Adverse childhood experiences, health and ill-health

Childhood adversities cause harm on a molecular level, affect brain development (for review see Teicher, 2000; Teicher, Rabi et al., 2010; Teicher et al., 2002), and thereby increase the vulnerability to and expression of somatic (e.g. Anda et al., 2006; Dube et al., 2009; Barbozo Solís et al., 2015; Brown et al., 2010) and mental ill-health (Chapman, Dube, & Anda, 2007; Edwards, Holden, Felitti, & Anda, 2003; Herman et al., 1989; Kessler et al., 1997): The latter includes cognitive constrictions (Rutter et al., 1999), behavioral (Franzke, Wabnitz, & Catani, 2015; Felitti et al., 1998) and emotional deviance (e.g. Chapman et al., 2004). These

implications altogether may be seen in terms of cascading developmental processes (Teicher et al., 2002).

Cumulative exposure to multiple types of adversities has been repeatedly identified as creating a cumulative dose-response effect; the more stressors experienced the higher the risk of problematic outcomes (e.g. Chapman et al., 2004; Dube et al., 2009; Felitti et al., 1998; Whitfield et al., 2005).

1.2.1. Neurobiological implications of adverse childhood experiences

The brain at all stages of development, from prenatal phases to adolescence, requires besides substantial nutrition regular perceptual and somatosensory stimulation (Prescott, 1970; Wiesel & Hubel, 1963). Neglect in sense of a paucity in stimulation, care and nutrition, as well as violent abusive acts, stunts this healthy maturation process and causes enduring biological damage (Chiugani et al., 2001; Perry, 2008).

In the first instance adversity exposure provokes an adaptive physiological stress response, including the hypothalamic-puitary-adrenal (HPA) axis mediated boost in the concentration of glucocorticoids and glucocorticoid derivates. However in long-term this creates a life-long dysregulation of this regulatory system (Heim & Nemeroff, 2001; Heim, Newport, Mletzko, Miller, & Nemeroff, 2008; Heim et al., 2000). Recent research has demonstrated the involvement of the epigenetics of correspondent genes in long-term alterations of the stress system (Hecker, Radtke, Hermenau, Papassotiropoulos, & Elbert, 2015; McGowan et al., 2009; Perroud et al., 2011). The epigenetics of these genes have been shown to affect on mental health (Radtke, et al., 2015; Labonté, Azoulay, Yerko, Turecki, & Brunet, 2014).

Glucocorticoids have neurotoxical effects (e.g. Uno et al., 1994). Accordingly, in particular brain areas with high glucocorticoid receptors density and of extended postnatal maturation sustainably respond to childhood under or over stimulation – neglect or victimization (see e.g. Teicher et al., 2003). Teicher, Samson, Sheu, Polcari, and McGreenery (2010) summarize evidence on exposure to a variety of linked neurobiological deficits: Referring to the work of Bremner et al. (1997) and Driessen et al. (2000), the authors summarize a reduction in hippocampal volume (among adults), reduced cortical, particularly prefrontal grey matter, referring to Carrion et al. (2001), a decrease in corpus callosum volume, as found inter alia by

Teicher et al. (2004), and hints on altered amygdaloid excitation, in terms of 'limbic irritability'. Earlier review articles from this group beyond that focus on the cerebellar vermis (Teicher, 2000; Teicher et al., 2002). Its protracted ontogeny (Prescott, 1970; Wang & Zoghbi, 2001) and high glucocorticoid receptor density (Pavlik & Buresova, 1984; Sanchez, Young, Plotsky, & Insel, 2000) renders the cerebellum in general and in particular its vermal structures vulnerable to aversive environmental influences during maturation. Prescott (1970, 1980) relates early sensorimotor-deprivation, through neglect-related understimulation, to developmental deficits of the cerebellar region. Likewise, childhood trauma (-tic hyperarousal) has been identified as being related to volume and functional deviance of the cerebellar vermis (Anderson, Teicher, Polcari, & Renshaw, 2002; Anderson, Rabi, Lukas, & Teicher, 2010; De Bellis & Kuchibhatla, 2006).

Quality specific implications of childhood adversities on brain development are suggested. Parental verbal abuse, for example has been shown to be linked to an increase in grey matter of the superior temporal gyrus; a part of the auditory cortex (Tomoda et al., 2011). As well the left hemispheric fornix, the posterior cingulum and the arcuate fasciculus are affected by this adversity type; thus brain structures involved in the development of linguistic skills and psychopathology (Choi, Jeong, Rohan, Polcari, & Teicher, 2009). Witnessed domestic violence in contrast influences on visual-limbic pathways (Choi, Jeong, Polcari, Rohan, & Teicher, 2012) and childhood sexual abuse has been shown to be associated with a reduction in thickness in the left hemispheric cortical somatosensory genital representation (Heim, Mayberg, Mletzko, Nemeroff, & Pruessner, 2013).

When the timing of exposure to childhood adversities coincides with sensitive developmental periods of individual brain structures, this appears to produce long-term neurobiological pathology (Andersen et al., 2008; Pechtel, Lyons-Ruth, Anderson, & Teicher, 2014). Correspondingly, witnessed domestic violence effects most on the left inferior longitudinal fasciculus between the ages of seven to thirteen years (Choi et al., 2012). Occurring between the age of three to five and eleven to thirteen years, sexual abuse has been found to be especially linked to a decrease in hippocampal volume (in adults; Andersen et al., 2008) and the exposure to sexual violence at ages nine to ten and fourteen to sixteen years was associated with reduced corpus callosum and frontal grey matter volume (Andersen et al., 2008). Finally, an increase in size of the right hemispheric amygdala is associated to maltreatment at the ages of ten/eleven years (Pechtel et al., 2014).

Both of these branches of research (on 'type' and 'timing' of exposure) are of rising interest. Inquiry on sensitive periods is not only important because epochs of high plasticity constitute times of particular vulnerability to aversive stressors. However a corollary of this is that they are simultaneously the optimal times for pre- and interventional approaches (Pechtel et al., 2014).

1.2.2. Implications of adverse childhood experiences on mental ill-health

The relevance of childhood adversities in the development of *Trauma and Stress Related Disorders,* as listed by the DSM- 5 (American Psychiatric Association, 2013), is beyond controversy. For *Reactive Attachment Disorder (RAD)* and *Disinhibiting Social Engagement Disorder (DSED),* early neglect constitutes a required criteria (American Psychiatric Association, 2013). For PTSD childhood trauma is known as one of the strongest risk factors (Bremner, Southwick, Johnson, Yehuda, & Charney, 1993; Kessler, Sonnega, Bromet, Hughes, & Nelson, 1995).

Outside this category, many more psychiatric disorders and dimensions have been identified as associated with childhood adversities, such as oppositional defiant disorder or attention deficit hyperactivity (ADHD; Becker-Blease & Freyd, 2008; Ford et al., 2000), eating disorders (Jacobi, Hayward, de Zwaan, Kraemer, & Agras, 2004), personality disorders (Herman et al., 1989; Johnson, Cohen, Brown, Smailes, & Bernstein, 1999), substance abuse (Anda et al., 2002; Felitti et al., 1998; Shin, Miller, & Teicher, 2012), suicidality (Dube, Anda, Felitti, Chapman et al., 2001; Felitti et al., 1998), aggression (Hecker et al., 2013), psychotic features (Read, Agar, Argyle, & Aderhold, 2003; Schalinski, Fischer & Rockstroh, 2015; Whitfield et al., 2005), functional neurological symptoms (Steffen, Fiess, Schmidt & Rockstroh, 2015), anxiety and obsessive-compulsive disorders (Saunders, Villeponteaux, Lipovsky, Kilpatrick, & Veronen, 1992), depression (Andersen & Teicher, 2008; Chapman et al., 2004; Felitti et al., 1998; Teicher, Samson, Polcari, & Andersen, 2009), somatization (Spitzer, Barnow, Gau, Freyberger, & Grabe, 2008) and dissociation (Fiess, Steffen, Pietrek, & Rockstroh, 2013; Haferkamp, Berbermeier, Möllering, & Neuner, 2014; Simeon, Guralnik, Schmeidler, Sirof, & Knutelska, 2001), to name but a few.

The risk of both symptom expression (Dube, Anda, Felitti, Chapman et al., 2001; Felitti et al., 1998) as well as symptom complexity in psychiatric disorders rises with the accumulation of childhood stressors (Briere et al., 2008; Cloitre et al., 2009). Teicher and Samson (2013) reported maltreatment to be associated with earlier onset, higher symptom burden, more comorbidity, more suicidality and reduced treatment outcome (in anxiety, depression and substance abuse disorders). Likewise, in children suffering from ADHD, prior symptom onset and higher severity on the dimensions inattentiveness and hyperactivity, have been found in abused versus non-abused minors (Becker-Blease & Freyd, 2008). Intervention studies in depressed patients showed differential response in subjects with and without a history of childhood adversities and highlight the importance of psychotherapy versus mere pharmacological approaches for patients, carrying the burden of ACEs (Nanni, Uher, & Danese, 2012; Nemeroff et al., 2003). As well in patients suffering from psychosis more unfavorable courses of illness are found in association with childhood adversities (Schalinski, Fischer, & Rockstroh, 2015).

To improve research accuracy and treatment guidelines, Teicher and Samson (2013) to that fact and in line with the underlying biological sequel, postulate psychopathology evolving in association with childhood burden as a distinct subtype- an ‘ecophenotype’ - and argue for an additional diagnostic labeling of childhood adversities.

Some authors hold that when the exposure is early and is chronic, then this is especially psycho-toxic (Dunn et al., 2013; Jaffee & Kohn Maikovich-Fong, 2011; Kaplow & Widom, 2007). Others see this as an oversimplification and see discrete periods of fast and significant development in distinct brain structures across the course of childhood, in which there an individual’s development is differentially vulnerable to ACEs (Andersen et al., 2008). Khan et al. (2015) presents evidence for the latter approach and offers an alternative to the cumulative burden hypothesis on the expression of differentiated psychopathology, primarily underlining type and timing of adversities.

1.3. The importance of a detailed assessment of adverse childhood experiences

As outlined above, different adversities likely have different effects upon neurodevelopment, contributing to the eventual development of various different disorders. The cumulative burden has repeatedly been found of relevance (e.g. Felitti et al., 1998) and the exact developmental windows for distinct developmental phases are likely to constitute another variable of importance, as shown by Khan et al. (2015) and Schalinski and Teicher (2015). These need to be defined as precisely as possible, as windows of vulnerability are likely to be quite narrow (Khan et al., 2015).

Both scientists and clinical practitioners benefit from psychometrically validated instruments, considering several of these factors, which improve research and simultaneously support diagnostic assessment and ultimately treatment.

Until Teicher and Parigger (2011, 2015) recently published the '**M**altreatment and **A**buse **C**hronology of **E**xposure (**MACE**, as a **m**odification and amplification of the 'Adverse Childhood Experiences Index' (**ACE**; Felitti et al., 1998; Dube et al., 2003), satisfying just this demands, such an instrument was missing (Teicher & Parigger, 2015).

The impact of childhood adversities goes beyond the individual, as effects of stressful live events also impact upon the next generation(s) (e.g. Neigh, Gillepsie, & Nemeroff, 2009; Yehuda, Halligan, & Briere, et al. 2001), through behavioral and biological mechanisms (Neigh et al., 2009). The identification and treatment of affected individuals, is thus a task of transgenerational interest.

1.4. The example of Borderline Personality Disorder – from poisonous abuse and wholesome sway

One controversial diagnosis in the context of childhood adversities (Golier et al., 2003; Goodman & Yehuda, 2002; Lewis & Grenyer, 2009) is Borderline Personality Disorder (BPD; ICD-10, F60.31, Saß, Wittchen, Zaudig, & Houben, 2003; DSM-IV, -5 301.83,

American Psychiatric Association, 2000, 2013). Its clinical picture is dominated by affective dysregulation (Bohus & Kroeger, 2011; Cartwright, 2008; Lieb, Zaranini, Schmahl, Linehan, & Bohus, 2004) and aversive tension (Stiglmayr et al., 2005; Stiglmayr, Shapiro, Stieglitz, Limberger, & Bohus, 2001) often in short-term relieved but on a long run perpetuated (Chapman, Gratz, & Braun, 2006) by deliberate self-harm, alcohol/drug consumption, overeating or other forms of impulsive aggression (Bohus & Kroeger, 2011; Kleindienst et al., 2008; Schauer & Elbert, 2010). Schauer and Elbert (2010) elaborate this behavioural patterns as techniques for inducing a dissociative 'shut-down' of mind and physiology.

With incidence rates among the civilian population of around one (Torgesen, Kringlen, & Cramer, 2001) to two per cent (American Psychiatric Association, 2000), and about twenty per cent prevalence in inpatient and ten per cent in outpatient settings (American Psychiatric Association, 2000) BPD challenges health care systems, clinical psychologists, and psychiatrists.

Its etiology to date is not well understood. The most comprehensive attempt at an explanation thus far is a multi-factorial model (e.g. Cartwright, 2008; Leichsenring, Liebing, Kruse, New, & Lewenke, 2011), which is based on a combination of psychological and biological variables, including genetic (for review see e.g. Lis, Greenfield, Guilé, & Dougherty, 2007; Skodol et al., 2002) and epigenetic components (Dammann et al., 2011; Radtke et al., 2015). The principle neural structures, dealt involved in this pathology, are frontal and fronto-limbic areas, including the hippocampus, the amygdala and the anterior cingulated (Driessen et al., 2000; Krause-Utz & Schmahl, 2010; Minzenberg, Fan, New, Tang, & Siever, 2008; Nunes et al., 2009; Tebartz van Elst et al., 2003). The specificity of these neurobiological aberrations to BPD however is questionable, as deviations in these regions are also linked to general trauma-associated symptoms (Krause-Utz & Schmahl, 2010). Enormously high prevalence rates of childhood trauma in BPD patients, such as 81% found by Herman et al. (1989), indicate childhood adversities to be of sizable influence in the genesis of this pathology. Particular weight is attributed to the exposure to sexual assaults and neglectful parenting (Dubo, Zanarini, Lewis, & Williams, 1997; Herman et al., 1989; Ogata et al., 1990; Zanarini et al., 2002). But, some studies failed to find clear associations between childhood (sexual) trauma, dissociative tendencies and impulsive dysfunctional behavior, in terms of self-injury in BPD (Brodsky, Cloitre, & Dulit, 1995; Watson, Chilton, Fairchild, & Whewell, 2006), raising the question of the interplay of these factors.

The cerebellar system in BPD has until recently been ignored. These structures are principally known to regulate movement, locomotion and balance control (for review see Morton & Bastian, 2004). Schauer, Eckart et al. (2015) identified a reduction in the cerebellar vermal volume in BPD patients, which as a fact brought up the question of a possible cerebellar contribution in this syndrome. In fact, there are many reasons why it could play a role in BPD dysfunction: Its structural connectivity to fronto-limbic regions (Anand, Malhotra, Singh, & Dua, 1958; Blatt, Oblak, & Schmahmann, 2013), growing evidence for its significance in higher order functioning and mental-ill health (Baldacara, Borgio, de Lacerda, & Jackowski, 2008; Blatt et al., 2013; Schmahmann, Weilburg, & Sherman, 2007; Strick, Dum, & Fiez, 2009), its involvement in the autonomic stress response (Critchley, Corfield, Chandler, Mathias, & Dolan, 2000) and indications of a particular structural and functional vulnerability to childhood adversities, in terms of abusive acts and/or neglectful understimulation (Anderson et al., 2002; Anderson et al., 2010; De Bellis & Kuchibhatla, 2006; Prescott, 1970). Schauer, Teicher et al. (2015) summarize the to date literature in this realm and bring up the concluding postulate of early sensory-motor vestibular neglect influencing on cerebellar development and contributing as ‘etiological factor’ to psychopathology, such as BPD and beyond.

2. The rationale of the present thesis

With the development and validation of the MACE (Teicher & Parigger, 2011, 2015) researchers were able to structurally assess several mayor types of interpersonal childhood adversities in detail and considering the age of occurrence. Such a tool was of urgent demand, allowing science for a more differentiated evaluation of the implications of separate event types, the effective cumulative burden and the impact of victimization during sensitive developmental periods. Such a tool supports clinical psychological practitioners, to identify stressed clients and to work on their past. The first article of the present thesis, is dedicated to the task of making this instrument accessible and useful for German-speaking researchers and mental-health professionals, by means of the construction and psychometrical evaluation of the German language equivalent of MACE, the '*Skala Belastende **K**indheits**erf**ahrungen'* (**KERF**; Isele, Teicher et al., 2014; Isele, Parigger, Ruf, Elbert, & Schauer, 2014; see appendix).

In order to support mental health professionals to identify burdened individuals earlier, the second manuscript of this thesis (Isele, Hecker et al., 2015) focused on the challenge to developing and evaluating a pediatric interview, based on the MACE, called the ***pedi**atric* **MACE** interview (***pedi*MACE**; Isele, Ruf-Leuschner et al., 2015; see appendix)

The third compact manuscript of the present thesis, aimes to address the neglected field of developmental epidemiology, investigating individual type specific prevalence courses across childhood and youth.

The fourth manuscript of this thesis (Isele, Schauer et al., 2015) takes on the question of the interplay of childhood adversities, assessed by the newly developed KERF, shut-down dissociation (defined by Schauer & Elbert, 2010) and impulsive aggression in BPD, analyzing the unique effect of different event types as well as the cumulative burden of childhood adversities. This study in addition targets an approximation of a possible adversity-based cerebellar involvement in the development of BPD. As the cerebellar vermis, appears to be related to borderline-type psychopathologies, like impulsivity, anxiety, depression or psychosis (e.g. Schmahmann et al., 2007), and additionally as a part of the vestibulocerebellum accounts for the maintenance of balance (Morton & Bastian, 2004), the article exploratively investigates possible associations between borderline symptoms, childhood adversities and postural sway during tandem stance maintenance, as a behavioral

correlate of cerebellar functionning. Previous positron emission tomography (PET) based inquiry by Ouchi, Okada, Yoshikawa, Nobezawa, and Futatsubashi (1999) confirmed the cerebellar vermis being involved in balance control in this postural position.

II. Articles and manuscripts as part of the present thesis

3. KERF – ein Instrument zur umfassenden Ermittlung belastender Kindheitserfahrungen - Erstellung und psychometrische Beurteilung der deutschsprachigen MACE (Maltreatment and Abuse Chronology of Exposure) Scale

3.1. Abstract

Hintergrund*:* Belastende Kindheitserfahrungen steigern das Risiko für Psychopathologie und beeinflussen die Erkrankungsschwere und den Behandlungserfolg. Validierte Instrumente zur umfangreichen Erfassung von Kindheitsbelastungen sind für die klinisch-psychologische Arbeit unabdingbar jedoch nur bedingt vorhanden. **Fragestellung:** Diese Arbeit stellt die Konstruktion und psychometrische Prüfung der Skala „Belastende Kindheitserfahrungen" (KERF), einem Instrument zur umfangreichen Erfassung von Kindheitsbelastungen vor. Die KERF beruht auf einer modifizierten Version des US-amerikanischen „Adverse[1] Childhood Experiences" Index. **Methode:** Basierend auf den Daten von 165 Probandinnen wurden mit Rasch-Modellen zehn Subskalen modelliert. Korrelationen mit dem CTQ (Childhood Trauma Questionnaire) und Psychopathologie wurden bestimmt. **Ergebnisse:** Unterstützt durch konzeptuelle Überlegungen konnten zehn Subskalen gebildet werden. Wir fanden zufriedenstellende Assoziationen mit dem CTQ und Psychopathologie. **Schlussfolgerungen:** KERF ermöglicht eine detaillierte valide Erfassung belastender Kindheitserfahrungen.

Schlüsselwörter: Belastende Kindheitserfahrungen, Missbrauch, Vernachlässigung, Kindesmisshandlungen, Kindheitstrauma, Validierung, Instrument

[1] Korrektur gegenüber dem veröffentlichten Artikel vorgenommen.

KERF- An Instrument for Measuring Adverse Childhood Experiences: Construction and Psychometric Evaluation of the German MACE (Maltreatment and Abuse Chronology of Exposure) Scale

Background: Adverse childhood experiences increase the risk of psychopathology and influence severity of mental ill-health as well as treatment outcomes. Clinical psychological work requires validated instruments to comprehensively assess childhood adversities. **Objective:** This paper deals with the construction and psychometric evaluation of the German version of the modified "Adverse Childhood Experience" Index, called „Belastende Kindheitserfahrungen" (KERF). This instrument assesses childhood adversity in depth. **Method:** Based on interview data of 165 female subjects, ten subscales were modeled using Rasch-Models. Correlations with the CTQ (Childhood Trauma Questionnaire) and psychopathology were analyzed. **Results:** Subscales were modeled, with the support of conceptual approaches. Satisfying associations with the CTQ and psychopathology were found. **Conclusions:** KERF enables a valid and detailed assessment of childhood adversities.

Keywords: adverse childhood experiences, abuse, neglect, child maltreatment, childhood trauma, validation, instrument

3.2. Einleitung

Belastende Kindheitserfahrungen manifestieren sich bis ins Erwachsenenalter in Psychopathologie (Chapman et al., 2007) und sind sowohl mit Erkrankungsschwere (Edwards et al., 2003; Pietrek et al., 2013; Teicher et al., 2006) als auch Behandlungserfolg (Nanni, Uher & Danese, 2012) assoziiert. Den Kern belastender Kindheitserfahrungen bilden Kindesmisshandlungen. Darunter werden nach Leeb et al. (2008) bis zur Volljährigkeit durch Eltern bzw. Betreuungspersonen erfahrene aktive und passive Misshandlungen, im Sinne eines körperlichen, sexuellen oder emotionalen Missbrauchs bzw. einer Vernachlässigung, verstanden. Weitere bislang wenig berücksichtigte, interpersonale Kindheitsbelastungstypen wie Übergriffe durch Gleichaltrige (Hawker & Boulton, 2000; Teicher et al., 2010) oder bezeugte häusliche Gewalt (Teicher & Vitaliano, 2011) sind ebenfalls mit Psychopathologie in der Lebensspanne assoziiert. Häufig werden gleich mehrere unterschiedliche Kindheitsbelastungstypen erlebt (Dong, Anda, Dube, Giles, & Felitti, 2003; Dong et al., 2004; Wingenfeld et al., 2010) und das Risiko psychiatrischer Erkrankungen steigt mit der Anzahl erlebter Erfahrungstypen (Chapman et al., 2004; Felitti et al., 1998; Whitfield et al., 2005). Eine *umfangreiche* Erfassung belastender Kindheitserfahrungen ist demnach nicht nur methodisch ratsam (Netland, 2005), sondern auch klinisch unabdingbar. Dies übersteigt jedoch die Möglichkeiten der im deutschsprachigen Raum aktuell gängigen Instrumente: Der *Childhood Trauma Questionnaire* (*CTQ*; Bernstein et al., 2003; in deutschsprachiger Version Wingenfeld et al., 2010) beschränkt sich auf die Erfassung von körperlichem, emotionalem und sexuellem Missbrauch sowie körperlicher und emotionaler Vernachlässigung. Das inhaltlich etwas breiter aufgestellte *Early Trauma Inventory* (*ETI*; Bremner, Vermetten & Mazure, 2000; in deutschsprachiger Validierung Wingenfeld, Diessen et al., 2011) stellt aus durch- und auswertungsökonomischen Gründen nur bedingt eine Alternative dar und der *Adverse Childhood Experiences* Index (*ACE*; Felitti et al., 1998; Dube et al., 2003; in deutschsprachiger Validierung Wingenfeld, Schäfer et al., 2011) lässt durch den „ein Item pro Subtype-Ansatz“ keinerlei Differenzierungsmöglichkeit auf Subtypenebene zu.

Teicher & Parigger griffen diese Problematik auf und modifizierten und erweiterten den ACE Index, so dass die entstandene ***M**altreatment and **A**buse **C**hronology of **E**xposure* **(MACE)** Scale (Teicher & Parigger, 2011) seit Kurzem eine strukturierte umfangreiche Erfassung interpersonaler belastender Kindheitserfahrungen im englischen Sprachraum ermöglicht: Die MACE übernimmt die zehn Subtypen-Logik des ACE (Dube et al., 2003), fokussiert jedoch

verstärkt persönlich erfahrene und bezeugte Gewalt in unterschiedlichen Kontexten. Tabelle 3.1 enthält eine vergleichende Synopsis der Inhalte beider Instrumente. Die 75 MACE-Items übernehmen zunächst das dichotome Antwortformat des ACE (Ja vs. Nein) und erfragen so bis zur Volljährigkeit erfahrene Belastungen. MACE spezifiziert dann jedoch auf einer Zeitleiste das Alter zum Zeitpunkt der Erfahrungen und erfasst in Folgeitems zusätzlich die emotionale Reaktion auf das Erleben in Form von *intensiver Angst* oder *Hilflosigkeit*.

Ziel der vorliegenden Arbeit ist die Erstellung und erste psychometrische Beurteilung der deutschsprachigen MACE, um auch deutschsprachigem Fachpersonal in Forschung und Praxis eine umfangreiche Erfassung interpersonaler belastender Kindheitserfahrungen mit dem Instrument zu ermöglichen.

3.3. Methode

Erstellung der deutschsprachigen Version. MACE wurde von den Autoren der deutschsprachigen Version (Isele, Parigger, Ruf-Leuschner, Elbert & Schauer; Universität Konstanz) ins Deutsche übersetzt. und von Frau Parigger, die ebenfalls bei der Entwicklung der englischen MACE involviert war, mit dieser abgeglichen. Schließlich erfolgte eine Spezifikation einzelner Items aus Gründen der Kultursensitivität. Insbesondere die Items 6 [Schloss(en) Sie sie in einem Schrank, Speicher, Keller, einer Garage *oder einem anderen, womöglich auch sehr engen, dunklen Ort* ein] und 12 [Schlug(en) sie Sie mit einem Gegenstand, wie z.B. einem Riemen, einem Gürtel, einer Bürste, *einem Stock, einem Rohr, einem Besen*, *einem Kochlöffel* usw.] wurden um die kursiven Einschübe ergänzt. Die Zusatzitems zur emotionalen Reaktion wurden zur genaueren Informationserfassung in zwei separate Items aufgegliedert, die *Hilflosigkeit* bzw. *intensive Angst oder Entsetzen* getrennt erheben. Der Titel der deutschsprachigen Skala wurde auf ***Belastende Kindheitserfahrungen (KERF)*** verdeutscht.

Tabelle 3.1 Vergleichende Synopsis der Inhalte des ACE Index und der KERF (in Anlehnung an die US-amerikanische MACE)

10 ACE Subtypen (nach Dube et al., 2003)	**10 KERF** Subskalen
(1.) Physischer Missbrauch	(1.) Körperliche Gewalt durch Eltern[1] (parental physical abuse; PPA)[2]
(2.) Emotionaler Missbrauch	(2.) Verbale Gewalt durch Eltern[1] (parental verbal abuse, PVA)
	(3.) Nonverbale emotionale Gewalt durch Eltern[1] (parental nonv. emotional abuse; PNVEA)
(3.) Sexueller Missbrauch	(4.) Sexuelle Gewalt durch Eltern[1], fremde Erwachsene, Gleichaltrige (sexual abuse; SEXA)
(4.) Emotionale Vernachlässigung	(5.) Emotionale Vernachlässigung (emotional neglect; EN)
(5.) Physische Vernachlässigung	(6.) Körperliche Vernachlässigung (physical neglect; PN)
(6.) Bezeugte körperliche Gewalt an Mutter	(7.) Bezeugte körperliche Übergriffe auf Eltern[1] (witnessed physical violence toward parents; WITP)
	(8.) Bezeugte Übergriffe auf Geschwister[1] (witnessed violence toward siblings; WITS)
	(9.) Emotionale Gewalt durch Gleichaltrige (peer emotional violence; PEERE)
	(10.) Körperliche Gewalt durch Gleichaltrige (peer physical violence; PEERP)
Zusammenleben mit einer von	
(7.) einer psychischen Erkrankung,	*KERF- Zusatzinformationen[3]:*
(8.) einer Alkoholproblematik, oder	*Emotionale, körperliche und sexuelle Gewalt in der Partnerschaft (Items 49b- 50b)*
(9.) Delinquenz betroffenen Person.	*Finanzieller Druck (Item 66)[4]*
(10.) Verlust eines Elternteiles	*Verlust eines Elternteiles (Items 68-72)*

Anmerkungen. [1] Vereinfachte Subskalenbenennung: Eltern meint sämtliche im Haushalt lebende erwachsene Bezugspersonen; Geschwister meint sämtliche im Haushalt lebende Kinder; [2] KERF-Subskalenkürzel sind zur Verwendung bei internationalen Publikationen anglifiziert; [3] in der standardisierten Auswertung des KERF nicht berücksichtigte Zusatzinformationen mit klinischer Relevanz; [4] als separates Item der KERF.

Stichprobe und Messinstrumente. Für die psychometrische Pionierarbeit an der KERF wurden 165 Datensätze von weiblichen Probanden herangezogen. Bei einer Teilstichprobe wurde zusätzlich der *CTQ* (Bernstein et al., 2003; in deutscher Validierung Wingenfeld et al., 2010) eingesetzt. Dieser misst körperlichen, emotionalen und sexuellen Missbrauch sowie körperliche und emotionale Vernachlässigung auf 28 Likert-skalierten Items (Antwortformat: 1 = überhaupt nicht - 5 = sehr häufig; Spanne [*R*] = 28-140). Aus weiteren Teilstichproben gingen ferner folgende Daten zum aktuellen psychischen Befinden mit ein. Durch die 23 Item Version der *Borderline-Symptom-Liste* (*BSL-23*; Bohus et al., 2009) wurden Borderline-Symptome während der vorangegangenen Woche erfragt (Antwortformat: 0 = gar nicht- 4 = sehr stark; *R* = 0-92). Aktuelle Depressivität wurde im Expertenrating auf *der Hamilton-Skala für Depression* beurteilt (*HAM-D*; 21 Items-Version; Hamilton, 1960). Die Häufigkeit dissoziativer Symptome im vorangegangenen halben Jahr wurde mit der 13 Items umfassenden *Shutdown-Dissoziationsskala* (*Shut-D;* Schalinski, Schauer & Elbert, 2015[2]), nach dem Modell von Schauer & Elbert (2010) erhoben (Antwortformat: 0 = überhaupt nicht – 3 = mehrmals in der Woche; *R* = 0-39). Sämtliche Instrumente wurden durch geschulte Interviewer, darunter hauptsächlich Mitarbeiter aber auch geschulte Studierende, der Universitäten Konstanz und Ulm im Interview durchgeführt. Dazu lag ein positives Votum der Ethikkommissionen beider Hochschulen vor. Tabelle 3.2 enthält eine Beschreibung der Teilstichproben und des im Einzelnen herangezogenen Datenvolumens.

Analysen. Das statistische Prozedere wurde vom Vorgehen bei der MACE Originalversion abgeleitet: Mit Hilfe der CML-Methodik wurden zehn separate Rasch-Modelle (Rasch, 1960; 1980) gebildet. Item- (σ) und Personenparameter (ξ) wurden geschätzt. Die Prüfung der Gültigkeit der Rasch-Modelle erfolgte unter Verwendung von Andersen X^2 (Andersen, 1973). Als Splitkriterien diente der Median der Altersvariable. In Anlehnung an das Vorgehen bei Cole et al. (2004) wurden weiterführende Item-Fit-Indizes verwendet, um die Passung des Modells auf Itemebene zu prüfen. Als wünschenswert galten Mean Square Fits (Infit; Outfit) zwischen 0,7 und 1,3 (Cole et al., 2004; Wright & Stone, 1979). Übereinstimmend mit der Itemkalibrierung der MACE wurden Fit-Werte, insbesondere Outfit-Kennwerte unter 0,7 akzeptiert, sofern diese für das jeweilige Konstrukt auf Basis inhaltlicher Überlegung und/oder der Itemschwierigkeit (σ) als besonders bedeutsam einzustufen sind. Ferner fanden einzelne Items Eingang in die Subskalenmodelle, wenn die resultierende Itemkombination eine breitere Schwierigkeitsspanne

[2] Angleichung der Jahreszahl gegenüber dem veröffentlichten Artikel. Das Manuskript war damals noch nicht veröffentlicht.

abdeckte. Wurde die Gültigkeit des Rasch-Modells verworfen, wiesen einzelne Items eine unzureichende Passung auf oder lagen auf Itemebene ähnlich hohe Itemschwierigkeiten vor, wurde iterativ versucht durch Elimination oder Hinzufügen einzelner Items eine optimierte Lösung zu erzielen, die dann erneut auf Basis der beschriebenen Methodik getestet wurde. Die so modellierten Subskalen lassen folgende Auswertungsoptionen zu: Ähnlich dem CTQ, ermöglicht KERF im dimensionalen Ansatz durch linear interpolierte Subskalenrohwerte eine Beurteilung der „Schwere der in Kindheit und Jugend erfahrenen Belastungen“ auf Subskalenebene (Subskalensummenwert; R = 0 - 10) sowie für das Gesamtinstrument (KERF-Summenwert/Sum(score) = Summe der Subskalensummenwerte; R = 0 - 100). Im kategorialen Ansatz klassifizieren Schwellenwerte, ob einzelne KERF-Subskalen/Erfahrungstypen zutreffen. Die Summe zutreffender Subskalen (KERF-Multi(score); R = 0 - 10) bildet, in Analogie zum ACE- Score, die „Breite erfahrener Belastungen“ ab. Die Auswertungsschemata sind über die gesamte Kindheit und Jugend hinweg *(global)* sowie für jedes Lebensalter kalkulierbar.

Auf Basis des uns zu Verfügung stehenden Datenvolumens konnten lediglich vorläufige Schwellenwerte bestimmt werden. Diesen Cut-Off-Empfehlungen näherten wir uns über den Median der Anzahl zutreffender Items +1 an. Resultierten die Analysen in tendenziell niedrigen Werten, korrigierten wir sie nach sorgfältiger Prüfung leicht nach oben. Zu einer ersten Beurteilung dieser vorläufigen Schwellenwerte wurden biseriale-Korrelationen mit psychopathologischen Kennwerten bestimmt.

Die konvergente Validität der KERF wurde durch Korrelationen mit dem CTQ, die Konstruktvalidität[3] durch Korrelationen mit Psychopathologie geprüft. Subskaleninterkorrelationen und Korrelationen der KERF-Subskalen mit dem KERF-Summenwert wurden bestimmt (jeweils Pearson-Korrelationen). Die Berechnungen der Subskala *Bezeugte Übergriffe auf Geschwister* erfolgten auf Basis der mit weiteren Kindern im Haushalt aufgewachsenen Probandinnen. Sämtliche Analysen beruhen auf Angaben über die ersten 18 Lebensjahre hinweg *(global)*. Einzelne fehlende Werte wurden für die Symptomratings durch Mittelwertersetzung substituiert, für die Erfassung belastender Kindheitserfahrungen erfolgte ein teilweiser Ausschluss aus den Analysen. Die Testungen erfolgten zweiseitig. Die Berechnungen wurden mit R 3.0.0 (R Development Core Team, 2013; Packete eRm, ltm und polycor; Fox, 2010; Mair & Hatzinger,

[3] Terminologische Korrektur gegenüber dem veröffentlichten Artikel vorgenommen.

2007; Rizopoulos, 2006), Microsoft Excel Version 12.1 sowie IBM SPSS Version 21 durchgeführt.

Tabelle 3.2 Beschreibung der Stichprobe und des verwendeten Datenvolumens

Stichprobe	Alter in Jahren *M (s; R)*	Charakteristika	Datenvolumen
A (n =32)	32,7 (5,3; 22-42)	Mütter nach Entbindung: 30 gesund, 2 mit aktueller Depression	CTQ, KERF[1]
B (n =33)	41,4 (9,7; 22-64)	33 Frauen mit aktueller Depression	KERF
C (n = 23)	45,1 (4,7; 35-55)	17 gesunde Frauen, 5 mit aktueller Depression, 1 Verdacht auf PTBS[2]	KERF, BSL-23
D (n = 77)	31,5 (11,2; 18-62)	51 gesunde Frauen, 13 mit aktueller Depression; 13 mit BPS	KERF, BSL-23, HAM-D, Shut-D
Gesamt *(N* = 165)	35,6 (10,7;18-64)	98 gesunde Frauen 67 Frauen aktuell psychisch erkrankt	

Anmerkungen. Die psychiatrische Diagnosestellung erfolgte durch behandelnde Ärzte/Therapeuten ambulanter bzw. stationärer Einrichtungen; [1] die Erhebung des CTQs erfolgte perinatal, die KERF wurde in der betreffenden Teilstichprobe 3 Monate post partum erhoben; Borderline Persönlichkeitsstörung (BPS); Posttraumatische Belastungsstörung (PTBS); [2]im psychodiagnostischen Interview.

3.4. Ergebnisse

Itemkalibierierung. Die Itemkombinationen und -parameter der KERF-Subskalen sind ausführlich in Tabelle 3.3 aufgeführt. Für die Subskalen *Körperliche Gewalt durch Eltern*, *Bezeugte körperliche Übergriffe zwischen Eltern, Bezeugte Übergriffe auf Geschwister, Körperliche Gewalt durch Gleichaltrige* und *Sexuelle Gewalt* konnten die statistischen Kriterien nicht vollständig erfüllt werden. Zur Optimierung der Subskalenlösungen fanden deshalb folgende Überlegungen Eingang in die Skalenkonstruktion: Obgleich eine Eliminierung des selten berichteten Items 9 aus der Subskala *Körperliche Gewalt durch Eltern* die Passung einzelner Items in das Modell verbessern würde, fiel die Entscheidung für eine Beibehaltung des Items auf Grund dessen hoher Itemschwierigkeit und inhaltlicher Relevanz. Die Entscheidung für die Zusammensetzung der Subskala *Bezeugte körperliche Übergriffe zwischen Eltern* wurde primär durch das Bestreben nach einer gleich verteilten Berücksichtigung weiblicher und männlicher Erziehungspersonen bedingt. Nicht in die Lösung eingängig sind die Items 31 und 32, die lediglich als Eingangsfragen fungieren und *verbale* Gewalt thematisieren, sowie die äußerst niedrig prävalenten Items 35 und 38. Bei der Konstruktion der Subskala *Bezeugte Gewalt an Geschwistern* wurden inhaltliche Überlegungen zur Berücksichtigung verbaler, körperlicher und sexueller Übergriffe sowie Itemschwierigkeit und Item-Fit-Werte miteinbezogen. Auf eine Berechnung von Anderson X^2 musste wegen der insgesamt niedrig prävalenten Items verzichtet werden. Für die Subskala *Sexuelle Gewalt* ergaben die entsprechenden Item-Fit-Indizes insgesamt akzeptable, wenngleich für die Items 17 und 30 tendenziell niedrige Werte. Die Berechnung der Andersen Likelihood-Ratio erfolgte unter Ausschluss des selten berichteten Items 17. Die hohe Itemschwierigkeit sprach für eine Beibehaltung des Items.

Tabelle 3.3 Itemzusammensetzung und Kennwerte der KERF-Subskalen

	Outfit	Infit	σ σ (SE)	%
PVA Cut-off: 3 von 4 Items; X^2 (3)= 4,25 (*p* = 0,24), *n* = 165				
1. Verfluchte(n) sie Sie [...].	0,67	0,71	-0,06 (0,17)	44
2. Sagte(n) sie verletzende Dinge [...].	0,75	0,87	-0,82 (0,18)	55
3. Schrie(n) oder brüllte(n) sie Sie [...].	0,97	1,00	-0,34 (0,18)	48
5. Drohte(n) sie fortzugehen [...].	1,29	1,16	1,21 (0,19)	24
PNVEA Cut-off: 3 von 5 Items; X^2(4)= 4,75 (*p* = 0,31), *n* =164				
4. Verhielten sie sich [...] Angst [...].	0,81	0,84	-0,02 (0,17)	37
6. Schloss(en) sie Sie [...].ein.	0,98	1,02	1,22 (0,20)	18
55. [...] schwer zufriedengestellt [...].	0,98	1,05	-0,95 (0,17)	54
65. [...] Verantwortung [...].	0,84	0,88	-0,36 (0,17)	43
67. [...] wichtige Dinge [...] geheim.	1,06	1,02	0,11 (0,17)	35
PPA Cut-off: 4#; von 6 Items (*md* = 1); X^2(4) = 2,44 (*p* = 0,66, ohne Item 9); *n* = 165				
7. Schubste(n), [...].	0,98	1,13	-2,21 (0,24)	57
8. Schlug(en) [...] Spuren [...].	0,43	0,62	-0,12 (0,25)	23
9. Schlug(en) [...] ärztlich versorgt [...].	0,43	0,62	3,59 (0,61)	4
10. Schlug(en) [...] offenen Hand [...].	0,79	0,92	-1,81 (0,23)	50
11. Schlug(en) [...] nacktes Gesäß [...].	1,01	1,09	0,76 (0,27)	18
12. Schlug(en) [...] Gegenstand [...].	0,59	0,72	- 0,45 (0,23)	30
EN Cut-off: 5 von 10 Items; X^2(9) = 13,04 (*p* = 0,16), *n* =164				
51. [...] Mutter nicht verfügbar [...]. *neg*	1,05	0,99	-0,36 (0,18)	43
52. [...] Vater nicht verfügbar [...]. *neg*	1,11	1,16	-0,32 (0,18)	43
53. [...] Mutter nicht verfügbar [...]. *pos*	1,43	1,35	0,79 (0,20)	25
54. [...] Vater nicht verfügbar [...]. *pos*	1,96	1,41	0,92 (0,20)	23
56. [...] keine Zeit [...] zu sprechen.	1,12	1,14	-0,73 (0,18)	59
57. [...] Gefühl, geliebt zu werden.	0,70	0,80	0,20 (0,19)	34
58. [...] besonders zu fühlen.	0,84	0,88	-0,43 (0,19)	45
73. [...] gaben aufeinander acht.	0,67	0,75	0,47 (0,20)	30
74. [...] fühlten sich einander nahe.	0,64	0,72	0,05 (0,18)	37
75. [...] Unterstützung für Sie.	0,64	1,14	-0,58 (0,18)	47
PN Cut-off: 3#von 5 Items (*md* = 0); X^2(4) =6,91 (*p* = 0,14), *n* = 164				
59. [...] und beschützte(n) Sie.	0,79	0,88	-1,78 (0,24)	33
60. [...] zum Arzt [...] gebracht.	0,66	0,76	0,28 (0,30)	11
61. [...] für Schule richten [...].[2]				51
62. [...] nicht genug zu essen.	1,13	1,03	0,63 (0,32)	9
63. [...] ungewaschene Kleidung [...].	0,70	0,68	1,70 (0,44)	5
64. [...] nicht beaufsichtigt.	0,88	0,92	-0,84 (0,25)	20
WITP Cut-off :2 von 4; X^2(2) = 0,05 (*p* = 0,98; ohne Item 37), *n* = 164				
31.[...] heftig mit Vater stritten [...].[2]				49
32. [...] heftig mit Mutter stritten [...].[2]				53
33. [...] Ihre Mutter schubste(n) [...].	0,74	0,84	-1,39 (0,32)	17
34. [...] Ihre Mutter [...] Spuren [...].	0,58	0,63	-0,31 (0,32)	9

35. [...] Ihre Mutter ärztlich versorgt [...].[2]				4
36. [...] Ihren Vater schubste(n) [...].	1,18	1,20	-0,31 (0,32)	9
37. [...] Ihren Vater [...] Spuren [...].	1,17	0,86	2,02 (0,56)	1
38. [...] Ihren Vater ärztlich versorgt [...].[2]				1
WITS[1] Cut-off: 2 von 4 Items; *n* = 116				
18. [...] Geschwister [...] geschubst [...]	0,32	0,43	-3,29 (0,56)	44
19. [...] Geschwister [...] Spuren [...].	0,26	0,42	0,43 (0,41)	9
20. [...] Geschwister ärztlich versorgt [...].[2]				4
21. [...] Geschwister sexuelle Kommentare[...].[2]				2
22. [...] sexuelle [...] berührt [...].	1,57	0,86	2,45 (0,59)	2
23. [B]rachten [...] Geschwister dazu [...].[2]				2
24. [...] Geschwister Geschlechtsverkehr [...].[2]				1
25. [...] angedroht, sie zu verletzen.	0,49	0,62	0,40 (0,41)	9
PEERE Cut-off: 4[#] von 5 Items (*md* = 2); $X^2(4) = 8,16$ (*p* = 0,09), *n*=164				
39. [...] beschimpfte(n) [...].	0,65	0,71	-0,52 (0,18)	48
40. [...] sagte(n) verletzende Dinge [...]	0,98	0,97	-0,95 (0,19)	55
41. [...] setzten Gerüchte über Sie [...].	0,98	1,04	-0,45 (0,18)	47
42. [...] schloss(en) Sie [...] aus.	0,89	0,91	0,15 (0,18)	38
43. [...] Angst [...] verletzt zu werden.	1,25	0,98	1,77 (0,24)	16
PEERP Cut-off: 2[#] von 5 Items (*md* = 0); $X^2(4) = 2,22$ (*p* = 0,70); *n* = 164				
44. [...] Geld [...] abzunehmen.	1,12	1,03	0,49 (0,30)	8
45. [...] zwangen Sie [...] Dinge [...].	1,33	1,31	-0,11 (0,27)	12
46. [...] schubste(n) [...].	0,68	0,81	-1,69 (0,26)	27
47. ...] schlug(en) [...] Spuren [...].	0,45	0,55	-0,02 (0,28)	10
48. [...] schlug(en) [...] medizinisch [...]	0,39	0,80	1,33 (0,38)	4
SEXA Cut- off: 2[#] von 8 Items (*md* =0), $X^2(6) = 12,04$ (*p* = 0,06; ohne Item 17**); *n* = 165**				
13. [Eltern] sexuelle Kommentare [...].[2]				10
14. [Eltern] berührten [...] sexuell [...].	0,90	0,90	0,20 (0,32)	7
15. [Eltern] [b]rachten Sie dazu [...].	0,71	0,82	0,93 (0,40)	4
16. [Eltern] versuch Geschlechtsverkehr [...].[2]				2 (*n* =164)
17. [Eltern] Geschlechtsverkehr [...].	0,33	0,71	1,39 (0,48)	2
26. [Fremde] sexuelle Kommentare [...].[2]				29 (*n* =164)
27. [Fremde] berührten [...] sexuell	1,06	1,08	-2,27 (0,25)	31
28. [Fremde] [b]rachten Sie dazu [...].	0,63	0,77	0,06 (0,32)	7
29. [Fremde] versuch Geschlechtsverkehr [...].[2]				7
30. [Fremde] Geschlechtsverkehr [...].	0,58	0,84	0,20 (0,32)	7
49a. [Peers] sexuellen Aktivitäten [...].	1,04	1,02	0,70 (0,27)	13
50a. [Peers] sexuelle Dinge [...].	0,89	0,98	0,19 (0,32)	7

Anmerkungen. Verbale Gewalt durch Eltern (PVA), nonverbale emotionale Gewalt durch Eltern (PNVEA), Körperliche Gewalt durch Eltern (PPA), Emotionale Vernachlässigung (EN), Körperliche Vernachlässigung (PN), Bezeugte körperliche Übergriffe auf Eltern (WITP), Bezeugte Übergriffe auf Geschwister (WITS), Emotionale Gewalt durch Gleichaltrige (PEERE), Körperliche Gewalt durch Gleichaltrige (PEERP), Sexuelle Gewalt (SEXA); [#] Cut-off Werte nach oben korrigiert; *md* = Median der Anzahl positiver Items (ganzzahlig); % = Prozent der Probanden Item zutreffend; [1] auf Berechnung von X^2 wurde wegen geringer Prävalenz der Items verzichtet; [2] nicht in Subskala eingehendes Item.

Klassisch testtheoretische Beurteilung der gefundenen Skalen. Tabelle 3.4 zeigt die in der untersuchten Stichprobe gefundenen Kennwerte der KERF, des CTQ und der Maße für Psychopathologie sowie die berechneten Indizes der konvergenten und Konstruktvalidität[4]. Verglichen mit Kennwerten aus Patientenstichproben (Bohus et al., 2009; Schalinski, Elbert & Schauer, 2013; S3-Leitlinie/NVL Unipolare Depression, 2012) zeigten die Studienteilnehmerinnen im Mittel jeweils niedrige Symptomausprägungen mit Spannweiten in den hoch symptomatischen Bereich. In Tabelle 3.5 sind Subskaleninterkorrelationen sowie Korrelationen mit dem KERF-Summenwert dargestellt.

[4] Terminologische Korrektur gegenüber dem veröffentlichten Artikel vorgenommen.

Tabelle 3.4 Prävalenz belastender Kindheitserfahrungen und psychopathologische Kennwerte der Stichprobe sowie Validitätskennwerte der KERF

	CTQ	BSL-23	HAM-D	Shut-D	KERF *dimensional*	KERF *kategorial*	*n*
M (*s; R/ n*)	39,19 (13,43; 25-70/32)	13,20 (18,34; 0-76/100)	9,1 (8,82; 0-35/77)	4,83 (7,11; 0-38/77)		absoluter (relativer) Anteil Skala zutreffend/	
KERF	*r* mit KERF *dimensional*[1]	*r* mit KERF *dimensional* /r_b mit KERF *kategorial (n)*			*M* (*s; R*)	*M* (*s; R*) für KERF-Multi	
PVA	0,62** (32)	0,35**/0,38** (100)	0,40**/0,37** (77)	0,48**/0,49** (77)	4,27 (3,43; 0-10)	57 (34,5%)	165
PNVEA	0,64** (32)	0,48**/0,50** (99)	0,46**/0,59** (76)	0,54**/0,56**(76)	3,74 (2,87; 0-10)	59 (36%)	164
PPA	0,44** (32)	0,41**/0,61** (99)	0,41**/0,61** (76)	0,50**/0,79** (76)	3,01 (2,70; 0-10)	27 (16,5%)	164
EN	0,77** (32)	0,32**/0,38** (98)	0,39**/0,43** (75)	0,43**/0,47** (76)	3,78 (2,86; 0-10)	68 (41,7%)	163
PN	0,56** (32)	0,40**/0,51** (98)	0,37**/0,29 (75)	0,51**/0,64** (75)	1,52 (2,52; 0-10)	12 (7,4%)	163
WITP		0,30**/0,54** (99)	0,20*/0,57** (76)	0,30**/0,58** (76)	0,90 (1,83; 0-7,5)	17 (10,4%)	164
WITS		0,03/0,01 (85)	0,11/0,23 (69)	0,13/0,11 (69)	1,56 (2,09; 0-7,5)	14 (12,3%)	114
PEERE		0,26**/0,49** (99)	0,33**/0,67** (76)	0,39**/0,70** (76)	4,09 (3,23; 0-10)	39 (23,8%)	164
PEERP		0,26*/0,33* (98)	0,20*/0,27 (75)	0,27*/0,37* (75)	1,18 (1,93; 0-8)	23 (14,1%)	163
SEXA	0,66** (32)	0,49**/0,81** (95)	0,48**/0,80** (72)	0,51**/0,85** (72)	0,95 (1,47; 0-7,5)	29 (18,1%)	160
Gesamt	0,75**/0,83[2] (32)	0,46**/0,49** (91)	0,44**/0,49**(68)	0,56**/0,58** (68)	24,41 (15,48; 0-73,25)	2,10 (2.14; 0-9)	155

Anmerkungen. Verbale Gewalt durch Eltern (PVA), nonverbale emotionale Gewalt durch Eltern (PNVEA), Körperliche Gewalt durch Eltern (PPA), Emotionale Vernachlässigung (EN), Körperliche Vernachlässigung (PN), Bezeugte körperliche Übergriffe auf Eltern (WITP), Bezeugte Übergriffe auf Geschwister (WITS), Emotionale Gewalt durch Gleichaltrige (PEERE), Körperliche Gewalt durch Gleichaltrige (PEERP), Sexuelle Gewalt (SEXA); *r* Pearsonkorrelation[5] der KERF- Subskalen/r_b biseriale- Korrelationen der KERF- Erfahrungstypen (Skala zutreffend vs. nicht zutreffend; anhand vorläufiger Schwellenwerte) mit Maßen für Psychopathologie bzw. den entsprechenden Subskalen des CTQs;[1] Berechnungen jeweils auf Basis der zum KERF äquivalenten Subskalen des CTQs; [2] KERF-Summenwert ohne die im CTQ nicht berücksichtigten Skalen (WITP, WITS, PEERP, PEERE); $^{**}p < 0{,}01$, $^{*}p < 0{,}05$.

[5] In der Publikation des Artikels wurde für Pearsonkorrelationen die Abkürzung r_p verwendet. Für die Dissertation wird einheitlich auf die Abkürzung *r* zurückgegriffen

Tabelle 3.5 KERF- Subskaleninterkorrelationen und Korrelationen der Subskalen mit dem KERF- Summenwert

	PVA	PNVEA	PPA	EN	PN	WITP	WITS	PEERE	PEERP	SEXA	KERF-SUM
PVA	1	0,62** (164)	0,51** (164)	0,51** (163)	0,44** (163)	0,41** (164)	0,32** (114)	0,31** (164)	0,14* (163)	0,38** (160)	0,78* (155)
PNVEA			0,49** (163)	0,58** (163)	0,47** (163)	0,35** (164)	0,46** (113)	0,25** (164)	0,11 (163)	0,42** (160)	0,77** (155)
PPA				0,41** (162)	0,37** (162)	0,28** (163)	0,41** (113)	0,29** (163)	0,20** (163)	0,43** (159)	0,70** (155)
EN					0,63** (162)	0,23** (163)	0,28** (112)	0,28** (163)	0,14* (162)	0,41** (159)	0,73** (155)
PN						0,26** (163)	0,22* (112)	0,20** (163)	0,10 (162)	0,44** (159)	0,64** (155)
WITP							0,33** (113)	0,17* (164)	0,06 (163)	0,27** (160)	0,49** (155)
WITS								0,09 (113)	0,09 (112)	0,30** (110)	0,52** (107)
PEERE									0,36** (163)	0,27** (160)	0,53** (155)
PEERP										0,30** (159)	0,39** (155)
SEXA											0,61** (155)
KERF-SUM											1

Anmerkungen. Unter Verwendung des dimensionalen Auswertungsansatzes; dargestellt sind Pearson- Korrelationen; Stichprobengröße in Klammern; ** $p < 0{,}01$, *$p < 0{,}05$.

3.5. Diskussion

Diese Arbeit beschreibt die Erstellung und erste psychometrische Beurteilung der *KERF*, einer deutschsprachigen Skala zur umfangreichen Erfassung belastender Kindheitserfahrungen, die auf einer US-amerikanischen Modifikation des *Adverse Childhood Experiences* Index (*ACE*; Felitti et al., 1998; Dube et al., 2003) durch Teicher & Parigger (2011) beruht. Die Konstruktion der zehn KERF-Subskalen erfolgte unter Verwendung separater Rasch-Modelle. Dabei genügten fünf der modellierten Subskalen vollständig und weitere fünf nicht gänzlich den angeführten statistischen Kriterien. Erklärungsansätze für die nicht durchgängig vollständig gelungene Rasch-Skalenmodulation liefern, insbesondere bei der Subskala *Bezeugte Gewalt gegenüber Geschwistern*, die reduzierte Teilstichprobe, die niedrigen Prävalenzraten auf Itemebene sowie der Sachverhalt, dass das best passende Modell bezeugte verbale, körperliche und sexuelle Gewalt kombiniert erfragt und somit eine gewisse Subskalenheterogenität impliziert. Korrelationen mit Depressivität, Dissoziation und Borderline-Symptomatik belegen die Konstruktvalidität[6] und klinische Relevanz der konstruierten Subskalen sowie des Gesamtinstruments. Ein Vergleich mit der Konstruktvalidität[6] gängiger deutschsprachiger Instrumente ist durch methodisch und inhaltlich divergierende Maße nur bedingt möglich, ergibt jedoch für die KERF vergleichbare bzw. meist höhere Werte als für die Entsprechungen des CTQ, ETI und ACE (Wingenfeld, Driessen et al., 2011; Wingenfeld, Schäfer et al., 2011; Wingenfeld et al., 2010).

Biserial-korrelative Analyse zwischen dem Zutreffen einzelner Subskalen (im kategorialen Auswertungsansatz) und Psychopathologie ergeben eine erste positive Bewertung der vorläufigen Schwellenwerte. Korrelationen zwischen den KERF-Summen- und Multiscores und psychopathologischen Kennwerten sprechen für einen Dosis-Wirkungseffekt belastender Kindheitserfahrungen auf Psychopathologie, wie er in der Literatur vielfach belegt ist (z.B. Edwards et al., 2003; Pietrek et al., 2013; Teicher et al., 2006).

Für den KERF-Summenwert (im dimensionalen Auswertungsansatz) lässt sich eine hohe Übereinstimmung mit dem Summenwert des CTQs finden. Ebenso zeigen sich auf Subskalenebene beinahe durchgängig starke Korrelationen zwischen beiden Instrumenten; mit Ausnahme der KERF-Subskala *Körperliche Gewalt durch Eltern,* denn diese bezieht bereits deutlich niederschwelligere Items mit ein als das CTQ- Äquivalent. Verglichen mit der

[6] Terminologische Korrektur gegenüber dem veröffentlichten Artikel vorgenommen.

konvergenten Validität gängiger deutschsprachiger Instrumente (Wingenfeld, Driessen et al., 2011; Wingenfeld, Schäfer et al., 2011) fallen die Übereinstimmungen insgesamt etwas niedriger aus.

Unterschiedliche belastende Kindheitserfahrungstypen sind miteinander assoziiert (Dong, Anda, Dube, Giles & Felitti, 2003[7]; Dong et al., 2004; Wingenfeld et al., 2010). Entsprechend lassen sich für viele Subskalen der KERF bedeutsame Interkorrelationen finden; inklusive der in den gängigen Instrumenten nicht erhobenen Dimensionen. Ähnlich dem Muster des CTQs (Wingenfeld et al., 2010) gipfelt der geteilte Varianzanteil zweier KERF-Subskalen bei 40%. Übereinstimmend mit der Argumentation von Wingenfeld et al. (2010) ist davon auszugehen, dass KERF, gegeben einer gewissen Subskaleninterkorrelation, klar voneinander differenzierbare Erfahrungstypen erfasst.

Stärken und Limitationen. Die KERF erfasst interpersonale Kindheitsbelastungen so breit und differenziert wie keines der aktuell gängigen deutschsprachigen Instrumente. Die autobiografische Einordnung der Belastungen bringt Möglichkeiten im Bereich der sensitiven Phasenforschung mit sich und stellt sich insbesondere für biografisch arbeitende Praktiker als wertvoll heraus. Informationen zur *emotionalen Reaktion auf das Erleben* geben Hinweise darauf, ob die Erfahrungen subjektiv traumatischen Charakters waren (Saß et al., 2003). Die Kombination der Rasch-Skalenmodelationen mit anschließender klassisch-testtheoretischer Beurteilung bringt gegenüber der rein klassisch-testtheoretischen Skalenkonstruktion einige methodische Vorzüge mit sich: Im Rasch-Modell konstruierte Skalen sind theoriegeleitet stichprobenunabhängig, weisen Intervallniveau auf und genügen den Voraussetzungen zur Aufsummierung einzelner Items zu Summenwerten, die im Sinne einer suffiziente Statistik Aufschluss über die Gesamtausprägung des erhobenen Konstruktes geben (u.a. Bühner, 2006; Moosbrugger & Kelava, 2008). Eine Limitation der Studie stellt die nicht repräsentative, rein weibliche Stichprobe geringen Umfanges dar, die keine Aussagen über Prävalenzraten in der Allgemeinbevölkerung zulässt und auf deren Grundlage lediglich vorläufige Schwellenwerte bestimmt werden konnten. Ferner sind Verzerrungen durch motivationale oder Erinnerungseffekte bei retrospektiver Datenerhebung nie gänzlich auszuschließen. Dennoch kann die Qualität retrospektiv erfasster Kindheitsbelastungen mittels validierter, adäquat

[7] In Publikation mit Dong et al. (2003) benannt.

durchgeführter Instrumente als ausreichend bewertet werden (Hardt & Rutter, 2004; Hardt et al., 2006).

Fazit und Ausblick. Die Befunde einer ersten psychometrischen Prüfung der KERF untermauern die Wichtigkeit einer umfangreichen Erfassung interpersonaler Kindheitsbelastungen und stellen die Skala als geeignetes, valides Maß zu Erfassung klinisch relevanter Belastungsdimensionen heraus. Weiterer Forschung bedarf es hinsichtlich der Evaluation (und eventuellen Korrektur) der vorläufigen Schwellenwerte, der Bestätigung der Subskalenlösungen für männliche Probanden sowie der Prüfung der Reliabilität der KERF. Letztere sollte nach Netland (2005) unter Verwendung von Retest- und Interrateranalysen auf Itemlevel erfolgen. Eine Überarbeitung der Subskala *Bezeugte Gewalt an Geschwistern* ist ebenfalls zu prüfen und ggf. in Betracht zu ziehen; ebenso die Übertragbarkeit der Ergebnisse auf die Anwendung der KERF als Fragebogen.

Die KERF Skala, Auswertungsmaterialien sowie weitere Versionen des Instrumentes, wie komprimierte Versionen (KERF-40; KERF-20) oder das KERF-Kinderinterview (*pe*dKERF-45-I)[8] sind über die Autoren zu beziehen. Zur Verdeutlichung, ob die Instrumente im Interview oder als Fragebogen verwendet wurden, wird empfohlen eine Durchführung im Interview in folgenden Arbeiten als „KERF-I“ zu kennzeichnen.

[8] In englischsprachiger Version *pediatric* MACE interview (*pedi*MACE; Isele, Ruf-Leuschner et.al., 2015)

4. Assessing exposure to adversities in children: The pediatric Maltreatment and Abuse Chronology of Exposure Interview

4.1. Abstract

Adverse childhood experiences (ACEs) include a broad range of stressors, such as abuse, neglect, social exclusion and witnessed assaults. These are associated with impairments in physical and mental health. Validated child-appropriate screening tools that consider the full range of exposure are needed for early identification of survivors at risk, to enable treatment and prevention. We detail the construction and present the psychometric evaluation of a pediatric interview, which is based on the Maltreatment and Abuse Chronology of Exposure (MACE). Tailored for assessment in children, the ***ped****iatric* **MACE i**nterview (***pedi*MACE**) screens lifetime exposure to interpersonal adversities and the age(s) of occurrence. The latter is of relevance as there are periods during which children are particularly sensitive to stressful experiences. We report results from the assessment in 411 Tanzanian elementary school children. Psychometric analysis combined IRT and CTT approaches. Validity evaluations were carried out with respect to potential associations with aggression, posttraumatic stress disorder (PTSD) symptoms and other mental health issues. The subscale modeling process generated ten subscales, all of which were significantly associated with mental-ill health. Cumulative exposure to childhood adversities was linked to higher symptom severity. The *pediMACE* facilitates the screening of past and ongoing adversities in minors for research purposes as well as for clinical psychological assessment.

Keywords: detecting childhood adversities in minors, childhood maltreatment, assessment, psychometric evaluation, screening interview

4.2. Introduction

Childhood adversities, including neglect, poor attachment, traumatic stress, poverty, poor education, and parental instability are all independently associated with a wide range of poorer socio-economic, behavioral and familial outcomes later in life as well as with impaired physical and mental health (Andersen & Teicher, 2008; Barbozo Solís, Kelly-Irwing, Fantin, Darnaudéry, Torrisani, Lang et al., 2015; Felitti et al., 1998; Hecker, Hermenau, Isele, & Elbert, 2013; Isele et al., 2014). While an injury (trauma) may appear immediately in response to a stressor, lasting impacts include on-going remodelling of systemic functioning of brain and behavior. Such changes, whereby organisms alter their phenotypes in response to stressors, can be maladaptive and manifest themselves as disorders, such as posttraumatic stress disorder (PTSD) or other forms of anxiety and stress related disorders (Elbert & Schauer, 2014; Teicher & Samson, 2013). Child abuse and victimization are highly prevalent (Finkelhor, Turner, Shattuck, & Hamby, 2013; Finkelhor, Ormrod, Turner, & Hamby, 2005; Stoltenborgh, van Ijzerdoorn, Euser, & Beakermans-Kranenburg, 2011; Stoltenborgh, Bakermans-Kranenburg, & van Ijzendoorn, 2013) and exposure to one type of adversity increases the risk of falling victim to further forms (for details see e.g. Finkelhor et al., 2013), forming a victimization-re-victimization circuit (Cuevas, Finkelhor, Clifford, Ormrod, & Turner, 2010). Exposure to more types of adversity is associated with a greater risk of psychopathology (e.g. Chapman et al., 2004; Felitti et al., 1998). This leads to the hypothesis that exposure to different types of childhood adversity could have a cumulative impact upon the risk of mental-health problems (e.g. Chapman et al., 2004; Felitti et al., 1998). However, a cumulative burden hypothesis provides but one interpretation. An alternative hypothesis is that the multiplicity of exposure increases risk by increasing the likelihood of experiencing a critical type of abuse at a critical age. This latter alternative provides a better fit regarding exposure to childhood maltreatment and risk for depression (Khan, McCormack, Bolger, McGreenery, Vitaliano, Polcari, & Teicher, 2015).

From the point of view of clinical psychological support, affected people need to be identified early, which requires child-appropriate tools for screening of stressors and adversities. Instruments like the Juvenile Victimization Questionnaire (JVQ; Finkelhor, Hamby, Ormrod, & Turner, 2005; Hamby, Finkehor, Ormrod, & Turner, 2004), the Traumatic Events Screening Inventory (TESI; Ford & Rogers, 1997), the Violence Exposure Scale (VEX-R; Fox & Levitt, 1995 1996) or the Childhood Trauma Questionnaire (CTQ; Bernstein, Ahluvalia, Pogge, & Handelsman, 1997) have provided useful data to investigate the

consequences of abuse. However, as stated by Finkelhor et al. (2013, *p*. 614) "the variety and scope of children's exposure to violence, crime, and abuse suggest the need for better and more comprehensive tools in clinical and research settings for identifying these experiences and their effects." In short, victimization needs to be assessed in its breadth by considering several significant forms of adversities across the lifespan. While sexual and physical violence are obvious adversities, other significant forms have not received as much attention from researchers. These include emotional abuse (Teicher, Samson, Polcari, & McGreenery, 2006; Haferkamp, Berbermeier, Möllering, & Neuner, 2014; Fiess, Steffen, Pietrek, & Rockstroh; 2013), witnessed assaults toward siblings (Teicher & Vitaliano, 2011) and violence at the hands of peers or siblings (Finkelhor, Turner, & Ormrod, 2006; Iffland, Sansen, Catani, & Neuner, 2014). A revision of the Juvenile Victimization Questionnaire (JVQ-R2; Finkelhor, Hamby, Turner, & Ormrod, 2011) provides valuable progress, but its complexity and demanding requirements limits its application.

Upcoming research on associations between the timing of exposure and subsequent psychopathology (Hermenau, Hecker, Elbert, & Ruf-Leuschner, 2014; Kaplow & Widom, 2007; Keileya, Howeb, Dodgec, Batesd, & Pettite, 2001; Schoedl et al., 2010; Khan et al., 2015; Schalinski & Teicher, 2015) suggests the urgent need to include information on the chronology of exposure in the assessment of childhood adversities.

Correspondingly, the present study aims at the development and psychometric examination of a broad-ranging screening instrument with the following features: First, it should assess exposure to the major types of interpersonal childhood adversity. Second, it should provide data on the chronology of stressful events. Third, it should be suitable for assessing children. Hence, items need to be worded so that children can understand them, events need to be described in a simple manner that fits with their understanding and perception of the adverse experience, and the assessment will need to be accomplished within a reasonably short time period.

4.3. Methods

4.3.1. Developmental process of the *pediatric* MACE interview (*pedi*MACE)

Hamby and Finkelhor (2000) have addressed the question of the age children are able to reliably report their life experiences. The authors highlight a series of inquiries on childhood adversities including children from school-age (six or seven years of age) and above, and conclude that children down to the age of seven should be capable of accurately reporting victimization. Accordingly, we decided to construct the assessment tool in a format that does not require full reading capacities - a structured interview that can be administered by mental health professionals who may guide emotional and cognitive processes that may arise in the respondent during the assessment.

We have based the instrument on the *Maltreatment and Abuse Chronology of Exposure* (MACE; respectively its original 75-items version as well named MACE-X; Teicher & Parigger, 2011, 2015), a modification and expansion of the Adverse Childhood Experiences Index (ACE; Dube et al., 2003; Felitti et al., 1998), and adapted it to the developmental requirement of minors.

MACE enables a detailed retrospective measurement of significant interpersonal childhood adversities in adults. Besides physical, emotional and sexual abuse, it accounts for physical and emotional neglect, witnessed violence towards parents and siblings and peer victimization. Each subtype was measured with several items, allowing for a specification of its severity on a subtype level. The questionnaire in total, with its standardized evaluation algorithm, maps childhood adversity *overall exposure severity* (MACE severity score) in the style of the CTQ (Bernstein et al., 2003) as well as the *multiplicity/breadth of exposure* (MACE multiplicity score; mapping the amount of event types) on the basis of the ACE Index (Felitti et al., 1998; Dube et al., 2003). Each MACE event item initially assesses lifetime exposure. If an item is endorsed, sub-items further specify ages of occurrence. This delivers important additional information for research and biographically driven psychotherapeutic interventions. MACE-X (Teicher & Parigger, 2011, 2015) additionally considers the immediate defense response to the event.

The procedure for developing the pediatric version of MACE, which we named ***ped****iatric* **MACE i**nterview (***pedi*MACE**, Isele, Ruf-Leuschner, Schauer, & Elbert, 2015[9]), is as follows: We used simple wording and grammar, and used behavior-orientated items rather than abstract constructs, in accord with recommendations on the assessment of victimization in minors by Hamby and Finkelhor (2000). Both the MACE general introduction and the introduction of the individual subscales were adapted to a more child-friendly wording.

When assessing the adversities experienced or witnessed in the household, the instrument focuses on experiences at the hands of every adult who has lived in the household for at least a couple of years, in the style of the ACE index (Felitti et al., 1998); analogously victimization at the hands of and toward every child (i.e. witnessed) living in the household is assessed. To ease the assessment of adversity dimensions, we added introductory items on family and living situation(s) at the beginning of *pedi*MACE. Moreover we included interviewer instructions giving helpful supplementary information on interview procedure and scoring.

We condensed and modified the 75-items of the MACE-X (Teicher & Parigger, 2011, 2015) down to a 45-event-item pediatric interview. In a first step, MACE-X was condensed to a 38-item pediatric interview draft. Items from the MACE-X that we chose needed to be succinct, so that the children could readily understand them. Some were rewritten accordingly. Some MACE-X items were combined, in order to make best use of information collection in the most simple and child appropriate mode: Thus, the MACE-X items 1 *"*Swore at you, called you names, said insulting things like your are 'fat', 'ugly', 'stupid' etc. more than a few times a year" and 2 "Said hurtful things that made you feel bad, embarrassed or humiliated more than a few times a year" were combined to make the *pedi*MACE item 3 *"*Did anybod*y call you names or say hurtful things* such as calling you 'fat', 'ugly' or 'stupid' etc. (more than a few times a year)*."* Equally we proceeded with the MACE-X item equivalents, asking for peer emotional bullying (MACE-X items 39, 40). MACE-X items 8 *"*Hit you so hard that it left marks for more than a few minutes" and 9 "Hit you so hard, or intentionally harmed you in some way, that you received or should have received medical attention", were merged and simplified to the *pedi*MACE item 9 *"*Did anybody *hit you* so hard that *you were injured."* We did the same thing with the item equivalents regarding peer physical bullying (MACE-X

[9] Authors masked in the submitted manuscript.

items 47, 48), witnessed violence toward siblings (MACE-X items 19, 20) and witnessed assaults toward the mother (MACE-X items 34, 35) and the father (MACE-X items 37, 38). The latter two were initially combined into one single item, assessing witnessed violence toward both parental figures/several adults living in the house, but after a pilot phase they were again separated. MACE-X items 31 "Witnessed adult living in the house argue intensively with your mother (stepmother, grandmother), say derogatory things to her, or threaten her with harm" and 32 "[...] father (stepfather, grandfather)[...]" were converged and simplified into *pediMACE* item 19 *"*Have *you witnessed adults* living at your home *arguing intensively*" which primarily serves as introduction to the witnessed interparental violence module. The complex emotional neglect module was considerably shortened, resulting in the easily understandable *pediMACE* item*s 28* "*Did any family member* (parent or parental figure) *make you feel loved*", 29 "*Did any family member* (parent or parental figure) *take care of you"* and the *pediMACE* item 26 *"*Was there *a time in which* <u>*both*</u> *your mother* <u>*and*</u> *your father* (or other main attachment figures/parental figures) *did not try to understand your feelings, and were never there for you"* which is rooted in the MACE-X items 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", its equivalent item 52 "[...] father or other important paternal figure [...]", the MACE-X item 53 "You felt that your mother or other important maternal figure was emotionally unavailable to you for a variety of reasons like military service, taking care of a sick relative, in school, business necessity" and its equivalent 54 "[...] father or other important paternal figure [...]." *Parental loss* assessment was specified by three items, in the style of the MACE-X items, focusing on parental divorce/separation, death of a parental figure and placement in fostercare/a children's home.

In a second step, after completing some pilot interviews, we again rewrote and optimized some items to render them more concise and child-appropriate. Moreover, we added items on victimization at the hands of siblings (in style of the items on parental violence), giving consideration to our experiences, its notable prevalence (Tucker, Finkelhor, Shattuck, & Turtner, 2013), and significance in mental-ill health (Tucker, Finkelhor, Turner, & Shattuck, 2013). Further, we included two items referring to domestic sexual assaults toward parental figures (*pediMACE* items 24 and 25) and one item (*pedi*MACE item 1) on shuttling between two or more homes as part of the *parental loss* module, which was included to ensure that adversities experienced in several households a child was living in would be considered

during *pedi*MACE assessment. For this purpose, the item was set at the front of the *pedi*MACE event assessment, together with the *pedi*MACE item 2 on living in foster care or children's homes, which is also part of the parental loss module.

The construction process was carried out on the German version of the instrument. This version was translated into English, independently retranslated to German and revised by researchers from our working group, which consisted of both native German and English speakers. We focused on choosing child-friendly, culturally sensitive wording. For example, we used the expression 'private parts' for genitals, as recommended by Hamby & Finkelhor (2000).

Table 4.1 shows a comparative synopsis of the ten event types, assessed by *pedi*MACE, the MACE and the ACE index. Table 4.2 details the construction process and final composition of the 45 items of the *pedi*MACE.

4.3.2. The *pedi*MACE - structure and assessment procedure

The *pedi*MACE interview begins with a short quite low threshold preface to adverse interpersonal childhood experiences "Sometimes, life is tough and sad and sometimes other people behave in a mean and hurtful manner. We would like to talk to you about these things." This aimed to introduce minors to the topic and motivate them to disclose their experiences. The questions that follow this on children's gender, age and people belonging to their family, their main carer and people living at their house (along the lifespan), are introduced as follows: "First, we want to ask you some questions concerning you, your family and the persons you are living with." The information gathered with these, and with the subsequent *pedi*MACE items 1 and 2, is helpful to structure the interview process and potentially enable adaptive testing. Modules exploring violence at the hands of siblings and witnessed assaults toward siblings may be skipped if there were no other children living in the household. All of the six thematically organized *pedi*MACE modules, are initiated by a standardized instruction. For example module 1: "Parents, siblings or other adults or children living at your home sometimes behave in a mean and hurtful way. Sometimes parents e.g. scream at their children or slap them, sometimes siblings also act that way.

Table 4.1 Comparative synopsis of ACE, MACE and *pedi*MACE event types

ACE (Felitti et al., 1998; Dube et al., 2003)	**MACE ((-X); Teicher & Parigger, 2011, 2015)**	***pedi*MACE (Isele, Ruf-Leuschner et al., 2015[10])**
(1.) physical abuse	(1.) parental physical maltreatment	(1.) parental[1] physical violence (ppa)
(2.) emotional abuse	(2.) parental verbal abuse	(2.) parental emotional violence (pea)
	(3.) non-verbal emotional abuse	
(3.) sexual abuse	(4.) sexual abuse	(3.) sexual violence (sexa)
(4.) emotional neglect	(5.) emotional neglect	(4.) emotional neglect (en)
(5.) physical neglect	(6.) physical neglect	(5.) physical neglect (pn)
(6.) witnessed physical violence to mother	(7.) witnessing interparental violence	(6.) witnessing interparental violence (witp)
	(8.) witnessing violence to siblings	(7.) witnessing violence to siblings[2] (wits)
(7.) mental illness of household member	(9.) peer emotional abuse	(8.) peer violence (peer)
(8.) substance abuse of household member	(10.) peer physical bullying	(9.) physical violence by sibling(s) (spa)
(9.) delinquency of household member		(10.) emotional violence by sibling(s) (sea)
(10.) parental separation/divorce	*additional information: parental loss[3]*	*additional information: parental loss (loss)*

Note. [1] Parents (parental) refers to several adult household members; [2] sibling(s) refers to several minor household members; [3] not included in the final MACE (for more information see Teicher & Parigger, 2015).

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The following is about things you may have experienced with your parents, other adults living in your home, or your brothers or sisters or other children living in your home." At this point it is helpful to include information gathered in the introductory items, and to get an idea of the significant figures in the household. This might be done for example in the following way: *"So, this is now about your experiences with important people in your life. Your mother, your father, your uncle, who lived at your house from when you were age eight to ten. It is also about your experiences with the caregivers in the children's home you lived in."* The *pedi*MACE items are initially binary, asking for lifetime occurrence/exposure (yes vs. no). This is in line with recommendations by Hamby and Finkelhor (2000), who advocate a simple response format. The endorsement of any item allows a further specification of several age(s) of occurrence, using temporal anchors that can be readily understood by children. This process is introduced and specified by the *pedi*MACE item 1, per default clarifying the children's age during different periods of formal education: *"Now you are x years old and you are attending school at grade y, at what age did you enter school? How about before that, did you attend kindergarten, or what have you been doing, etc."* Other crucial events or (developmental) time spans may optionally be introduced and applied as temporal anchors if useful. If any *pedi*MACE item is endorsed, then temporal anchors are used to find out at which age(s) the child experienced the adversity. Conforming to the original MACE-X, two more subitems explore the direct emotional reaction to the events, in terms of helplessness or intense fear, as well using a binary response format (yes vs. no).

Some parts of the *pedi*MACE event items are put in italics. This is the core information of the individual item and helps the interviewer to keep track of what the item is about, in case there is a need to adapt the phrasing to the needs and capacities of the child.

4.3.3. Procedure of the validation study

For the present psychometric evaluation study we chose a sample of children from Tanzania, a low-income country. The limited resources of many, but not all families, the partial or complete absence of parents and the official approval of harsh discipline result in a wide range of exposure to a large variety of stressors. Our study was conducted in cooperation with

a Tanzanian school (as outlined in detail in Hecker, Hermenau, Isele, & Elbert, 2013[11]): Legal guardians were informed by letter about the study and asked for their written informed consent to for their children to undergo individual child-friendly structured clinical interviews; about 80% agreed. To ensure high interview quality, the interviews were performed by a team of two Tanzanian interviewers, one German and one Tanzanian interviewer, or one sole Tanzanian interviewer; depending on experience and expertise. Interviewers were psychologists and/or psychology students. Interviews were conducted in Swahili and supervised by the project leaders. Tanzanian members were trained in mental-health concepts and interviewer skills beforehand. A written Swahili version (including blind back-translation into English) of several instruments was developed and provided to the Tanzanian team members to ensure accurate comprehension and translation. German and Tanzanian team members mainly communicated in English, two German team members spoke fluent Swahili. Interviews were conducted in a calm and safe environment to ensure confidentiality and thereby ease disclosure. Girls were interviewed by female interviewers, in accord with recommendations of Hamby and Finkelhor (2000) that interviewer and interviewee be matched for gender. At the beginning of the interview the interviewers introduced themselves and the project to the children and asked for their oral consent. Children were assured that the study-participation is voluntary, and that they could break off the interview at any time. They were assured that the information gathered would be treated confidentially, which is crucial to enable disclosure (see e.g. Hamby & Finkelhor, 2000).

We began our interaction with the children by first asking some very basic sociodemographic questions, such as age and the class they belong to at school. This was followed by questions on the children's physical health. We then assessed the children's behavioral problems, before introducing them to the *pedi*MACE. The administration of the *pedi*MACE in this sample took between 30 to 60 minutes, with an average time of 45 minutes. Administration time depended on children's age, developmental state and burden. However, the translation process to some extent needs to be factored into this data. Well-practiced monolingual interviews might be conducted within a narrower time-frame. After completing the *pedi*MACE, we assessed posttraumatic stress symptoms and externalizing behavior. The children's wellbeing was the highest priority for us. If it was necessary to adapt the questions to make the child understand them more easily, or to focus on children's emotions, we did so.

[11] Authors masked in the submitted manuscript.

The study protocols were accepted by the *Ethics-Board of the University of Konstanz*[12] and the *Tanzanian Commission for Science and Technology.*

4.3.4. Sample

For psychometric analysis of the *pedi*MACE, data from N = 411 (196 girls) Tanzanian elementary school children were used. Participants were on average 10.5 (SD = 1.9, MD = 11, *range* = 6 to 15, with 90% being 8 - 12) years of age. Most of the children were attending grade 3 or 5. Table 4.4 (supplementary files) shows the participants' living and familial circumstances. For construct validity evaluation, we used physical and mental health ratings of 409 of these children (48% female; age: M = 10.49 years, SD = 1.89, *range* = 6 - 15 years).

Prior to the main study, pilot interviews were conducted with 41 children using a preliminary version of the instrument and then seven with the final interview to test the feasibility.

4.3.5. Analysis

4.3.5.1. PediMACE subscale calibration

The subscale calibration procedure was based on the approach selected by Teicher and Parigger (2015) for the MACE, applying separate Rasch modeling (Rasch, 1960, 1980) for every ten subscales. Item severity (σ) and children's 'ability'/exposure level (ξ) were calculated. Mean square fit indexes (infit and outfit) indicate the model fit, mathematically based on the "squared residual for each person-item combination" respectively for every single item (Cole, Rabin, Smith & Kaufman, 2004, *p.* 363). The outfit index indicates unexpected responses to items, which distantly differ in their severity from a person's exposure level. In contrast, the infit maps unexpected responses on items for which severity is similar to persons' exposure level (see e.g. Cole et al., 2004; Linacre, 2002). Referring to earlier research (Cole et al., 2004; Wright & Stone, 1979) we appreciated mean square (in- and out-) fits from 0.7 to 1.3. High values are indicators for a poor model fit, whereas lower

[12] Masked in the submitted manuscript

values are indicators of overfit (see e.g. Linacre & Wright, 1994, Wright & Masters, 1990). Concordant with the procedure by Teicher and Parigger (2015), low itemfit in some cases was accepted to provide wider differentiation in terms of item severity. Calibration was conducted as a circular process. Where there was inadequate fit, we iteratively tried for optimization by eliminating or adding single items. The overall Rasch model validity was checked by Andersen X^2, split both for gender and age (median-split). To further evaluate significant results, group differences in subscale and item level were analyzed using t- and X^2-tests.

As the MACE (Teicher & Parigger, 2015), the *pedi*MACE enables two different evaluation approaches: The *dimensional approach*, based on linear interpolated subscale raw scores, mirrors exposure severity on subscale level (*range* = 0 - 10) as well as collating the scores of the ten subscales for the *pedi*MACE *overall* 'severity score' (*pedi*MACE sum score; *range*: 0 - 100). The second, *categorical approach* goes back on the ACE index (Felitti et al., 1998; Dube et al., 2003) and reflects the number of true event types, thus the 'multiplicity of exposure'. Cut-off scores on subscale level define whether a certain *pedi*MACE event type applies. The total of event types accumulates the *pedi*MACE 'multiplicity score' (*pedi*MACE multi score; *range:* 0 - 10). Preliminary cut-off scores for every subscale were developed by median-split of the number of endorsed items plus one.

*Pedi*MACE enables both the option of evaluating *global* lifetime exposure, and victimization for every single age of life.

4.3.5.2. PediMACE validity examination

To evaluate the construct validity and clinical relevance of the *pedi*MACE, pearson (r) and biserial (r_b) correlations with children's physical and mental-ill health were analyzed. For subscales measuring *violence by siblings* and *witnessed violence toward siblings*, calculations were based on n = 400 respondents who had ever lived with other children in the house.

Calculations were carried out with IBM SPSS 21 and R 3.0.0 (R Development Core Team, 2013; packages eRm, ltm and polycor; Fox, 2010; Mair & Hatzinger, 2007; Rizopoulos, 2006).

4.3.5.3. Measures for construct validity analysis

Behavioral problems over the six months preceding the interview were screened for using the *Strengths and Difficulties Questionnaire* self-report version (SDQ; Goodman, Meltzer, & Bailey, 1998). It focuses on conduct problems, emotional symptoms, peer problems, hyperactivity-inattention and prosocial behavior, each scanned by five items on a three stage scoring (scoring: 0 = not true, 1 = somewhat true, 2 = certainly true, *range*: 0 - 10 for subscales, 0 - 40 for mental problems total difficulties score analyzed by the sum of subscale sum scores except the prosocial subscale). Psychometric evaluations indicate its reliability (Cronbach's α: total difficulties score = .80, subscale level: peer problems α = .41 up to hyperactivity- inattention = .67; correlational retest reliability across a four to six months interval on subscale level: prosocial behavior and conduct problems = .51 up to hyperactivity-inattention = .60, for the total difficulties score = .62), validity (odds ratio of the 90 % extreme group and psychopathology on subscale level from prosocial behavior = 1.7 up to emotional problems = 9.7, total difficulties score = 6.6) and five-factor structure (Goodman, 2000). In our sample the Cronbach's α for the total difficulties score was .67, (hyperactivity-inattention = .19, prosocial behavior = .52, peer problems = .20, conduct problems = .39, emotional problems = .57). The average total difficulties score was 10.08 (*MD* = 10, *SD* = 5.57, *range*: 0 - 31). For analysis of the validity of the *pedi*MACE, we used both the total difficulty score and subscale scores.

Externalizing behavior was additionally assessed by the psychometrically verified *Reactive-Proactive Aggression Questionnaire* (RPQ; Raine et al., 2006, reported psychometrics: Cronbach's α: overall = .90, reactive aggression = .84, proactive aggression = .86; correlational convergent validity with self-report hostility-aggression overall = .38, proactive = .52, reactive = .50), which we applied in a slightly adapted 22-item version (Hermenau, Eggert, Landolt, & Hecker, 2015; Hermenau et al., 2011). This instrument quantifies the lifetime frequency of reactive and instrumental aggression tendencies (scoring: 0 = never, 1 = sometimes, 2 = often; *range* RPQ sum score (sum of item scores) = 0 - 44). The average RPQ sum score in our sample was 8.53 out of a maximum of 44 (*MD* = 8, *SD* = 5.74, *range* = 0 - 31, *n* = 408). Overall Cronbach's α was .84 (α reactive aggression = .74, proactive aggression = .76). For evaluations on the *pedi*MACE validity we used the RPQ sum score.

Current post-traumatic stress disorder (PTSD) symptoms were screened for by the *University of California at Los Angeles Post-traumatic Stress Disorder Reaction Index* (*UPID*, Pynoos, Rodriguez, Steinberg, Stuber, & Frederick, 1998). Summarized psychometrics according to

Steinberg, Brymer, Decker, and Pynoos (2004): convergent validity = .70, test-retest reliability good to excellent. This tool measures symptom severity according to DSM-IV criteria, by frequency rating in the preceding month on 20 items (scoring: 0 = none, 1 = little, 2 = some, 3 = much, 4 = most; PTSD severity *range*: 0 - 80). We analyzed current PTSD (core) symptom sum scores, as a sum of the subscale sum scores (intrusions, avoidance and hyperactivity), based on the scoring recommendation by Pynoos et al. (1998). The average sum score in our sample was 4.50 points (*MD* = 0, *SD* = 8.30, *range* = 0 - 49). The overall internal consistence in our sample was α = .91 (α subscales: intrusions = .85, hyperactivity = .78, avoidance = .76). *Pedi*MACE validity analysis was performed based on the symptom sum score.

Somatic health over the past month was assessed with ten items recording common physical problems. These included: cough, flu/cold, headache, stomach pain, diarrhea, vomiting, fever/shivering, malaria, skin rush/scabies and other pain (scoring 0 = no, 1 = yes; *range* sum score (sum of items endorsed) = 0 - 10). The average sum score in our sample was 3.90 points (*MD* = 4, *SD* = 2.22, *range* = 0 - 10). The internal consistency of this measure was α = .61.

4.4. Results

4.4.1. Subscale calibration

For subscales *emotional and physical violence by siblings, sexual violence*, *emotional and physical neglect* final subscale decisions completely fulfilled the a priori statistical criteria. This was also true for the additional scale *parental loss*, which is not part of the standardized *pedi*MACE algorithm, "[…] as it did not fit conceptually within an abuse and neglect framework", as Teicher and Parigger (2015; *p.* 6) explained for the MACE. For *parental physical violence* (based on gender split) and *emotional violence* Anderson X^2 indicated acceptable overall-fit, but fits on item level were below the ideal criteria. In regard to their severity however, both final subscale solutions cover a wide difficulty span. The *witnessing violence to siblings* and *witnessing interparental violence* subscales had similar characteristics. The significance of Anderson X^2 among the *peer violence* subscale (based on

gender split) was not due to differences in overall peer violence (defined by final subscale solution: $t_{peer}(409) = 1.06$, $p = .29$). *Pedi*MACE item 40 "Did anybody *say things behind your back, post derogatory messages about you, or spread rumors about you*" was more often reported in girls (55% vs. 42% in boys; $X^2(1) = 6.70$, $p = .01$) and the slightly misfitting though most severe *pedi*MACE item 43 "Did anybody *hit you* so hard that you were *injured*" was more often endorsed by boys (22% vs. 16% by girls; $X^2(1) = 5.73$, $p = .02$;). *Pedi*MACE item 43 did not completely fulfill the item fit criteria either, but was endorsed for its high severity. For *parental physical violence* significance in Anderson X^2 (based on age split) probably is not attributable to differences in overall subscale level ($t_{ppa}(409) = -1.98$, $p = .049$; $M_{below\ 11\ years} = 2.19$, $SD = 1.10$; $M_{11\ years\ or\ older} = 2.40$, $SD = 1.02$). Rather, it is more likely to be related to differences in endorsement among the *pedi*MACE items 6a "Did anybody intentionally *push, pinch, slap, punch or kick you*" and 8a "Did anybody *spank you with an object* such as a strap, belt, brush, stick, tube, broom, wooden spoon, etc"*;* both were more often endorsed by younger children (item 6a: $X^2(1) = 6.24$, $p = .01$, 72% of younger vs. 61% of older children; item 8a: $X^2(1) = 6.27$, $p = .01$, 87% of younger vs. 78% of older children). *Pedi*MACE items 8a and 9a "Did anybody *hit you* so hard that *you were injured*"*,* showed slight deviance in terms of item fit, but they are valuable nonetheless, because they represent peaks in severity. Table 4.2 shows several parameters and prevalence rates on item level.

4.4.2. Validity analysis

Subsequent correlational analysis was carried out with the emerging *pedi*MACE subscales, the sum and multi scores and the measures of psychological and physical symptoms. The results affirmed the significance and thereby the construct validity of all ten *pedi*MACE subscales in pediatric mental health as well as some subscales in somatic-ill health (see tables 4.3 and 4.5 in supplementary files). Figure 4.1 illustrates the cumulative burden of childhood adversities on children's mental health (for parameters in detail see table 4.3). The additional scale *parental loss (M = 1.70, Mdn = 0, SD = 2.17, range = 0 - 7.5, n = 411)* was found to be associated with PTSD symptoms ($r = .15$, $p < .01$, $n = 409$) and aggression ($r = .13$, $p < .01$, $n = 409$). Almost all ten *pedi*MACE subscales were significantly interrelated to varying degrees, with $r = .56$ for *emotional* and *physical violence by siblings* being the highest (for details see table 4.6 in supplementary files).

Preliminary cut-off proposals for *pedi*MACE subscales are presented in table 4.2. For subscales measuring violence carried out by siblings, our proposals are adapted to their equivalents on violence by parents. Among neglect subscales, cut-off suggestions were adjusted slightly upwards, being particularly seldom reported in the calibration sample (*Mdn* = 0). A first evaluation of the cut-off values showed promising results (see tables 4.3 and 4.5 supplementary files).

Table 4.2 *Pedi*MACE subscale development parameters and cut-off proposals

	Outfit	**Infit**	**σ (SE)**	**%**
Parental emotional violence. Cut-off: 2 of 3, $X^2_{age}(2) = 2.06$ ($p = .36$), $X^2_{gender}(2) = .61$ ($p = .74$), $n = 411$				
3a. *called you names*	.54	.54	- .05 (.13)	41
4a. *yelled/screamed* at you	.35	.55	-2.40 (.18)	82
5a. *locked you*	.61	.54	2.44 (.19)	07
Emotional violence by sibling(s). Cut-off: 2* of 3, $X^2_{age}(2) = .95$ ($p = .62$); $X^2_{gender}(2) = 2.3$ ($p = .32$), $n = 400$				
3b. *called you names*[1]	.79	.88	-.96 (.14)	32
4b. *yelled /screamed* at you[1]	.72	.85	-1.03 (.14)	33
5b. *locked you*[1]	.95	.67	1.99 (.23)	4
Parental physical violence. Cut-off: 3 of 4, $X^2_{age}(3) = 15.5$ ($p = .00$); $X^2_{gender}(3) = 3.06$ ($p = .38$), $n = 411$				
6a. intentionally *pushed*	.90	.92	-.41 (.10)	66
7a. *spanked you with palm of hand*	.94	.95	.08 (.10)	57
8a. *spanked you* with *object*	.65	.78	11.43 (.12)	82
9a. *hit* you that *you were injured*	.60	.75	1.75 (.12)	24
Physical violence by siblings. Cut-off: 3* of 4, $X^2_{age}(3) = 0.23$ ($p = .97$); $X^2_{gender}(3) = .35$ ($p = .32$), $n = 400$				
6b. intentionally *pushed*[1]	.93	.98	-1.24 (.13)	38
7b. *spanked you with palm of hand*[1]	.80	.83	-.29 (.13)	25
8b. *spanked you* with *object*[1]	.97	.98	.57 (.14)	156
9b. *hit* you that *you were injured*[1]	.76	.84	.95 (.15)	12

	Outfit	Infit	σ (SE)	%
Sexual violence. Cut-off: 1 of 4, $X^2_{age}(3) = 2.71$ ($p = .44$), $X^2_{gender}(3) = 3.71$ ($p = .29$), $n = 411$				
10a. [Parent] *touched your body*	1.07	1.08	-.19 (.31)	2
11a. Had you touch [parent*'s] body*[3]	-	-	-	1 (0.5)
12a. [Parent] *entered*[3]	-	-	-	1 (0.5)
10b. [Sibling] *touched your body*[1]	.99	.99	-.19(.31)	2
11b. Had you touch [sibling*'s] body*[1,3]	-	-	-	1 (0.5)
12b. [Sibling] *entered*[1,3]	-	-	-	1 (0.5)
36. [Adult] *touched your body*	.72	.77	.94 (.46)	1 (0.7)
37. [Adult] made you touch his/her body[3]	-	-	-	0
38. [Adult] entered[3]	-	-	-	0
44. [Peer] *touched or made you touch*	.99	.99	-.57 (.29)	3
45. [Peer] *entered*[1,3]	-	-	-	1 (0.5)
Witnessing violence to sibling(s). Cut-off: 2 of 4, $X^2_{age}(3) = 7.14$ ($p = .07$), $X^2_{gender}(3) = .38$ ($p = .95$), $n = 400$				
13. *witnessed pushing*	.77	.70	-2.63 (.18)	71
14. *witnessed hitting* palm of hand[1]	.80	.76	-1.18 (.15)	48
15. *witnessed hitting* injured	.54	.58	.82 (.16)	17
16. *witnessed* t*ouching body*	.73	.56	2.98 (.28)	3
17. *witnessed* being *made to touch*[3]	-	-	-	2
18. *witnessed entering*[3]	-	-	-	2

	Outfit	Infit	σ (SE)	%
Witnessing interparental violence. Cut-off: 1 of 4, $X^2_{age}(3) = 1.76$ ($p = .62$); $X^2_{gender}(3) = .77$ ($p = .86$), $n = 410$				
19. witnessed *arguing intensively*[3]	-	-	-	49
20. witnessed *pushing mother*[2]	.65	.76	.2.09 (.26)	20
21. witnessed *pushing father*[2]	.96	.95	.16 (.22)	7
22. witnessed *hitting mother*[2]	.72	.76	-.13 (.22)	9
23. witnessed *hitting father*[2]	.40	.67	2.06 (.34)	2
24. witnessed *touching mother's body*[1,3]	-	-	-	2
25. witnessed *touching father's body*[1,3]	-	-	-	1
Emotional neglect. Cut-off: 2 of 3, $X^2_{age}(2) = 2.31$ ($p = .32$), $X^2_{gender}(2) = 0.84$, ($p = .67$), $n = 411$				
26.*did not try to understand you*	.92	.92	-.09 (.14)	17
27. [no] *time to talk to you*	.98	.98	.28 (.15)	14
28. *make you feel loved*[r]	1.07	1.07	-.20 (.14)	18
Physical neglect. Cut-off: 3 of 5, $X^2_{age}(4) = 4.57$ ($p = .33$); $X^2_{gender}(4) = 7.86$ ($p = .10$), $n = 411$				
29. *take care of you*[r]	.81	.89	.28 (.18)	7
30. *help you with your homework*[r]	1.07	1.11	-1.07 (.15)	19
31. you did *not have enough to eat*	.97	.97	-.14 (.17)	10
32. *had to wear dirty clothes*	.84	.88	.51 (.20)	6
33. *bring you to the doctor*[r]	.87	.90	.41 (.19)	7

	Outfit	Infit	σ (SE)	%
Peer violence. Cut-off: 3 of 4, $X^2_{age}(3)= 2.99$ ($p = .39$), $X^2_{gender}(3) = 19.03$ ($p = 0$), $n = 411$				
39. *called you names*	.96	.95	-.12 (.15)	43
40. *said things behind your back*	1.02	1.03	-.99 (.16)	48
41. *excluded you*[3]	-	-	-	39
42. *pushed, pinched*	.80	.92	-.70 (.15)	55
43. *hit you* so hard	.57	.74	1.80 (.22)	17
Additional: parental loss. *$X^2_{age}(3)= 1.86$ ($p = .60$), $X^2_{gender}(3)= 2.18$ ($p = .54$), $n = 411$*				
1. living in two or more homes[1,3]	1.00	.95	.46 (.14)	11
2. living in foster care or […][3]	.84	.89	-.92 (.12)	28
34. parents separated or divorced[3]	1.05	1.00	.97 (.16)	7
35. parental figure passed away[3]	.88	.88	-.50 (.12)	22

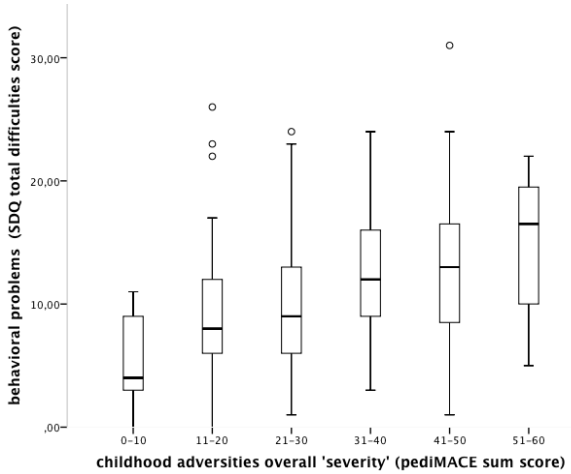
Note. Rasch modeling parameters: outfit = mean square fit outfit, infit = mean square fit infit; σ = item severity; SE = standard error; X^2 = Chi-square test of the Anderson Likelikood statistic; % = percentage of participants item endorsed; [1] item recruited or [2] split into subitems (items 20, 21 and 22, 23) after *pedi*MACE pilot phase; [3] item not contributing to final subscale solution; [r] inversely coded item (recoding required).

Table 4.3 Prevalence of childhood adversities and correlations with mental and somatic health

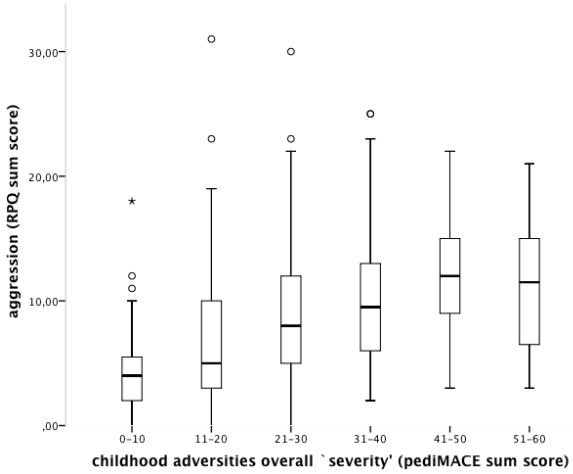
	Aggression	Behavioral problems	PTSD core symptoms	Somatic health	*Pedi*MACE		
					Dimensional	*Categorical*	*n*
	*r pedi*MACE *dimensional* /r_b *pedi*MACE *categorical (n)*				*M* (*Mdn*, *SD, range*)	*Amount (%)*	
Pea	.18**/ .18** (408)	.29**/ .34** (409)	.12*/ .11 (409)	.18** / .21**(409)	4.33 (3, 3.33, 2.45, 0-10)	165 (40)	411
Sea	.17**/ .12 (397)	.18**/ .19* (398)	.16**/ .12 (398)	.19**/ .17* (398)	2.25 (0,2.60, 0-10)	68 (17)	400
Ppa	.33**/ .32** (408)	.28**/ .33** (409)	.12* / .12*(409)	.18** / .19**(409)	5.72 (5, 2.76, 0-10)	189 (46)	411
Spa	.24**/. 21*(397)	.25**/ .26**(398)	.15**/ .15* (398)	.19**/ .29** (398)	2.26 (0, 2.80, 0-10)	42 (11)	400
En	.24**/ .19** (408)	.26**/ .30** (409)	.26**/ .32** (409)	.07/ .06 (409)	1.66 (0, 2.87, 0-10)	53 (13)	411
Pn	.24**/ .47** (408)	.20**/ .25* (409)	.25**/ .25* (409)	.07/ .02 (409)	.97 (0, 1.71, 0-10)	15 (4)	411
Wits	.19**/ .20** (397)	.21**/ .27** (398)	.17**/ .16* (398)	.25**/ .24** (398)	3.55 (2,5, 2.43, 0-10)	188 (47%)	400
Witp	.16**/ .23** (407)	.17**/ .19** (408)	.11 / .15* (408)	.05/ .12 (408)	.92 (0, 1.93, 0-10)	92 (22%)	410
Peer	.35**/ .42** (408)	.32**/ .41** (409)	.21**/ .26** (409)	.19**/ .19** (409)	4.05 (5, 3.06, 0-10)	107 (26)	411
Sexa	.14**/ .25* (408)	.23**/ .41** (409)	.21**/ .35** (409)	.06/ .10 (409)	.21 (0, 0.73, 0-5)	32 (8)	411
Loss	.13** (408)	.04 (409)	.15** (409)	.08 (409)	.17 (0, 2.17, 0-7.5)		411
Overall	.42**/ .36** (407)	.44**/ .43** (408)	.31**/ .25** (408)	.27**/ .25** (408)	25.75 (24.17, 12.96, 0-61)	2.32 (2, 1.87, 0-8)	410

Note. Aggression (Reactive-Proactive Aggression Questionnaire sum score); behavioral problems (Strengths and Difficulties Questionnaire total difficulties score); PTSD core symptoms (University of California at Los Angeles Post-traumatic Stress Disorder Reaction Index (core) symptoms sum score); somatic health (somatic health problems sum score); *pedi*MACE: parental emotional violence (pea), emotional violence by sibling(s) (sea), parental physical violence (ppa), physical violence by sibling(s) (spa), emotional neglect (en), physical neglect (pn), witnessing violence to siblings (wits), witnessing interparental violence (witp), peer violence (peer), sexual violence (sexa), parental loss (loss), overall 'severity' and 'multiplicity' score (overall); pearson correlation (*r*); biserial correlation (r_b); **$p < .01$, *$p < .05$.

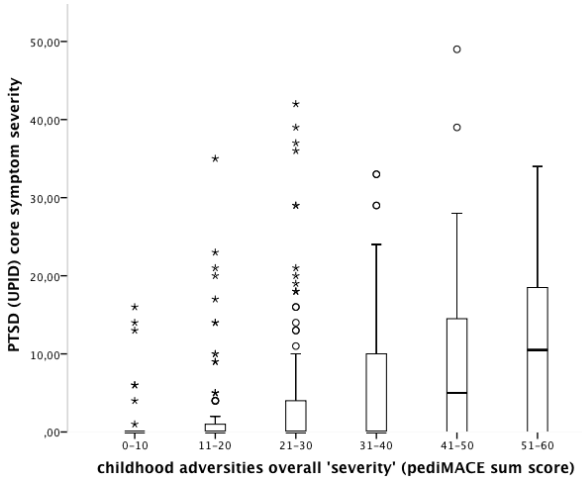
4.1a



4.1b



4.1c



Figures 4.1a to c illustrate the cumulative burden of childhood adversities overall 'severity' (*pediMACE* sum score clustered by steps of ten points) on children's mental health parameters respectively on behalf of box-plots.

4.5. Discussion

This work describes the construction and psychometric evaluation of the *pedi*MACE, a structured interview that screens for a broad range of past and ongoing interpersonal adversities in minors, based on the MACE (MACE (-X); Teicher & Parigger, 2011, 2015). The *pedi*MACE generally maintained the key-format of the MACE, in terms of its item organization and "ten-subscales-structure". Many items from this questionnaire were employed and partly rewritten, others were combined and some newly added; giving a total of 45 child-friendly items. The interview incorporates both the well-established event types, namely abuse and neglect by parents, sexual assaults, as well as peer victimization and the explicit assessment of violence at the hands of siblings. Introductory questions and interviewer information support the assessment.

The validation process incorporates besides classical as well probabilistic test theoretical approaches, which includes advantages such as sample independence and interval level of correspondent constructed scales. The *pedi*MACE subscale algorithms were drafted by separate Rasch models. Correspondent demands were entirely achieved for five of our subscales. Some heterogeneity on item level was found for the *parental physical violence* and *emotional violence* subscales, the two subscales measuring *witnessed assaults* and for the *peer violence* subscale. The statistical parameters of the following subscales are congruent with the heterogeneity of the concepts themselves: The subscale *parental emotional violence* includes a combination of verbal and nonverbal assaults (see Teicher & Parigger, 2015). The *peer violence* subscale assesses verbal and physical assaults (see Teicher & Parigger, 2015). The former is typically more prevalent among girls and the latter among boys. Thus the scale reflects the somewhat diverging exposure of both genders. Some heterogeneity within the subscale *witnessing violence toward parents* is due to the equal weighting of violence toward the mother **and** the father; the latter is less often endorsed. Heterogeneity of the subscale *witnessing violence toward siblings* might be partially attributed to the inclusion of both witnessed sexual **and** physical violence, which was a prominent concern to us. Finally for *parental physical violence*, besides minor statistical heterogeneity on item level, there were also some problems in the subscale construction process due to different exposure rates across different ages. This underlines the importance of developmental epidemiological research, a complex topic unfortunately beyond the scope of this paper. Using the *dimensional* evaluation approach, we found that several of the ten subscales were significantly associated with

psychopathology, with small to medium effect sizes. The high statistical significance and the congruence of our findings with the psychometric results of the JVQ (Finkelhor, Hamby et al., 2005) in a community sample, speaks in favor of the validity and clinical importance of the instrument. More sophisticated comparisons of our data e.g. with the construct validity of the JVQ, are not possible due to differences both on event-type level and the assessed indicators of mental ill-health.

Although we tried to create a comfortable setting of high confidentiality, it can not be precluded that children restrained from disclosure e.g. of sexual victimization due to shame or fear of possible consequences.

Like Finkelhor, Hamby et al. (2005) regarding the JVQ, we predict that the *pedi*MACE interview will show higher associations in clinical samples and participants with higher exposure. In line with this argumentation we revealed by trend that the highest associations between the instrument and clinical psychopathology were found for the more prevalent event types in which there was more variance, such as *parental physical violence* and *peer violence*. 'Sleeper' effects (Briere, 1992) and later-onset expression or enhancement of exposure-linked symptoms may not be precluded, as psychopathology often emerges over time (Teicher, Samson, Polcari, & Andersen, 2009). Nevertheless, our results for associations between the *pedi*MACE 'severity' and 'multiplicity score with measures of psychopathology and somatic symptoms are in line with findings on the cumulative toxicity of childhood adversities on mental (e.g. Felitti et al., 1998) and somatic health (Shonkoff & Garner, 2012) and in line with results from the ACE project, on associations between childhood stressors and prominent cause of death; both implying mental and physical issues (e.g. Felitti et al., 1998; Chapman et al., 2004). The timing of exposure seems to matter extensively in this regard as Khan et al. (2015) found and formulated concerning an alternative, more sensitive phase oriented, perspective on this topic. Focusing on interpersonal adversities in its breadth plus the timing of exposure, the *pedi*MACE is a useful tool for research in this realm. Preliminary evaluations of cut-off proposals showed promising results, with significant associations between the endorsement of any subscale and mental ill-health. Research applying the *pedi*MACE to disentangle the complex interplay of adverse childhood experiences, the epigenetics of the HPA axis and mental-ill health in children, further substantiates the validity of the instrument (Hecker, Radtke, Hermenau, Papassotiropoulos, & Elbert, 2015; Radtke et al., 2015). In line with knowledge on the co-occurrence of different types of adversities (Dong, Anda, Dube,

Giles, & Felitti, 2003; Dong et al., 2004), almost all *pedi*MACE subscales were revealed to be significantly interrelated.

A limitation of this study is the restricted age-range of six to fifteen years. Conclusions regarding prevalence rates for preschoolers and adolescents can thus not be drawn from this data-set. Cut-off proposals need further evaluation. Inquiries on the reliability of the *pedi*MACE, including the timeline assessment in minors, are pending. Just as experiences on its application in more heavily burdened participants and inquiry on exposure and disclosure patterns in minors different ages. Finally, the fact that this study was conducted in a Tanzanian sample where the *pedi*MACE was translated into Swahili needs to be acknowledged as a limitation.

Altogether the *pedi*MACE provides a tool to broadly screen for past and ongoing interpersonal adversities in minors and with it to help the clinician to treat associated psychopathology and to break the victimization-re-victimization circuit (Cuevas et al., 2010). Ten subscales of clinical relevance were developed. Potentially fundamental experiences of disruption of a parental relationship, including the loss of a parental figure, are accounted for. The lifetime approach supports the clinical interviewer to document rare and isolated events (Hamby & Finkelhor, 2001), and helps them to understand developmental processes in combination with adverse incidents. This is important both in biographically orientated psychotherapy, as well as for the further understanding of the nature and evolution of psychopathology with respect to childhood adversities (Teicher & Samson, 2013). A differentiated assessment of the timing of exposure may contribute to further research on sensitive developmental periods.

For the *pedi*MACE, its German-language equivalent and standardized analysis material, please contact the authors.

4.6. Supplementary files

Table 4.4 Family and household composition (based on *pedi*MACE introductory items)

	Absolute proportion item endorsed (%)		
	Which persons do you have in your family?	Who is your main carer?	Which persons are you/ have you been living with throughout your life?
Mother	273 (66%)	207 (50%)	400 (97%)
Father	242 (59%)	154 (38%)	366 (89%)
Sibling(s)	298 (73%)	11 (3%)	365 (89%)
Grandmother	51 (12%)	22 (5%)	101 (25%)
Grandfather	20 (5%)	6 (2%)	43 (11%)
Foster/adoptive parents	10 (2%)	8 (2%)	16 (4%)
Foster/adoptive siblings	12 (3%)	-	16 (4%)
Other relatives	185 (45%)	45 (11%)	245 (60%)
Other persons	290 (71%)	87 (21%)	331 (81%)
Stepmother	4 (1%)	1 (0%)	6 (2%)
Stepfather	3 (1%)	1 (0%)	7 (2%)
Stepsiblings	2 (1%)	-	5 (1%)

Table 4.5 Prevalence of behavioral problems and associations to childhood adversities (*pedi*MACE)

	Emotional problems	**Conduct problems**	**Hyperactivity/inattention**	**Peer relationship problems**	**Prosocial behavior**	***n***
M (*Mdn*, *SD, range)*	3.19 (3, 2.31, 0 - 10)	2.18 (2, 1.84, 0 - 8)	2.64 (2, 2, 0 - 9)	2.09 (2, 1.63, 0 - 8)	7.88 (8, 1.72, 2 - 10)	409
			r childhood adversities (*pedi*MACE dimensional evaluation approach)			
Pea	.21**	.26**	.18**	.18**	-.01	409
Sea	.12*	.17**	.12*	.09	-.05	398
Ppa	.19**	.28**	.24**	.10	-.11*	409
Spa	.22**	.17**	.16**	.14**	-.12*	398
En	.25**	.19**	.13**	.09	-.06	409
Pn	.11*	.19**	.21**	.05	-.14**	409
Wits	.11*	.19**	.20**	.11*	-.07	398
Witp	.13**	.12*	.16**	.08	-.08	408
Peer	.22**	.25**	.22**	.22**	-.02	409
Sexa	.13**	.18**	.22**	.14**	-.05	409
Overall	.32**	.37**	.33**	.22**	-.12*	408
Loss	.00	.08	.05	.00	-.13**	409

Note. Behavioral problems: emotional, conduct and peer problems, prosocial behavior and hyperactivity/inattention (SDQ subscale sum scores); *pedi*MACE sum score (overall) and subscales: parental emotional violence (pea), emotional violence by sibling (sea), parental physical violence (ppa), physical violence by siblings (spa), sexual violence (sexa), witnessing violence to sibling (wits), witnessing interparental violence (witp), emotional (en) and physical neglect (pn), peer violence (peer), parental loss (loss); pearson correlation (*r*); ** $p < .01$, * $p < .05$.

Table 4.6 *Pedi*MACE subscale intercorrelations and correlations with the overall *pedi*MACE 'severity' score

r (*n*)	Ppa	Spa	Sexa	Witp	Wits	Peer	Pea	Sea	En	Pn	Overall
Ppa	1	.20**	.16**	.18**	.40**	.33**	.44**	.25**	.20**	.15**	.63**
		(400)	(411)	(410)	(400)	(411)	(411)	(400)	(411)	(411)	(410)
Spa			.20**	.04	.28**	.32**	.11*	.56**	.10	.24**	.59**
			(400)	(410)	(400)	(400)	(400)	(400)	(400)	(400)	(400)
Sexa			.	.12*	.11*	.20**	.15**	.04	.15**	.20**	.31**
				(410)	(400)	(411)	(411)	(400)	(411)	(411)	(410)
Witp					.16**	.17**	.10*	-.03	.18**	.17**	.35**
					(400)	(410)	(410)	(400)	(410)	(410)	(410)
Wits						.28**	.28**	.27**	.18**	.13*	.60**
						(411)	(411)	(400)	(411)	(411)	(400)
Peer							.33**	.29**	.25**	.25**	.67**
							(411)	(400)	(411)	(411)	(411)
Pea								.21**	.18**	.09	.55**
								(400)	(411)	(411)	(410)
Sea									.14**	.18**	.59**
									(411)	(411)	(400)
En										.46**	.53**
										(411)	(410)
Pn											.48**
											(410)
Loss	.05	.14**	.01	.08	.09	-.01	-.04	-.08	.17**	.20**	.14**
	(411)	(400)	(411)	(410)	(400)	(411)	(411)	(400)	(411)	(411)	(410)

*Note. Pedi*MACE sum score (overall) and subscales: parental emotional violence (pea), emotional violence by sibling (sea), parental physical violence (ppa), physical violence by siblings (spa), sexual violence (sexa), witnessing violence to sibling (wits), witnessing interparental violence (witp), emotional neglect (en), physical neglect (pn), peer violence (peer); parental loss (loss); pearson correlation (*r*) based on the dimensional *pedi*MACE evaluation approach; ** $p < .01$, * $p < .05$.

5. Exposure patterns in minors- a brief note on the developmental epidemiology of childhood adversities

5.1. Abstract

Adverse childhood experiences constitute a serious issue concerning the psychosocial health of the victimized minors. The field of developmental epidemiology is to date barely studied. There are hints on victimization occurring throughout the entire childhood and youth, however with diverging risk during different ages. This study focuses the developmental course of childhood adversities, based on *pediatric* MACE interview data of 390 Tanzanian elementary school children. Our results underline previous findings on childhood adversities occurring throughout the entire phase of minority, but differing in risk. Individual event types vary in their courses throughout minority: The exposure to *neglect* e.g. stays stable, whereas the exposure to *parental physical violence* seems to vary across childhood and youth. The results are discussed in the context of possible memory issues and recommendations regarding the assessment of childhood adversities.

5.2. Introduction

There are indices of childhood victimization occurring throughout the entire course of minority. However, different types of adversities appear to have distinct exposure patterns across childhood, e.g. the risk of suffering from neglect seems to be stable across the course of minority, parental physical abuse in contrast seems to be especially prevalent between the ages five to seven (Teicher & Parigger, 2015). Moreover there are hints on exposure patterns differing in boys and girls (Finkelhor, Ormrod, & Turner, 2009; Teicher & Parigger, 2015).

However, scientific knowledge in this realm is sparse. Given this paucity of systematic literature, this work refers to developmental trends among the data of the community sample of Tanzanian minors presented by Isele, Hecker et al., 2015 (see 4.3.4 Sample). Therein, we focus on the distribution of different types of adversities across the course of childhood.

5.3. Methods

5.3.1. Sample and instruments

We used data on childhood adversities across the lifespan of a sample of 411 Tanzanian elementary school children presented by Isele, Hecker et al. 2015 (see 4.3.4. Sample).

Children younger than seven (n = 4) and older than thirteen (n = 17) years of age were excluded from temporal exposure analysis, due to small subsample sizes. The resulting sample included N = 390 children, on average 10.4 years (SD = 1.7, *range* = 7 - 13) old.

Adverse childhood experiences were measured by the *pediatric* MACE interview (*pedi*MACE; Isele, Ruf-Leschner, Schauer, & Elbert, 2015; Isele, Hecker et al., 2015). This instrument assesses childhood adversities in its breadth: including ten subtypes on the exposure to parental emotional and physical abuse and neglect, as well as victimization by siblings and peers, exposure to sexual violence and witnessed domestic violence. Moreover it asks on the age(s) of occurrence.

5.3.2. Analysis

We analyzed children's exposure to childhood adversities based on the *pedi*MACE dimensional evaluation approach (see Isele, Hecker et al., 2015), reflecting the severity of exposure to interpersonal adversities on subtype as well as on overall level (*pedi*MACE severity score). We examined data on lifetime exposure (global) and on the specified age of occurrence.

To attain a general overview of chronological exposure patterns in this sample, we firstly split our sample by children's age at time of data assessment and explored descriptively and graphically the average overall current, previous year, lifetime, and detailed age specific exposure severity of children different ages at time of assessment. Moreover we analyzed children's overall exposure severity across the lifespan (at different ages), including children of several ages at the time of assessment. This data showed high exposure severity respectively during the previous year. Taking this finding into account, as a second step we graphically analyzed the event type exposure severity based upon the previous age exposure of the participant's of different ages at time of data assessment.

Correlation and partial correlation analysis for overall lifetime (global), current and previous year exposure severity, and children's age at time of assessment were conducted. Gender differences were investigated using t-tests. Analyses were performed on behalf of IBM SPSS 21.

5.4. Results

The average overall exposure severity across children's lifespan (global), including data of children at all ages collected by the ordinary *pedi*MACE assessment procedure, increased across the first nine years of age, peaked between ten and twelve, followed by a decrease in the thirteenth year of life. The split plot for children of various ages at the time of data assessment deviates from this course in seven to ten year old children (figure 5.1a). Figure 5.1b disentangles the course of overall exposure severity across the lifespan for children of different ages at the time of data assessment, indicating respectively high exposure during the previous year. Figure 5.1c illustrates the chronology of exposure to different subtypes of adversities across the lifespan, based on children's reports on average previous age exposure.

Current overall exposure severity was found to be linked to previous year (r = .68, p < .01; $r_{p;lifetime\ overall}$ = .31, p < .01) and lifetime exposure (r = .68, p < .01; $r_{p;previous\ year\ overall}$ = .30, p < .01). Previous year overall exposure severity was identified as being associated with lifetime adversities severity (r = .81, p < .01; $r_{p;current\ overall}$ = .64, p < .01). Children's age at the time of data assessment was linked to overall current (r = -.20, p < .01) and previous year (r = -.14, p < .01) exposure. Lifetime overall exposure severity was by trend associated with participant's current age (r = -.10, p = .06). Partial correlations between current/ongoing overall exposure severity and participant's present age retained significance, controlling for lifetime exposure ($r_{p;lifetime\ overall}$ = -.18, p < .01). Previous year adversities in contrast lost its significant link to participant's momentary age after controlling for their lifetime exposure ($r_{p;lifetime\ overall}$ = -.10, p = .06). Descriptive data is shown in tables 5.1 and 5.2.

Gender differences among global (lifetime exposure) scores were found exclusively for sexual violence (t(388) = 2.11, p = .04; M_{male} = *.29,* SD_{male} =.88, M_{female} = *.13,* SD_{female} = .57;

differentiated along the lifespan/specified for the age of occurrence: six years of age: $t(185) = -2.26$, $p = .03$; $M_{male} = .00$, $SD_{male} = .00$, $M_{female} = .07$, $SD_{female} = .41$) and for parental emotional abuse ($t(388) = 2.17$, $p = .03$; $M_{male} = 4.62$, $SD_{male} = 2.44$, $M_{female} = 4.09$, $SD_{female} = 2.46$; no significant differences on age of occurrence level). There were no significant gender differences for global overall exposure severity ($t(387) = .84$, $p = .40$; $M_{male} = 26.38$, $SD_{male} = 13.18$, $M_{female} = 25.28$, $SD_{female} = 12.54$), current ($t(387) = .84$, $p = .73$; $M_{male} = 12.17$, $SD_{male} = 9.54$, $M_{female} = 11.48$, $SD_{female} = 9.26$) or previous age ($t(388) = .52$, $p = .60$; $M_{male} = 15.49$, $SD_{male} = 10.56$, $M_{female} = 14.94$, $SD_{female} = 10.09$) exposure.

5.5. Discussion

This study is aiming at the understudied field of the developmental epidemiology of childhood adversities. We therefore used *pedi*MACE (Isele, Ruf-Leuschner et al. 2015, Isele, Hecker et al., 2015) data of a sample of 390 Tanzanian elementary school children between the ages of seven to thirteen years.

Descriptive and graphical analysis on the timing of exposure across children of all ages demonstrated a steady increase in exposure during the first nine years of life, a peak between ten and twelve years, and a decrease in the thirteenth year of life. In contrast, separated for children of different ages at time of assessment, current exposure severity seemed to be on an equally high level for seven to ten years old children and tended to steadily decrease among children between eleven and thirteen years of age. Deviations of seven to ten years range might be due to sample composition or a rise in victimization during the last couple of years.

Table 5.1 Descriptive data on childhood adversities experienced at different ages

Exposure at age	*Pedi*MACE severity *M* (*SD; range/n*)
1	.36 (1.63; 0-23.17/390)
2	.46 (2.09; 0-26.50/390)
3	.99 (3.04; 0-33.17/390)
4	2.00 (4.15; 0-33.17/390)
5	3.09 (5.21; 0-33.17/390)
6	5.46 (7.30; 0-42.83/390)
7	8.15 (8.65; 0-42.50/390)
8	9.79 (9.20; 0-37.50/369)
9	11.27 (10.03; 0-44.83/330)
10	11.99 (9.26; 0-38.67/256)
11	12.11 (9.89; 0-43.33/193)
12	11.23 (9.71; 0-39.83/108)
13	6.86 (5.96; 0-21.67/51)

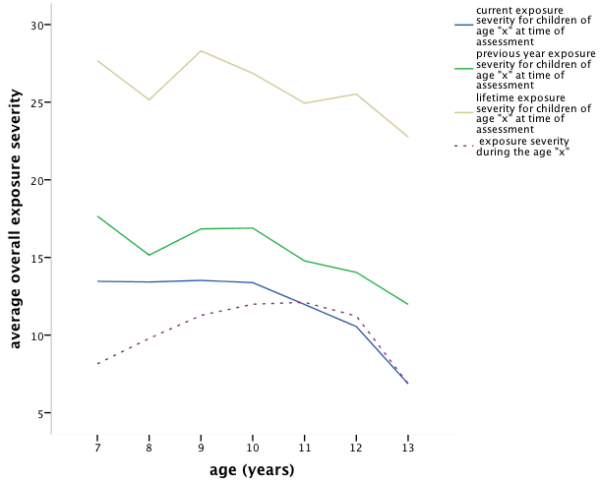
Note. Descriptive data on the overall exposure severity at different ages, based on the *pedi*MACE overall severity score, including data of children all ages at time of assessment.

Table 5.2 Descriptive data on current age, previous age and lifetime exposure to childhood adversities

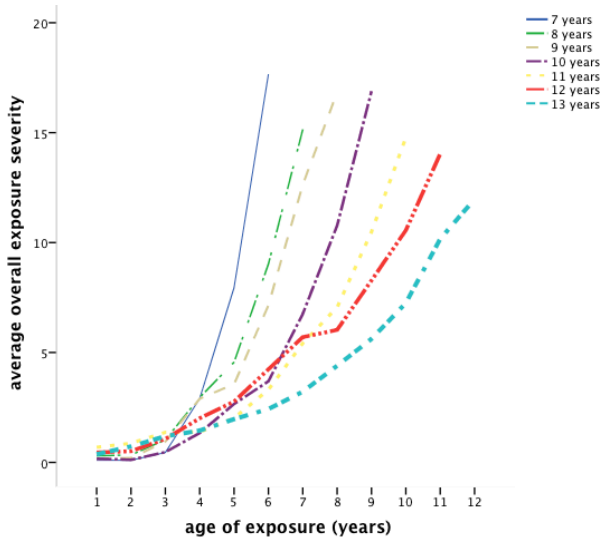
Children's current age (years)	*n* (%)	*Pedi*MACE severity *M* (*SD; range)*		
		Lifetime exposure	Current age exposure	Previous year exposure
7	21 (5)	27.68 (10.88; 12.50- 47.83)	13.46 (7.77; 2.50-33.67)	17.66 (10.56; 5-42.83)
8	39 (10)	25.15 (11.40; 5.00- 52.00)	13.42 (8.99; 0-35.33)	15.15 (9.23; 0-33.67)
9	73 (19)	28.30 (13.28; 3.33-61.00)	13.52 (10.43; 0-44.83)	16.84 (9.90; 0-37.50)
10	64 (16)	26.86 (13.87; 2.50-57.50)	13.38 (9.79; 0-37.83)	16.89 (11.64; 0-44.00)
11	85 (22)	24.94 (12.71; 0-53.76)	11.97 (9.43; 0-36.50)	14.78 (10.05; 0-37.83)
12	57 (15)	25.52 (11.70; 5.00-60.17)	10.55 (9.58; 0-38.17)	14.04 (10.31; 0-42.67)
13	51 (13)	22.76 (14.06; 0-54.83)	6.86 (5.96; 0-21.67)	11.98 (9.89; 0-39.83)

Note. Descriptive data on lifetime, current and previous age overall exposure severity, based on the *pedi*MACE overall severity score, split by children's age at time of data assessment.

a



b



c

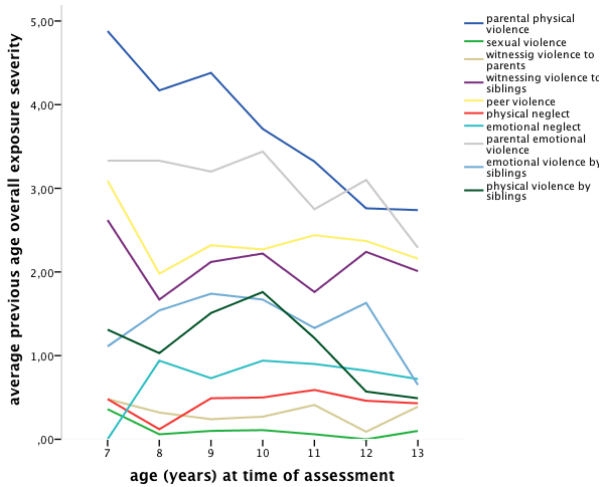


Figure 5.1a shows the average overall lifetime, previous year and current exposure severity for children of different ages at the time of assessment as well as the overall exposure severity for children at the ages seven to thirteen; based on the ordinary retrospective assessment procedure among children of several ages. Figure 5.2b plots the overall exposure severity patterns across the lifespan (from first year to previous year exposure) respectively for children of different ages at data assessment. Figure 5.3c plots subtype previous year exposure severity for children of different ages at the time of assessment.

The possibility of a memory bias, resulting in a progressive underestimation of exposure across retrospective years cannot be ruled out. In accordance with this, separate plots of exposure among children of different ages consistently revealed the highest average overall exposure during the preceding age. Certain memory effects may account for the steady decrease for more previous years. Disclosure rates of current/ongoing victimization might be influenced by children's loyalty to their parents (Oeverlien, 2010). Our findings of slightly negative associations between children's age by the time of assessment and current and previous age exposure differ from Finkelhor, Ormrod & Turner et al. (2009) for US American children, which showed an increase in victimization with age. Exposure to distinct victimization subtypes appears to proceed differently. Data on previous age exposure to *parental physical violence* in our sample showed an almost monotonic decrease for children aged seven to thirteen; in line with findings reported by Teicher and Parigger (2015). In contrast, exposure to *emotional and physical violence by siblings* initially increased and then showed a tendency to decrease at the end of this time span. Both Finkelhor, Ormrod and Turner (2009) and Tucker, Finkelhor, Shattuck, and Turner (2013) found a similar pattern regarding the course of sibling violence in US American children. However their peak becomes apparent two years ahead of ours; between the ages of six to nine. The subscales *emotional* and *physical neglect* again reveal a distinct and much more continuous trend within this age span of seven to thirteen years; coinciding with findings of Teicher and Parigger (2015) on this maltreatment types. Although disclosure data on previous age victimization explains 65% of the burden of overall lifetime adversities, we argue for a differentiated assessment across the entire lifespan, to account for isolated and rare events (Hamby & Finkelhor, 2001), to understand developmental processes, and with it the evolution of adversity linked psychopathology (Teicher & Samson, 2013). Moreover clinicians may be able to use this information in biographically orientated psychotherapy.

Memory-based forgetting certainly poses a challenge in data assessment. But our findings on high exposure rates in younger children show that a careful interview on adversities throughout the lifespan is worth the effort.

6. Borderline personality disorder symptoms in relation to adverse childhood experiences and balance performance

6.1. Abstract

Adverse childhood experiences (ACEs) contribute to the development of Borderline Personality Disorder (BPD), dissociation and impulsive aggression. Recently Schauer (20xx; Schauer, Teicher et al., 2015) suggested early neglect leading to deprivation of vestibular stimulation, with subsequent abnormalities in balance behavior, comprising an additional factor. In patients with BPD (n = 12), depression (n = 11) and non-psychiatric controls (n = 49), we observed that BPD symptoms were associated with ACEs, mediated by impulsive aggression and dissociation. Dissociation proved to be the strongest predictor of BPD severity, linked to cumulative exposure to ACEs, with *sexual abuse* and *non-verbal emotional abuse* having the greatest impact. Postural balance problems correlated with BPD severity. Data support the hypothesis that early sensorimotor vestibular deprivation, resulting in impaired cerebellar development, may add to the pathogeneses of BPD. It is possible that ACEs exert detrimental effects when processed by a brain deprived of adequate vestibular stimulation during infancy.

Keywords: Childhood adversities, dissociation, borderline, dysfunctional impulsive behavior, sensorimotor vestibular deprivation, balance, cerebellum

6.2. Relating borderline pathology to averse childhood experiences (Part I)

Patients with Borderline Personality Disorder (BPD) are emotionally vulnerable and unstable. Mood swings and impulsive behavior characterizes their social relations, and may significantly hamper personal and career development. Intrusions from past adverse experiences and resulting states of aversive tension are frequently avoided by shut-down dissociation, which can be induced by self-harm with a sharp object or by excessive drug abuse. In terms of the individual's biological defense responses, injury through sharp objects evokes parasympathetic dominance, leading to the relief of tension (Schauer & Elbert, 2010).

Severe and extended childhood maltreatment has been shown to be a powerful determinant of both dissociation and dysfunctional impulsive, aggressive conduct (e.g. Fiess, Steffen, Pietrek, & Rockstroh, 2013; Van der Kolk, Perry, & Herman, 1991). Childhood adversity seems to be a consistent if not necessary factor for the development of BPD (Zanarini, 1997; Zanarini & Wedig, 2014). Childhood sexual abuse and neglect are both thought to exert a particularly devastating effect (e.g. Boudewyn & Liem, 1995; Dubo, Zanarini, Lewis, & Williams, 1997; Gratz, 2003; Ogata et al., 1990; Zanarini et al., 2002). Moreover, exposure to multiple maltreatment-types seems to have a cumulative effect, increasing the severity of dissociative and borderline symptoms (Isele, Teicher et al., 2014; Pietrek, Elbert, Weierstall, Mueller, & Rockstroh, 2013). However, previous studies have shown that sexual abuse is not always verified as associated with dissociation, and even the predicted association between sexual abuse and self-injury in BPD patients does not always hold (Brodsky, Cloitre, & Dulit, 1995; Watson, Chilton, Fairchild, & Whewell, 2006). Zanarini et al. (1997, *p.* 1101) concluded, that "sexual abuse is neither necessary nor sufficient for the development of [BPD]."

Part I of the present study examined the relationship between adverse childhood experiences (ACEs) and borderline symptom severity, with a focus upon current dissociative tendencies and characteristic borderline symptoms of dysfunctional self-destructive impulsive conduct. We therefore analyzed the effect of individual and cumulative exposure of different ACE types and aimed to disentangle the associations between ACEs, self-destructiveness, dissociation and borderline symptom severity.

6.2.1. Method

6.2.1.1. Sample and procedure

We included data from $N = 72$ women, 18 to 62 years of age ($M = 31.47$, $SD = 11.76$) in our analysis. 65% were of high, 26 % of moderate and 8% of low secondary educational level. 12 participants were diagnosed with BPD and 11 with Depression (D) at cooperating in- and outpatient institutions. 49 participants were healthy controls (HC).

Using the ***M**altreatment and **A**buse **C**hronology of **E**xposure* Scale (MACE; Teicher & Parigger, 2015) in its German version *Skala Belastende **K**indheits**erf**ahrungen* (KERF; Isele, Teicher et al., 2014) participants were interviewed about their history of interpersonal adverse childhood experiences. The instrument measures diverse forms of self-experienced violence, like *sexual, parental verbal* and *non-verbal emotional abuse*, *parental physical abuse* as well as *emotional* and *physical neglect*. Moreover, besides *physical* and *emotional violence by peers, witnessed assaults towards parents* and *siblings* are assessed. The standardized evaluation routine of the instrument includes ten subscales. The 'severity of exposure' to childhood adversities is reflected both on the subtype level (subscale sumscore; *range* = 0 - 10) and across the whole instrument (KERF sumscore; *range* = 0-100). The 'multiplicity/breadth of exposure', which maps the number of different types of adversities experienced, in a manner similar to the ACE index, is determined by a multiscore on behalf of cut-offs on subscale level (KERF multiscore; *range* = 0 - 10). Good validity has been shown for the instrument (Isele, Teicher et al., 2014).

Prevailing BPD symptoms were quantified by the ***Borderline Symptom List*** (BSL-23; Bohus et al., 2009), evaluating **symptom severity** the week prior to the assessment (scoring: 0 = not at all, 4 = very strong; *range* = 0 - 92). The excellent psychometric properties of this widely used instrument have been published (Bohus et al., 2009). Borderline associated **dysfunctional impulsive behavioral patterns** were assessed by additional eleven items of this scale, including self-destructive conduct, like cutting, drug/alcohol consumption, fits of rage, high-risk behavior or overeating. In order to consider periods of dysfunctional behavior throughout the whole lifespan, we expanded its original time frame (scoring: 0 = no, 1 = yes, 2 = ever more than once per week, 3 = ever daily; *range* = 0 - 33).

Current **dissociative symptoms,** according to the shut-down dimension of Schauer and Elbert (2010), were measured by the ***Shutdown Dissociation Scale*** (Shut-D; Schalinski, Schauer, &

Elbert, 2015). This semi-structured interview consists of 13 items, and evaluates the frequency of sympathetic and parasympathetically dominated dissociative fear responses over the last six months, ranging from emotional numbness to vasovagal (pre-) syncopal behavior (scoring: 0 = not at all, 3 = several times a week/often; *range* = 0-39). Unidimensionality, sufficient reliability and good validity of the scale have been shown (Schalinski, Elbert, & Schauer, 2011; Schalinski et al., 2015).

Subjects were comprehensively informed about the procedure and purpose of the study prior to the interview and agreed to participate by giving informed consent. The study protocol was approved by the Ethics-Committee of the University of Konstanz.

6.2.1.2. Data Analysis

Using IBM SPSS 21, we analyzed zero order correlations between 'severity' and 'multiplicity' of exposure to adverse childhood experiences, lifetime dysfunctional behavior, current dissociation and BPD symptom severity. Considering the interrelatedness of our variables, partial associations were calculated to disentangle links between adverse experiences 'overall severity' and measures of psychopathology. To further investigate the significance of different types of childhood experiences, we analyzed zero order associations between KERF subscales and patterns of psychopathology, as well as partial correlations, respectively controlling for the other KERF subscales. Based on these findings, we performed multiple forced entry regression analyses to disentangle association patterns and predict psychopathology.

Significance level was set at *.05 and **.01, two-tailed testing. Single missing values were replaced by mean substitution among mental health ratings and set to zero, on item level, among lifetime dysfunctional behavior and KERF ratings. Due to the small sample size, sample distribution was evaluated based on the recommendation by West, Finch and Curray (1995), assuming normality for skewness up to 2 and kurtosis up to 7. Shut-down dissociation was positively skewed (skewness = 2.24).

6.2.2. Results

Descriptive statistics of sample variables, childhood experiences and measures of psychopathology are summarized in table 6.4. in the supplementary material. Among sample characteristics, educational level was correlated with *parental verbal abuse* (r_{Tau} = -.21, p < .05), *physical neglect* (r_{Tau} = -.28, p < .01) and *sexual abuse* (r_{Tau} = -.35, p < .01). Age was only correlated with *peer emotional violence* (r = -.35, p < .01).

The 'severity' (KERF sumscore) and 'multiplicity' (KERF multiscore) of exposure to childhood adversities was significantly associated with lifetime dysfunctional behavior, shut-down dissociation and BPD symptom severity. Measures of psychopathology were significantly correlated (see table 6.4 in the supplementary material). Findings of subsequently performed partial associations are illustrated in figure 6.1. Analysis at the KERF subscale level showed the following: We found significant zero order associations for most KERF subscales with borderline symptoms, lifetime dysfunctional behavior and shut-down dissociation, differing in effect sizes (r = .20 to .72). Continuative partial analysis identified notable relevance of especially *sexual* and *parental non-verbal emotional abuse* in this field (see table 6.1).

We regressed (a.) lifetime dysfunctional behavioral on *parental non-verbal emotional abuse* and *sexual abuse*, which explained 50% of the variance. Shut-down dissociation was significantly predicted by lifetime dysfunctional behavior, *parental non-verbal emotional abuse* and *sexual abuse,* which accounted for 59% of the variance in the multiple regression-model. (c.) Shut-down dissociation, lifetime dysfunctional behavior and the two relevant childhood adversity factors of *sexual abuse* and *parental non-verbal emotional abuse* explained 65 % of our sample's borderline symptom severity, identifying dissociation and *sexual abuse* as significant predictive factors. Table 6.2 lists relevant parameters in detail.

Table 6.1 Association between sample variables, adverse childhood experiences and psychopathology

	Age	**BPD severity**	**Dysfunctional behavior**	**Dissociation**	**Adversities**	
					'Severity'	'Multiplicity'
			r_{Tau}			
Education	-.05	-.21*	-.21*	-.25*	-.18	-.16
			r			
Age	1					
BPD severity	-.13	1				
Dysf. behavior	-.06	.67**	1			
Dissociation	-.07	.76**	.73**	1		
Adversities						
'Severity'	-.02	.63**	.72**	.68**	1	
'Multiplicity'	-.01	.67**	.73**	.71**	.95**	
			r/ r_p			
Parental verbal abuse		.41**/*-.22*	.58**/ *.15*	.50**/-.03		
Parental nonv- emo abuse		.55**/ .35**	.56**/ .11	.57** / .25 (p = .05)		
Parental physical abuse		.55**/ *.09*	.58**/ *.00*	.57** / *.08*		
Emotional neglect		.47**/ *.02*	.61**/ *.20*	.51**/ *.07*		
Physical neglect		.50**/ *.07*	.56**/ *.01*	.51**/ *.02*		
Witnessed v. parents		.25*/*-.04*	.34**/ *.07*	.33**/ *.04*		
Peer emotional abuse		.39** / .18	.41**/ *.06*	.45** / *.22*		
Peer physical abuse		.32**/ *.01*	.41**/ *.19*	.35** / *.03*		
Sexual abuse		.72**/ *.51***	.66**/ *.38***	.66** / *.39***		
Witnessed v. siblings		.20 /-.14	25*/-.12	.20/-.22		

Note. Pearson *(r)* and partial (r_p) correlation; Kendall's tau (r_{Tau})*; N = 72; df = 61 (witnessed violence towards siblings n* = 65/*df* =54).

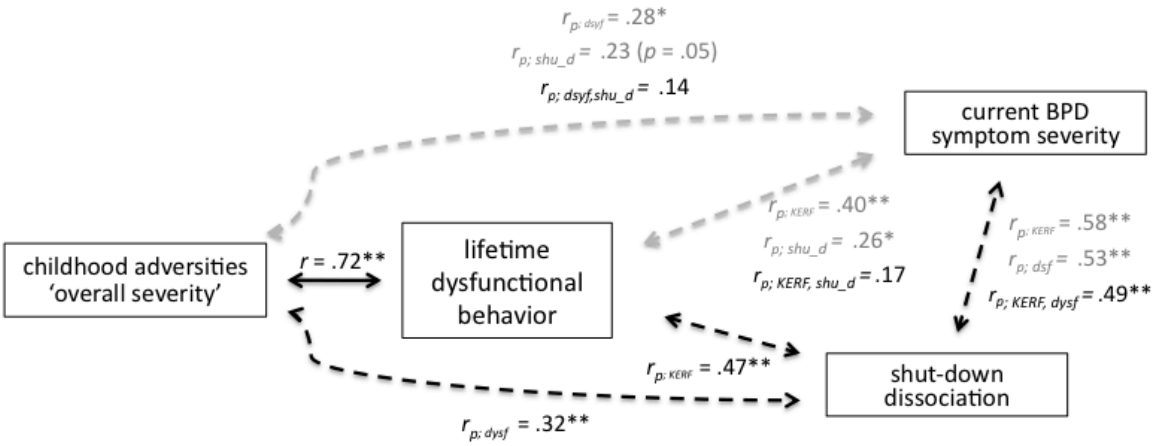


Figure 6.1 shows Pearson correlations *(r)* between childhood adversities 'overall severity', dysfunctional behavior, shut-down dissociation and BPD symptom severity as well as partial associations (r_p), respectively controlled for the noted variables.

Table 6.2 Multiple regression models predicting borderline symptom severity

	B	*SE B*	β	r_p
a. Regressing lifetime dysfunctional behavior on				
Constant	1.09	.68		
Sexual abuse	1.94	.37	.51**	.54
Parental non-verbal emotional abuse	.53	.16	.32**	.37
b. Regressing shut-down dissociation on				
Constant	-1.51	.92		
Lifetime dysfunctional behavior	.63	.16	.43**	.44
Sexual abuse	1.62	.57	.29*	.33
Parental non-verbal emotional abuse	.44	.23	.18*	.23
c. Regressing borderline symptom severity on				
Constant	-.91	2.33		
Lifetime dysfunctional behavior	.31	.44	.08	.09
Sexual abuse	5.02	1.51	.34**	.38
Parental non-verbal emotional abuse	.74	.58	.11	.16
Shut-down dissociation	1.10	.30	.41**	.41
d. Regressing borderline symptom severity on				
Constant	.59	2.26		
Sexual abuse	8.51	1.27	.56**	.74
Parental non-verbal emotional abuse	1.85	.55	.29**	.49
Balance capability	8.94	1.47	.47**	.71

Note. Model a: R^2 *adjusted* = 50%; model b*:* R^2 *adjusted* =59%; model c*:* R^2 *adjusted* =65%; *N = 72; model d:* R^2 *adjusted = 78%; list wise exclusion n = 40;* partial correlations *(r_p).*

6.2.3. Discussion

This study deals with the interrelatedness of adverse childhood experiences, borderline associated dysfunctional impulsive conduct, current dissociation and overall borderline symptom severity. Pursuing a dimensional approach of psychopathology, which has been shown to be appropriate, especially at the low end of BPD symptom severity (Miller, Morse, Nolf, Stepp, & Pilkonis, 2012; Zimmerman, Chelminski, Young, Dalrymple, & Martinez, 2011), we investigated an adult female sample (N = 72), consisting of patients suffering from depression (*N* = 12) or BPD (*N* = 11), and healthy controls (*N* = 49).

We found the 'severity' and 'multiplicity' of exposure to childhood adversities to be strongly related to all of the investigated psychopathological parameters. These results are in line with the frequently reported 'building block'-relationship (Schauer et al., 2003) between accumulated adversities and the increasing risk of suffering from psychological or somatic clinical disorders (e.g. Chapman et al., 2004; Dong, Anda, Dube, Felitti, & Giles, 2003; Dube et al., 2009; Dube, Anda, Felitti, Chapman et al., 2001; Felitti et al., 1998). They are also congruent with previous evidence for the cumulative effect of childhood adversities on dissociation and borderline symptom severity (Isele, Teicher et al., 2014; Pietrek et al., 2013). In accord with previous research (Fiess et al., 2013; Goodman & New, 2000; Herman, Perry, & Van der Kolk, 1989; Noll, Horowitz, Bonanno, Trickett, & Putnam, 2003; Van der Kolk et al., 1991) borderline symptom severity, dissociation, dysfunctional behavior and childhood experiences were substantially interrelated. Examining these more closely, we identified the 'overall severity' of childhood adversities and current shut-down dissociation to be directly and indirectly linked. Lifetime dysfunctional behavior both partly mediates this relationship and shows even higher individual relatedness with shut-down dissociation. These findings coincide with Brodsky et al. (1995), who examined depression, childhood abuse and self-mutilation, and found that self-mutilation was the strongest correlate of dissociation. Likewise Shearer (1994) reported the Dissociative Experiences Scale (DES; Bernstein & Putnam, 1986) score in BPD patients was explained by 'behavioral dyscontrol' as well as childhood physical abuse, childhood sexual abuse, and adult sexual violence. Moreover, we found adverse childhood experiences and lifetime dysfunctional behavior both indirectly linked to current borderline symptom severity, mediated by shut-down dissociation; which was itself strongly associated with BPD symptoms.

Investigating the significance of different types of adversities, beyond the 'classical' types of parental abuse and neglect, we identified *peer emotional and physical violence* as being

associated with all three patterns of psychopathology. Previous work highlighting the importance of sexual (Battle et al., 2004; Boudewyn & Liem, 1995; Fiess et al., 2013; Herman et al., 1989; Noll et al., 2003; Ogata et al., 1990; Shearer, 1994; Zanarini et al., 2002) and emotional (Dubo et al., 1997; Fiess et al., 2013; Haferkamp, Berbermeier, Möllering, & Neuner, 2004; Watson et al., 2006) maltreatment was further supported by our partial correlational analysis: Controlling for the co-occurrence of childhood adversities (Dong, Anda, Dube, Giles, & Felitti, 2003; Dong et al., 2004), we identified *sexual abuse* and *parental non-verbal emotional abuse* to be of notable relevance in this field. We would particularly like to emphasize the latter, which has only recently been introduced by Teicher & Parigger (2015) and operationalized in their MACE Scale. Our results reinforce their conclusion that this factor needs to be taken into account in future research. Using a multiple-regression approach, BPD symptom severity was significantly predicted by childhood *sexual abuse* and shut-down dissociation, which was in turn significantly explained by *sexual abuse* and lifetime dysfunctional behavior (in a second model). The biggest proportion of the variance was shared with the latter predictor, itself notably predicted by *sexual abuse* and *parental non-verbal emotional abuse* (in a third model).

These models altogether disclose a pathological progression to BPD initiated by childhood adversities, mediated and maintained by dysfunctional impulsive aggression and shut-down dissociation.

6.3. Relating borderline pathology to vestibular deprivation (Part II)

Another potential etiologically relevant factor for BPD, which has recently been put forth by Schauer, Teicher et al. (2015) concerns parental neglect to an extent of vestibular deprivation during early infancy. In the course of evolution, human and non-human primate babies, after birth were carried by their caregivers for hours every day. As parents know, this sort of stimulation soothes the children. It is thought that this works by vestibular stimulation, which inputs into the cerebellum and contributes to the sensory-vestibular development of the child (Esposito et al., 2013; Korner & Thoman, 1972; Schaper, 1982; Vrugt & Pederson, 1973). Neglect of the infant may result in a lack of stimulation and thus the cerebellum is deprived of essential sensory inputs during development. The importance of passive vestibular stimulation in early infancy (Solomon, 1969) was underlined by findings that the cerebellum is grossly immature at birth (Prescott, 1970; Wang & Zoghbi, 2001). Later in life, this could manifest itself through abnormalities in sway behavior and performance as well as in a deficiency in reward processing and social functioning, for which the cerebellum provides essential input (Schauer, Teicher et al. 2015).

Neuroscientific studies of BPD have focused on fronto-limbic areas (Cartwright, 2008; Goodman & New, 2000; Goodman & Yehuda, 2002; Paris, 1994; Skodol et al., 2002; Steele & Siever, 2010). A potential involvement of the cerebellar system in BPD remains to be investigated, given the growing evidence for its significance in higher order functioning and mental-ill health (Baldacara, Borgio, de Lacerda, & Jackowski, 2008; Blatt, Oblak, & Schmahmann, 2013; Schmahmann, Weilburg, & Sherman, 2007; Strick, Dum, & Fiez, 2009).

Early deprivation studies among non human primates documented intense fear, disturbed social interaction, aggression, behavioral stereotypes and self-harm in rhesus monkeys that were raised in isolation (Cross & Harlow, 1965; Harlow, Dodsworth, & Harlow, 1965; Harlow & Harlow, 1962) - a pathological picture evocative of human BPD. The passive tactile stimulation by ‘mobile mother-dummies’, simulating wildlife sway of the offspring, induced markedly lower deviance, defined as less impulsive conduct, less stereotypes and lower arousal. Behavioral pathology was thus attributed to early sensorimotor vestibular deprivation (Anderson, Kenney, & Mason, 1975; Mason & Berkson, 1975; Prescott, 1980), impeding cerebellar maturation (Prescott, 1970). And in fact EEG deviance in limbic and cerebellar areas has been detected in accordingly isolated raised monkeys (Heath, 1972).

Likewise behavioral stereotypes (Bos, Zeanah, Smyke, Fox, & Nelson, 2010; Rutter et al., 1999; Troester, 1994), aggression, social problems, hyperactivity (Gunnar & van Dulmen, 2007; Stevens et al., 2008) as well as cognitive impairment (Eigsti, Weitzman, Schuh, Marchena, & Casey, 2011; Johnson, Browne, & Hamilton-Giachritsis, 2006; Merz, McCall, & Wright, 2013; Stevens et al., 2008) observed in institutionally raised children, has been linked to early sensorimotor deprivation (Rutter et al., 1999; Troester, 1994). The detrimental impact of residential rearing on brain development has been noted (Mehta et al., 2009; Sheridan, Fox, Zeanah, McLaughlin, & Nelson, 2012; Tottenham et al., 2010). Children who have been institutionalized at an earlier age, show higher psychopathology than those institutionalized at a later age. However they do not report more lifetime (types of) adversities (Hermenau, Hecker, Elbert, & Ruf-Leuschner, 2014).

Neurobiological research has identified especially the vermis and fasticular nucleus, which constitute the so-called 'limbic cerebellum' (Blatt et al., 2013), as important components in executive functioning, language as well as in visuospatial sensitivity and to be linked to behavioral stereotypes, anxiety, impulsivity, aggression, depression, psychosis (Schmahmann et al., 2007; see Schauer, Teicher et al., 2015) and pain perception (Moulton, Schmahmann, Becerra, & Borsook, 2010; Ploghaus et al., 1999). Overlaps with psychological and neuropsychological impairment in BPD are prominent (Bohus et al., 2000; LeGris & van Reekum, 2006; Seres, Unoka, Bódi, Áspán, & Kéri, 2009). Sensorimotor impairment in BPD patients (De la Fuente et al., 2006; Gardner, Lucas, & Cowdry, 1987) and structural deviance in the cerebellar vermis among BPD patients (Schauer, Eckart et al. 2015) highlight the importance of considering cerebellar regions in understanding BPD.

In this second part of our study we sought to measure the relation of the two factors childhood adversities and sway performance to BPD symptom severity. Balance (sway performance) was used as an indicator of cerebellar processing (Morton & Bastian, 2004). We tested its relation to BPD symptom severity, shut-down-dissociation and lifetime dysfunctional behavior, postulating a positive relation between postural sway and BPD while at the same time controlling for ACEs.

6.3.1. Method

6.3.1.1. Participants and measurement procedure

To rule out any interference by age specific retrogression in postural stability (Black, Wall, Rockette, & Kitch, 1982; Era et al., 2006) ten of the 72 subjects, who were older than 50 years, were excluded from this part of the study. In addition, subjects suffering from lifetime neurological damage (n = 8) or relevant current (n = 9) or preceding (n = 2) physical impairment were also excluded. The remaining 43 participants for this analysis were on average 27.8 years of age (*SD* = 8.5, *range* = 18 to 49). Educational level of the participants was divided into high (n = 26), moderate (n = 13), and low (n = 4). Nine were diagnosed with BPD and five with depression. The average borderline symptom severity in this subsample was 14.87 (*SD* = 18.91, *range* = 0 - 76) points. Shut-down dissociation reached 4.55 (*SD* = 6.12, *range* = 0 - 24), and lifetime dysfunctional behavior 4.91 (*SD* = 5.05, *range* = 0 - 24) points. Subjects mean value of 'overall severity of' childhood adversities was 22.62 (*SD* = 16.53, *range* = 0 - 68.17).

Balance means "the dynamics of body posture to prevent falling. It is related to the inertial forces acting on the body and the inertial characteristics of body segments" (Winter, 1995, *p*. 194) and aims at the stabilization of the body and with it at a minimization of body sway (Jančová, 2008). Force platforms enable the quantification of this stabilization, by the detection of changes in the Center of Force (CoF) applied to the ground (Jančová, 2008). We used the Leonardo Mechanograph Ground Reaction Force Platform (GRFP) and Leonardo Mechanograph STD software for Windows (Novotec Medical GmbH Pforzheim, Germany) to record sway by four one dimensional force transducers, which are integrated in the platform and measure the forces with a time resolution of 800Hz. The software calculates the COF, anterior/posterior (a/p) and medio/lateral (m/l) variations in CoF (*relative path length* per second *(v_CoF),* mm/s) as well as standard ellipses including 90% of CoF (*Sway Index (sway*), cm^2). High values indicate a lot of sway and high postural instability. Subjects' body height, weight and foot length were assessed and factored into the measurement system, in order to control for possible interference with postural stability (Chiari, Rocchi, & Capello, 2002; Greve, Bordini, & Camango, 2007). Subjects were instructed to perform single trial *tandem stand* exercises (left foot toes to right foot heel); first with *eyes open (Eo)* then *eyes closed (Ec)*. They were asked to keep their arms at the side of their body and their head straight, not to fixate (during eyes open trial) and to hold this position for ten seconds. Every

exercise was introduced by standardized instructions and demonstrated to the subjects prior to the testing. The posture of the participants was monitored and corrected when necessary. To control for possible interferences prior to balance testing, age, gender and weight adjusted physical power, relative to body weight, was quantified by the *Esslinger Fitness Index* (*EFI*, W/kg; Runge et al. (2004), operationalized by single two-leg jumps (s2LJ). In case of invalid measurements, among balance testing and jumps, up to two additional trials were performed.

6.3.1.2. Data analysis

Zero order and partial correlations between stability, psychopathology, childhood adversities and sample variables were analyzed. For reasons of data reduction, stability parameters were condensed by factor analysis (principal component analysis, PCA) on one single factor, mapping (overall tandem stand) balance-performance. The factor analysis was done based on n = 40 subjects, exhibiting full data-volume. Sample adequacy was verified by the *Kaiser-Meyer-Olkin* (*KM*O = .78) and *Bartlett's test of sphericity* $X^2(6) = 115.58$, $p < .001$). The *eigenvalue* of the extracted tandem stand balance performance factor exceeded Kaiser's criterion of 1 (*eigenvalue* = 3.17). Loadings of several stability parameters on the extracted factor were high (Eo_v_CoF = .93, Eo_sway = .87, Ec_ v_CoF = .93, Ec_sway = .83). The balance-performance factor explained 79% of the total stability parameter variance.

Multiple forced entry regression analysis was performed, to regress current BPD symptom severity on notable relevant KERF subscales (see study part 1; *sexual abuse* and *parental non-verbal emotional abuse)* and balance-performance. Significance level was set to *.05 and **.01, two-tailed testing. Subjects with missing balance data were partially excluded among correlations, and list-wise excluded for factor and multiple regression analysis. Sample distributions of KERF subscale *witnessed violence towards parents* (*skewness* = 2.49), balance tandem parameters and the balance-performance factor were positively skewed (skewness: *Eo_v_CoF* = 2.39, *Eo_sway* = 2.14, *Ec_sway* = 2.20, *balance-performance* = 2.31). For the *eyes closed sway index* one strongly outlying value (> 4 *SD from mean*) was excluded from the analysis.

6.3.2. Results

Correlational analysis indicated significant associations between borderline symptoms and postural sway, even when controlled for childhood adversities 'overall severity'. Moreover, postural sway was not correlated with age, body weight, body mass index (BMI), or foot length. However the *eyes open sway index* was found to be associated with education (r_{Tau} = -.27, p <.05), the *eyes closed sway index* with physical power (*EFI*; r = - .32, p <.05) and the *eyes closed sway relative path* length with body height (r = .34, p <.05). Stability parameters and correlations with childhood adversities and measures of psychopathology are summarized in table 6.3. The condensed balance-performance factor correlated with educational level (r_{Tau}= -.25, p < .05), but not with age (r = .11, p = .50), body mass index (BMI; r = .05, p = .74), body height (r = .29, p = .07), weight (r = .10, p = .52), foot length (r = .25, p = .12) or physical fitness (EFI; r = -.23, p = .15). Correlational analysis again found significant associations between postural sway and borderline symptoms, even after controlling for childhood adversities 'severity'. Results are displayed in detail in table 6.3. Multiple regression analysis indicates that postural sway adds significantly and independently from especially relevant childhood adversities (*sexual abuse* and *parental non-verbal emotional abuse*) to the variance of BPD severity (see table 6.2 for details).

6.3.3. Discussion

The second part of this study deals with the relation between BPD and cerebellar functioning, operationalized on a behavioral level by measures of balance performance. We predicted that early sensorimotor-vestibular deprivation, as a frequent consequence of neglect, would impair cerebellar function, which could in turn be related to pathways of developing BPD.

In accordance with our hypothesis, balance-capability was associated with BPD, indicating that higher BPD psychopathology was associated with an increase in postural sway. Likewise the *eyes-closed sway index* was associated with lifetime dysfunctional behavior, marginally with shut-down dissociation as well as with *parental non-verbal emotional abuse, peer emotional violence* and *witnessed violence towards parents*. Overall balance-performance was not linked to any other psychopathological measure besides BPD severity.

Table 6.3 Correlations between tandem stand balance parameters, measures of psychopathology and childhood adversities

	Eo_v_CoF	*Eo_sway*	*Ec_v_CoF*	*EC_sway*	**Balance performance**
M (*SD; range/n*)	33.63 (15.97; 17.34-98.27/42)	2.67 (2.62; 0.48-11.93/42)	66.85 (33.31; 30.59-190.96/42)	6.57 (6.55; 0.85-29.57/41)	0 (1; -.96-3.86/40)
			r/ r_p		
BPD symptom severity	.43**/ .54**	.40**/ .52**	.42**/ .48**	.56** / .51**	.52**/ .57**
Shut-down dissociation	.07/ .05	.06/ .09	.03/ .00	.29 (*p* = .07)/ .13	.13/ .07
Dysfunctional behavior	.02/-.02	-.06/ -.10	.07/ .03	.32*/ .14	.10 /01
Adversities `severity´	.03	-.03	.03	.30	.00
Parental verbal abuse	-.05	-.12	-.05	.17	.01
Parental nonv -emo abuse	.03	.03	.10	.41**	.18
Parental physical abuse	.06	-.01	.07	.22	.09
Emotional abuse	-.10	-.18	-.04	.09	-.05
Physical neglect	-.03	-.05	-.02	.08	.03
Witnessing v. parents	-.08	-.09	.04	.39*	.10
Peer emotional violence	.18	.07	.13	.33*	.22
Peer physical violence	.08	.09	-.03	.07	.07
Sexual abuse	-.02	-.01	-.07	.08	.01
Witnessing v. sibling (*n* = 35)	.13	.08	.06	.22	.14

Note. Eyes open (Eo), closed (Ec); relative path length (v_CoF); Sway Index (sway); Pearson correlation *(r)*, partial correlation *(r_p)*, controlled for adversities `severity´; **$p < .01$, *$p < .05$.

This complements the findings of Schauer, Eckart et al. (2015) demonstrating both reduced cerebellar vermis volume in BPD patients and negative associations between dissociation and vermal volume. Multiple-regression analyses revealed that variation in BPD symptom severity was explained by both distinct childhood adversities (*sexual abuse; parental non-verbal emotional abuse)* and overall *balance-performance*, accounting for a substantial 78% of its whole variance. Notably, *balance-performance* was as strongly associated with BPD, as was childhood *sexual abuse*. Thus, postural stability accounts for BPD independently of relevant ACEs. Postural instability might indicate deficits in cerebellar maturation through insufficient early vestibular stimulation, which in consequence could promote later development of BPD and other psychopathology (see Schauer, Teicher et al., 2015; Bart et al., 2009; Erez, Gordon, Sever, Sadeh, & Mintz, 2004; Jacob, Redfern, & Furman, 2009; Levinson, 1989a, 1989b; Sklare, Konrad, Maser, & Jacob, 2001).

Anderson, Teicher, Polcari and Renshaw (2002) reported functional deviation of the cerebellar vermis to be related to childhood sexual trauma. Overall *balance-performance* was not linked to the assessed ACEs in our sample, however the *eyes closed sway index* was linked with *parental non-verbal emotional abuse, peer emotional violence* and *witnessed violence towards parents*. This generally matches to the theory of vermal detriment by childhood adversities (Teicher, 2000). A greater statistical power might help to further clarify relationships between the different ACEs and balance performance. It still could be due to a correlation of both, early neglect with later abuse, whereby infantile sensorimotor vestibular deprivation by means of lacking sway or carrying the baby would promote BPD in addition to later abuse (see Schauer, Teicher et al., 2015). Severe neglect and consistent parental failure to down-regulate the arousal of the infants leads to the onset of dissociation (Dhossche, Ross & Stoppelbein, 2012), as does sexual abuse. At the level of functional neural activity, one can relate dissociation to the shutting down of thalamic gates (Schauer & Elbert, 2010). This deprivation of afferent input to brain areas could lead to long-term impact upon brain development and cerebellar function.

There is growing evidence that abnormalities in cerebellar structures, mainly the vermian region, relate to psychotic, autistic, anxiety and depressive symptoms, aggression, as well as bipolarity, attention deficit hyperactivity, and substance abuse (Anderson et al., 2002; Baldacara et al., 2008; Buderath, Gärtner, Frings, Christiansen, Schoch, Konczak, et al., 2009; Schmahmann et al., 2007). Balance impairment has also been reported for other disorders e.g. linked to anxiety and depression (Bart, Bar-Haim, Weizman, Levin, Sadeh, & Mintz, 2009;

Erez, Gordon, Sever, Sadeh, & Mintz, 2004; Quach et al., 2013; Sklare, Konrad, Maser, & Jacob, 2001; Stirns, Ledebt, Enmck, van Dokkum, & Beek; 2009), and attention deficit hyperactivity (Buderath, Gärtner, Frings, Christiansen, Schoch, Konczak, et al., 2009). The current findings suggest that BPD has to be added to this list; and vice versa, that cerebellar deficits - which are measurable as the ability to maintain postural sway – caused either by brain disorders or severe childhood vestibular neglect, are an index of psychopathology. However, future research is needed to address the underlying brain mechanisms and to empirically confirm the sequel from early vestibular deprivation, via impeded cerebellar maturation to BPD. Evidence for improvement in cognitive, emotional and conduct pathology through deep brain cerebellar stimulation (Heath, Llewellyn, & Rouchell, 1980; Heath, 1977) or rather amelioration in mental-ill health by physical 'vestibular rehabilitation' (Bart, Bar-Haim, Weizman, Levin, Sadeh, & Mintz, 2009; Yardley, Beech, Zander, Avans, & Weinman, 1998), highlights the importance of further investigation in this field.

6.4. General limitations

Patients were medicated, with varying prescriptions. We tried to minimize medical induced variance in balance performance by careful evaluations. Nevertheless, an un-medicated sample would be needed to exclude the possibility of such a confound. Finally the well-known complexity of balance control needs to be mentioned as it is not only regulated by cerebellar regions, but relies on integrating information from different systems, such as the vestibule, vision and somatosensory system (Jančová, 2008).

6.5. Conclusions

The present study verifies the relatedness of adverse childhood experiences and dysfunctional impulsive conduct, shut-down dissociation and BPD symptom severity. The cumulative burden of adverse experiences during childhood seems crucial. On subtype-level *sexual abuse* and *parental non-verbal emotional abuse* appeared to be related to the most devastating effects. Current shut-down dissociation, in accordance to the concept by Schauer and Elbert (2010), is directly related to adverse experiences and partly maintained by dysfunctional impulsive conduct, as a maladaptive strategy to overcome aversive tension. Shut-down dissociation in turn is a powerful predictor of BPD symptom severity. We view these findings as further evidence for seeing BPD as a pathological outcome of a pathological sequel to BPD tracked back on ACEs, and suggest a careful assessment of childhood adversities in clinical psychological practice. It seems worthwhile to investigate the role of early vestibular neglect leading to cerebellar deficits for the genesis of BPD.

6.6. Acknowledgements

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6.7. Supplementary material

Table 6.4 Sample statistics sample divided by groups

	BPD	**Healthy Control**	**Depression**
	(*n* = 12)	(*n* = 49)	(*n* = 11)
Education	17; 42; 42	4; 20; 76	18; 36; 46
	% low, medium, high	% low, medium, high	% low, medium, high
		M (SD; range)	
Age	26.83 (8.59; 18-42)	30.41 (10.41; 18-54)	41.36 (15.57; 19-62)
BPD symptom severity	50.08 (19.68; 21-76)	4.39 (5.58; 0-24)	15.95 (10.19;5-34.41)
Dysfunctional behavior	12.08 (5.57; 6-24)	3.12 (3.31; 0-14)	5.55 (3.75; 0-11)
Shut-down Dissociation	16.04 (10.28; 2-38)	1.94 (3.08; 0-17)	6.18 (4.75; 0-13)
Adversities `severity´	43.29 (20.66; 8.67-73.25)	19.70 (13.06; 2-61.58)	23.89 (14.32;0-51.50)
Adversities `multiplicity´	4.75 (3.17; 0-9)	1.18 (1.56; 0-7)	1.72 (1.85; 0-6)
		M (SD; range; subtype true[1])	
Parental verbal abuse	6.46 (3.45; 0-10; 58%)	3.52 (3.26; 0-10; 27%)	4.77 (2.84;0-10; 27%)
Parental nonv.emo abuse	6.66 (3.11; 2-10; 67%)	3.27 (2.70; 0-8; 29%)	3.64 (2.66; 0-8; 36%)
Parental physical abuse	5.42 (3.42; 0-10; 50%)	2.14 (2.33; 0-10; 6%)	2.58 (2.16; 0-6.67; 9%)
Emotional neglect	5.67 (2.39; 2-9; 67%)	2.61 (2.57; 0-9; 20%)	3.27 (2.37; 0-8; 18%)
Physical neglect	3.83 (3.46; 0-10; 25%)	1.06 (1.74; 0-8; 4%)	1.82 (2.44; 0-8; 9%)
Witnessed v. parents	1.25 (1.99; 0-5; 17%)	0.82 (1.80; 0-7.5; 6%)	0 (0; 0-0; 0%)
Witnessed v. siblings	2.50 (2.04; 0-5; 30%)	1.17 (2.04; 0-7.5; 8%)	1.39 (1.82; 0-5; 11%)
Peer emotional abuse	6.5 (3.73; 0-10; 67%)	3.55 (2.49; 0-10; 10%)	3.82 (4.04;0-10; 27%)
Peer physical abuse	2.50 (2.43; 0-8; 25%)	1.02 (1.42; 0-6; 8%)	2.18 (3.03; 0-8; 27%)
Sexual abuse	2.92 (1.54; 0-5; 75%)	0.54 (0.81; 0-3.75; 4%)	0.68 (0.86; 0-2.5; 9%)

Note. [1] Determined by cut-off scores for each subscale, according to Isele, Teicher et al. (2014); sample size KERF subscale *WITS* (n_{total}= 65, n_{BPD} = 10, n_{HC} = 46, n_D = 9).

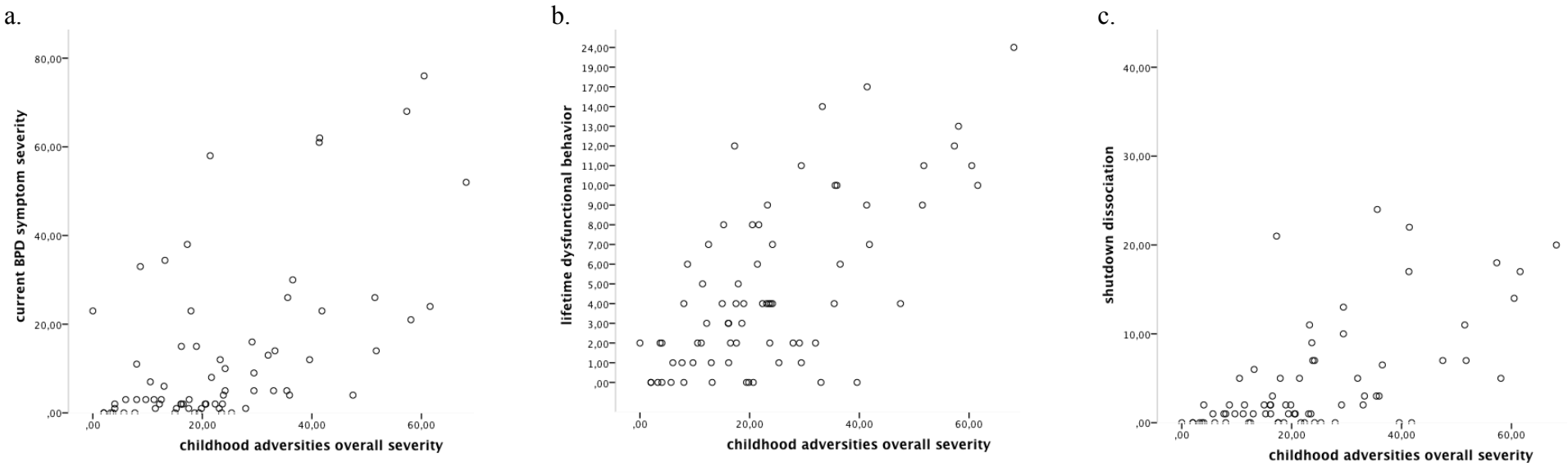

Figure 6.2 a - c scatter plots illustrate associations between childhood adversities overall severity, BPD symptom severity, dysfunctional behavior and shutdown-dissociation.

III. General discussion, conclusions, implications and further steps

7. Concluding discussion of the results

The present thesis contributes to the advancement of the assessment of interpersonal childhood adversities, and investigates associations between ACEs and BPD spectrum symptoms.

Its first part (Isele, Teicher et al., 2014) focuses on the construction and psychometric evaluation of the KERF, the German-language equivalent of the MACE (Teicher & Parigger, 2011, 2015), which measures interpersonal childhood adversities, including clinically relevant types beyond the classical 'parental abuse and neglect scope' and considering the individual age at the time of exposure. MACE combines and improves two current valuable evaluation options, enabling both for an dimensional estimate of the exposure 'severity' on subtype and overall level in style of the CTQ (Bernstein et al., 2003 Wingenfeld et al., 2010) and the categorical approach in style of the ACE Index (Felitti et al., 1998; Dube et al., 2003), quantifying the 'multiplicity' of adversities. The instrument was translated into German and slightly adapted to enable a culturally sensitive assessment of German samples. With KERF-interview data of 165 female subjects, iterative Rasch modeling was employed to optimize subscale composition. Classical test theoretical analysis evaluated and largely proved the construct validity and clinical significance of the resulting subscales and the instrument as a whole, both in terms of its dimensional and categorical evaluation proposals. High concordance of equivalent subscales with the CTQ (Bernstein et al., 2003; Wingenfeld et al., 2010), were found, verifying their validity (Isele, Teicher et al., 2014).

The second part of this thesis (Isele, Hecker et al., 2015) deals with the task of creating a pediatric variant of the MACE, for scientific purposes and as a diagnostic tool to identify children at risk. Practitioners are thus in a position to help minimizing children's exposure, to prevent emerging mental pathology, as mental ill-health may develop over time (Teicher et al., 2009), and to provide more specific psychodiagnostic classification and treatment. The 45 event-items comprehending structured *pediatric MACE interview (pedi*MACE; Isele, Ruf-Leuschner et al., 2015) was psychometrically tested, based on data from 411 pupils aged six to 15 years. Clinical relevance on subscale level and of the overall instrument has been shown, for both the dimensional and categorical evaluation proposals.

For both the *pedi*MACE and the KERF-I, significant subscale intercorrelations for most dimensions were found (Isele, Teicher et al., 2014; Isele, Hecker et al. 2015), underlining

findings on the co-occurrence of childhood adversities (Dong, Anda, Dube, Giles, & Felitti, 2003; Dong et al., 2004; Finkelhor et al., 2013; Wingenfeld et al., 2010), and simultaneously reinforcing our approach of a wide assessment of stressors. Associations were highest for conceptually proximate types, such as *emotional* and *physical neglect,* and dimensions linked by the same aggressor, such as *parental physical* and *emotional abuse,* or *physical* and *emotional violence by siblings*.

The significantly positive associations between the 'severity' and 'multiplicity' of exposure and psychopathology, which we found in both of our studies (Isele, Teicher et al. 2014; Isele, Hecker et al., 2015), can be interpreted as additional evidence for the 'dose-response' (Felitti et al., 1998; Dube, Anda, Felitti, Chapman et al., 2001) or 'building-block' (Schauer et al., 2003) hypothesis on mental problems. Simultaneously elements of Khan et al.'s (2015) thesis, namely to consider individual event types and the time frames of exposure, were confirmed, as for both instruments significant associations between individual event types and distinct patterns of psychopathology were found (Isele, Teicher et al., 2014; Isele, Hecker et al., 2015).

The *pedi*MACE features variations from the MACE/KERF at the subtype level. The addition of the module on violence by siblings was shown to be important, concerning prevalence rates and links to mental-ill health. Though, the instrument lost certain differentiation by condensing *parental emotional* and *peer violence* on one instead of two subtypes (MACE/KERF: *parental non-verbal emotional* and *parental verbal abuse*; *peer emotional* and *peer physical violence). The pediatric interview* was developed to support clinical experts to assess interpersonal adversity exposure in minors from around elementary school age (six or seven years), who are still restricted in their cognitive and language skills. Its condensed item composition rather screens exposure on the subtype level and does not allow for an equally detailed assessment on the event type level as the MACE/KERF.

A brief note on the developmental epidemiology of childhood adversities, which constitutes the third of the present thesis, generally revealed that children of several ages are facing childhood adversities. The idea of a varying prevalence of exposure among distinct developmental phases (Finkelhor, Ormrod, & Turner, 2009) was further underlined by our findings on negative associations of the 'overall exposure severity` with age (using previous as well as current year exposure data, for lifetime exposure marginal significance was found). The option that children are reluctant to report exposure, e.g. to protect their parents, as

proposed by Oeverlien (2010), can not be completely ruled out. Possible age-related interference might be of scientific interest. In line with Teicher and Parigger (2015) we identified individual types of adversities to be variably prevalent across the course of minority. *Parental physical abuse*, for example decreases in its frequency between the seventh and tenth year of age. Neglect on the contrary shows a more continuous trend in prevalence throughout the assessed time span. Although exposure rates were respectively elevated for the previous year, our findings strongly emphasized the relevance of the chosen lifetime inquiry approach, in order to reveal significant isolated adverse events or phases (Hamby & Finkelhor, 2001).

The fourth part of this thesis (Isele, Schauer et al., 2015) addresses borderline spectrum symptoms, including lifetime impulsive aggression, shut-down dissociation and current borderline symptom severity, in the context of childhood adversities, in 72 adult healthy controls, depressed and BPD patients. All of these clinical parameters were identified as strongly linked to childhood experiences 'severity' and 'multiplicity', thus cumulative exposure to adversities. On event type level, besides *sexual abuse*, *parental non-verbal emotional abuse* appeared to be of particular importance in this sample; confirming the significance of the introduction of this individual category by Teicher and Parigger`s MACE (2015). The individual significance of parental emotional maltreatment in association with dissociation, was similarly found by other groups (Fiess et al., 2013; Haferkamp et al., 2014; Schalinski & Teicher, 2015). Sexual abuse, particularly that involving penetration, is known to be frequently accompanied by shut-down responses, in order to prevent the victim from further harm (Schauer & Elbert, 2010). Partial correlational analyses hint on a pathologic progression from childhood adversities to current borderline symptom severity, mediated and sustained by impulsive aggression and shut-down dissociation. Dysfunctional impulsive conduct appears to maintain adversity associated dissociative tendencies. This is in line with research showing self-injury to be associated with hyperarousal symptoms in patients suffering from sexual violence (Weaver, Chard, Mechanic, & Etzel, 2004) and the explanations of Schauer and Elbert's (2010; *p*. 119) theory of "Self-Injury as a Means to Induce Vasovagal Shut-Down" in individuals suffering from borderline symptoms.

The second part of this article addresses associations between the assessed psychopathological dimensions, childhood adversities and balance performance, as a behavioral measure of cerebellar performance, in a subsample of 43 subjects. The cerebellum and in particular its vermal structure is known to be not the only (Jančová, 2008) but still an

important system in balance maintanance per se (see Morton & Bastian) and has been shown to be of major relevance in balance control during tandem stand (Ouchi et al., 1999); thus the posture we adressed in our study. Our findings on significant positive associations between postural sway and BPD symptom severity approximate the hypothesis of a possible cerebellar involvement in BPD (Schauer, Teicher et al., 2015). This is in line with evidence on structural deviance in the vermal area in BPD (Schauer, Eckart et al., 2015) and associations of vermal activity with 'limbic irritability' (Anderson et al., 2002), a concept that overlaps with some BPD symptoms, including brief hallucinatory or dissociative phenomena (for more explaination see e.g. Teicher et al. 2003). We postulated that deficits in vestibular sensory-motor stimulation (Schauer, Teicher et al., 2015) and the neurotoxic effects of childhood stressors (Anderson et al., 2002), adversely affects cerebellar development. However, the present study did not confirm associations between overall balance performance and childhood neglect, possibly due to the limited sample size, the relevance of sensitive periods in this realm, and the fact that deficits in vestibular stimulation per se (as a component of parental neglect) are not operationalized by the KERF. Significant associations between the balance component *eyes closed sway index* and *witnessed interparental violence*, *peer emotional violence* and again *parental non-verbal emotional abuse*, show the validity of this approach and once more verify the importance of a wide consideration of both 'classical parental maltreatment' and further interpersonal adversities in association with mental-ill health (Teicher & Parigger, 2015). The *eyes closed sway index* was moreover significantly associated with impulsive aggression and marginally associated with shut-down dissociation. In combination with our results on the importance of *parental non-verbal emotional abuse* (including e.g. the MACE/KERF item 6 'Locked you […]', for full item composition see table 3.3 and appendix), these findings still fits to the concept by Schauer, Teicher et al. (2015), postulating a lack in pacification and soothing stimulation by caregivers, may account for the development of alternative dysfunctional strategies, such as behavioral stereotypes or self harm, which in turn may reinforcing shut-down dissociation and BPD symptoms (Schauer, Teicher et al., 2015; Schauer & Elbert, 2010).

Other psychiatric diagnoses, such as anxiety (Erez et al., 2004; Levinson, 1989a, 1989b), substance abuse (Anderson et al., 2002), autism and psychosis (see Schmahmann et al., 2007) as well as attention deficit hyperactivity (Schmahmann et al., 2007; Baldacara et al., 2008; Castellanos et al., 2001; Mackie et al., 2007), previously have been shown to be related with cerebellar structures. Several of them overlap with BPD, in respect of their symptom

constellation. In particular, the structural connectivity of cerebellar with fronto-limbic regions (Anand et al., 1958; Blatt et al., 2013) and sensory-motor deficits in BPD patients (De la Fuente et al., 2006; Gardner et al., 1987) are in concordance with our results and support further research into Schauer, Teicher et al.'s (2015) hypothesis.

8. Implications

8.1. Implications for further research

Research on childhood adversities faces many open questions. There is still a lot to learn about critical episodes of neurological development, and concomitantly the dangers and prospects initiated by experiences during childhood and youth. Differential effects of individual types of adversities and the cumulative burden, especially in the context of episodes of high vulnerability are barely understood.

The introduction of the MACE (Teicher & Parigger, 2011, 2015) enables more precise inquiry in this field. First studies applying this tool or its German version KERF, which was developed as a part of the present thesis, created new insights on links between verbal aggression and mental-ill health (Polcari, Rabi, Bolger, & Teicher, 2014), on the manifestation of depressive symptoms (Khan et al., 2015), on implications of childhood adversities on the concentration of the glucocorticoid antagonist dehydroepiandrosterone (Schury et al., 2015) and on sensitive periods for amygdala development (Pechtel et al., 2014) and dissociation (Schalinski & Teicher, 2015). Associations between negative childhood experiences, the epigenetics of the HPA axis and mental-ill health (Hecker et al., 2015; Radtke et al., 2015) as well as between corporal punishment and children's externalizing behaviour (Hecker et al., 2013) have been recognized, through the application of the *pediatric MACE interview*.

Still there is some more research required with regard to the psychometrics of the KERF and the *pediatric MACE*: Teicher and Parigger (2015) identified the MACE overall 'severity' and 'multiplicity' scores as stable over time (across a six month frame) and reported good to excellent test-retest values for the individual MACE scales and the age ratings. Moreover the authors reported MACE accounting for around two fold more variance in psychopathology than the CTQ or the ACE index (Teicher & Parigger, 2015). Corresponding analysis for the KERF and the *pediatric MACE* are to date pending. For the *pediatric* interview data on its congruent validity as well as experiences on its application in clinical samples and subjects older than 15 years are needed. For the KERF, psychometric evaluations were limited to a female sample. Equivalent analysis including male participants are necessary. For both instruments Rasch modeling was used for subscale composition purposes. We did not succeed in completely confirming our aspired statistical criteria for several of these subscales. Further

evaluations based on bigger data volume, including male participants for the KERF and minors above 15 years for the *pediatric MACE*, would be of interest in this regard. Finally due to the restricted data volume we were limited to provide preliminary cut-off proposals for statistical application, which require further evaluation regarding verification or adjustment.

Research on the developmental epidemiology of childhood adversities is sort of in its infancy and needs further scientific effort, as well concerning the underlying mechanisms.

The understanding of BPD as a mental disorder in association with stressful experiences (e.g. Herman & van der Kolk, 1987) gained further support by the third part of this thesis. Likewise the concept on a possible cerebellar involvement in the etiology of BPD symptoms, induced by sensory-motor vestibular deprivation or childhood adversities (Schauer, Teicher et al., 2015); approximated by balance performance as a behavioral indicator. However there are many open questions remaining for this approach. Differentially analyzing the MACE/KERF timeline, BPD symptoms, balance performance, in addition with measures mapping structure and/or functional activity of the brain as a whole and the cerebellum in particular, can build upon the insights of the study presented here. Inter alia future research might reveal possible windows of vulnerability in this construct. A specific assessment of the effective sensory-motor vestibular activation, especially of early age passive movement by proxy-ratings, would be considered of additional help. Analysis among larger, mixed, and unmedicated samples are needed to gain more generalizable insights and to finally exclude any possibly confounding influence.

For BPD symptom severity, shut-down dissociation, and lifetime dysfunctional behaviour, we meanwhile approached the idea of developmental phases of high vulnerability by first preliminary analysis, beyond the scope of this thesis, in fact indicating the major importance of the timing of exposure, besides the relevance of separate event types and the cumulative burden among our sample. These results further underline the relevance for a detailed assessment of the age(s) of adversity exposure for mental health research purposes (Khan et al., 2015; Schalinski & Teicher, 2015).

Childhood certainly features “window[s] of vulnerability, but also of opportunity“ (Barbozo Solís et al., 2015; *p*. 8), which might implicate options for effective prevention and intervention in victimized children. Certainly therefore a better comprehension of these ‘windows of opportunity’ is essential. The present thesis contributes to that by developing and extending suitable assessment tools.

Previous research revealed balance impairment in children suffering from anxiety (Stirns et al., 2009) and attention deficit hyperactivity (Buderath et al., 2009). The evaluation of a program using balance exercises to reduce anxiety symptoms resulted as efficient (e.g. Bart et al., 2009). In combination with our results on BPD associated balance impairment and the concept by Schauer, Teicher et al. (2015), further scientific programs on preventive or interventional methods on behalf of systematic active or passive movement practice, in stressed individuals and/or BPD appears worth to be considered.

8.2. Implications for clinical practice

The MACE (Teicher & Parigger, 2011, 2015), its German equivalent and its pediatric variant, assists practicing clinical experts, to identify victimized minors or grown-ups, to prevent a further accumulation of adversities, to recognize the appropriate classificatory dimension and to decide on indicated interventions. As we deduce from our results on the developmental epidemiology of childhood adversities, children of several ages might face this burden, varying in risk. The importance of a careful assessment of possible childhood adversities in patients suffering from BPD, dissociation, impulsive aggression and/or balance instability has been elaborated as part of this thesis (Isele, Schauer et al., 2015). However, as delineated childhood stressors account for many more dimensions of mental and somatic- ill health (e.g. Anda et al., 2006; Barbozo Solís et al., 2015; Becker-Blease & Freyd, 2008; Brown et al., 2010; Chapman et al., 2007; Dube et al., 2009; Edwards et al., 2003; Felitti et al., 1998). Corresponding information could be used in respect to treatment indications (Nemeroff et al., 2003; Nanni et al., 2012). This is why Teicher and Samson (2013) promote the use of a supplementary labeling of childhood adversities in diagnostic assessment.

For trauma focused Narrative Exposure Therapy (NET), an effective module to treat PTSD (Neuner et al., 2010; Ruf et al., 2010) and applicable for BPD patients with comorbid PTSD (Pabst, Aldenhoffet al., 2012; Pabst, Schauer et al., 2012), using event checklists such as the MACE/KERF as part of the psychodiagnostic process is explicitly recommended (Schauer,

2015). The information gathered by the ‘timeline’ of these tools is especially valuable for chronology orientated treatment.

In some settings, the assessment of the age(s) of exposure and the emotional reaction might result of minor relevance or not feasible. Therefore there is the option to administer more compact variants of the instruments, without these subitems (namely: ‘Skala Belastende Kindheitserfahrungen- ein Überblick’, Isele, Parigger, Ruf-Leuschner, Elbert, & Schauer, 2015; the *pediatric MACE interview - ‘An overview’*, Isele, Ruf-Leuschner, Schauer, & Elbert, 2015). Likewise an omission of the supplementary scale *parental loss* and/or items not added to the standardized evaluation algorithms is feasible.

9. Prospects regarding advancements

We meanwhile worked on condensed interview and self-rating advancements of MACE and KERF, counting 40- or rather 20-event items (MACE/KERF-40/-20 (-I), Isele, Schauer, Ruf-Leuschner, & Elbert; for item composition see appendix). An electronic pilot-version of KERF for Macintosh (KERF APP), created in cooperation with the 'Institute of Technology' of the University of Ulm automatically implements adaptive testing, by introductive questions similar to the ones we elaborated for the *pediatric MACE interview*, and represents a time-saving alternative in terms of implementation and evaluation (see Isele et al., 2013).

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V. Appendix

Belastende Kindheitserfahrungen (KERF): Instrument und Zusatzmaterial

Informationen zur Skala Belastende Kindheitserfahrungen (KERF)

Einführende Fragen zur Skala Belastende Kindheitserfahrungen (KERF)

Skala Belastende Kindheitserfahrungen (KERF)

Belastende Kindheitserfahrungen (KERF-I) - Standardisierte Auswertungsrichtlinien *(für SPSS- Matrix und Syntaxen siehe beiliegende CD)*

Belastende Kindheitserfahrungen (KERF-I) - Kompakter Auswertungsbogen für klinisch psychologische Praktiker

Informationen zur

Skala Belastende Kindheitserfahrungen (KERF)[1]

Die KERF ist eine Skala zur umfangreichen retrospektiven Befragung erwachsener Personen bezüglich interpersonaler Belastungen im Verlauf der ersten 18 Lebensjahre.

Thematisiert werden, mit insgesamt 75 Fragen,

- Verbale Gewalt durch Eltern (bzw. im Haushalt lebende Erwachsene)
- Nonverbale emotionale Gewalt durch Eltern (bzw. im Haushalt lebende Erwachsene)
- Emotionale Vernachlässigung
- Körperliche Vernachlässigung
- Bezeugte körperliche Gewalt zwischen Eltern (bzw. im Haushalt lebenden Erwachsenen)
- Bezeugte Gewalt an Geschwistern (bzw. im Haushalt lebenden Kindern)
- Emotionale Gewalt durch Peers (mit näherer Spezifikation Gewalt in Partnerschaft)
- Körperliche Gewalt durch Peers (mit näherer Spezifikation Gewalt in Partnerschaft)
- Sexuelle Gewalt sowie der

- Verlust eines Elternteiles.

Das Instrument ermöglicht darüber hinaus eine differenzierte Erhebung des/der Zeitpunkt(e) des Geschehens und die Berücksichtigung der unmittelbaren emotionalen Reaktion in Form von intensiver Angst oder Hilflosigkeit.

Das englischsprachige Original des Instruments, die ‚Maltreatment and Abuse Chronology of Exposure (MACE, Teicher & Parigger 2011, 2015)' wurde ursprünglich als Fragebogen entwickelt. Wir machten gute Erfahrungen bei der Anwendung als Interview (KERF-I; vgl. Isele et al., 2014) durch klinisch psychologisches Fachpersonal.

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[1] Belastende Kindheitserfahrungen (KERF). Isele, D., Parigger, A., Ruf, M., Elbert, T., & Schauer, M. (2014; unveröffentlichtes Manuskript, Universität Konstanz).

Mit Hilfe ‚*einführender Fragen*' zum Instrument können Kenntnisse über die familiäre Konstellation sowie zum Wohn- und Lebensumfeld in der Kindheit herausgearbeitet werden, die für die Durchführung des KERF- Interviews äußerst wertvoll sind.

Entwicklung und Validierung

Näheres zur Entwicklung und psychometrischen Prüfung des KERF- Interviews an einer Stichprobe von 98 gesunden und 67 psychopathologischen Frauen beschreiben Isele et al. (2014).

Auswertung

KERF gibt einen Überblick über die Belastungsschwere und - breite (Anzahl verschiedener belastender Erlebnisdimensionen). Das Instrument kann sowohl über die gesamte Kindheit und Jugend hinweg als auch für jedes Lebensjahr analysiert werden.

Eine differenzierte Anleitung der Analysen für den Forschungskontext sind in den ‚standardisierten Auswertungsrichtlinien' zum Instrument exakt beschrieben und werden durch SPSS- Auswertungsmaterialien unterstützt.

Für den klinisch psychologisch geschulten Praktiker ist vor allem die mit dem Instrument gewonnene qualitative Information von Relevanz. Ein ‚kompakter Auswertungsbogen für Praktiker' fasst die Subskalenzugehörigkeit der Items und die statistischen Auswertungsalgorithmen zusammen.

Weitere Versionen und Varianten

KERF existiert ebenfalls in einer Variante ohne Zusatzitems zur zeitlichen Einordnung und emotionalen Reaktion als ‚*KERF- ein Überblick*'. Ferner sind die auf Itemebene komprimierten Versionen KERF-20-I und KERF-40 (-I) sowie das ‚KERF-Kinderinterview' jeweils in englischer und deutscher Sprache erhältlich.

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Einführende Fragen zur Skala *Belastende Kindheitserfahrungen (KERF)*[1]

Zunächst möchten wir Ihnen einige Fragen zu **Ihnen**, **Ihrer Familie** und den **Menschen mit denen Sie in Ihrer Kindheit und Jugend zusammenleben** stellen.

E1: Wie alt sind Sie? _____ Jahre

Welches Geschlecht haben Sie? ❍ ❍

männlich$_0$ weiblich$_1$

E2: Welche Personen gehörten in Ihrer Kindheit und Jugend (1. bis einschließlich 18. Lebensjahr) zu **Ihrer Familie**?

- ❍ Mutter
- ❍ Stiefmutter
- ❍ Vater
- ❍ Stiefvater
- ❍ Geschwister
- ❍ Stiefgeschwister
- ❍ Oma/ Großmutter
- ❍ Opa/ Großvater
- ❍ Pflegeeltern/ Adoptiveltern
- ❍ Pflegegeschwister/ Adoptivgeschwister
- ❍ sonstige Verwandte: _____
- ❍ sonstige Personen (z.B. Betreuer in Einrichtung): _____

E3: **Wer** war in Ihrer Kindheit und Jugend (1. bis einschließlich 18. Lebensjahr) **Ihre Hauptbezugsperson**?

- ❍ Mutter
- ❍ Stiefmutter
- ❍ Vater
- ❍ Stiefvater
- ❍ Geschwister
- ❍ Stiefgeschwister
- ❍ Oma/ Großmutter
- ❍ Opa/ Großvater
- ❍ Pflegeeltern/ Adoptiveltern
- ❍ Pflegegeschwister/KAdoptivgeschwister
- ❍ sonstige Verwandte: _____
- ❍ sonstige Personen (z.B. Betreuer in Einrichtung oder Nachbarn): _____

[1] Belastende Kindheitserfahrungen (KERF). Isele, D., Parigger, A., Ruf, M., Elbert, T., & Schauer, M. (2014; unveröffentlichtes Manuskript, Universität Konstanz).

E4: Mit wem haben Sie in Ihrer Kindheit und Jugend (1. bis einschließlich 18. Lebensjahr) alles **zusammengewohnt? Bitte nennen Sie hier nur Personen, mit denen Sie mindestens einige Jahre zusammenlebten.** Bitte kennzeichnen Sie jedes für Sie zutreffende Alter.

❍ Mutter

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

❍ Vater

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

❍ Geschwister

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

❍ neuer Partner der Mutter/ Stiefvater

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

❍ wechselnde Partner der Mutter

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

❍ neue Partnerin des Vaters/ Stiefmutter

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

❍ wechselnde Partnerinnen des Vaters

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

❍ Stiefgeschwister (Kinder der/des neuen Partnerin/ s von Mutter oder Vater)

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

❍ Pflegegeschwister/ Adoptivgeschwister

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

❍ Großmutter

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

❍ Großvater

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

❍ sonstige Verwandte: _____

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

❍ Pflegeeltern/ Adoptiveltern

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

❍ sonstige Personen (z.B. Betreuer in Einrichtung): _____

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

E5: Außer Ihnen persönlich lebten keine weiteren Kinder (keine Geschwister, Stief-/ Pflegegeschwister, etc.) **im Haushalt.** O Ja_1 O $Nein_0$

E6: Hatten Sie in Ihren ersten 18 Lebensjahren eine(n) Partner(in)? O Ja_1 O $Nein_0$

Bitte kennzeichnen Sie jedes für Sie zutreffende Alter.

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

Belastende Kindheitserfahrungen (KERF)

(engl. MACE, composed by Martin H. Teicher, McLean Hospital /Harvard Medical School)
Deutsche Version von: Isele, D., Parigger, A., Ruf, M., Elbert, T. & Schauer, M. (2014, Universität Konstanz)

Manchmal tun Eltern, Stiefeltern oder andere mit im Haushalt lebende Erwachsene verletztende Dinge. Falls dies in Ihrer Kindheit (im Verlauf Ihrer ersten 18 Lebensjahre) geschah, schätzen Sie bitte Ihr Alter zum Zeitpunkt des Geschehens bestmöglich ein.

Bitte kennzeichnen Sie jedes für Sie zutreffende Alter.

Zum Beispiel

Verfluchte(n) Sie die Eltern, Stiefeltern oder andere mit im Haushalt lebende Erwachsene? Beschimpfte(n) sie Sie, sagte(n) sie beleidigende Dinge zu Ihnen, wie Sie seien „dick", „hässlich", „dumm", usw. mehr als wenige Male im Jahr.

Falls Sie Ihr Vater im Alter von 6-8 Jahren verfluchte, Ihre Mutter Sie im Alter von 8-10 Jahren beleidigte und im Alter von 17 Jahren der neue Lebensgefährte Ihrer Mutter Sie beschimpfte, würden Sie wie folgt kennzeichnen:

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

Alle nun kommenden Fragen beziehen sich auf Ihre Eltern, Stiefeltern oder andere mit im Haushalt lebenden Erwachsenen:

1. Verfluchte(n) sie Sie, beschimpfte(n) sie Sie, sagte(n) sie beleidigende Dinge zu Ihnen, wie Sie seien „dick", „hässlich", „dumm", usw. mehr als nur wenige Male im Jahr. ☐ Ja$_1$ ☐ Nein$_0$

   Bitte kennzeichnen Sie jedes für Sie zutreffende Alter.

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

2. Sagte(n) sie verletztende Dinge, die Sie traurig machten, beschämten oder demütigten mehr als nur wenige Male im Jahr. ☐ Ja$_1$ ☐ Nein$_0$

   Bitte kennzeichnen Sie jedes für Sie zutreffende Alter.

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

3. Schrie(n) oder brüllte(n) sie Sie mehr als nur wenige Male im Jahr an. ☐ Ja$_1$ ☐ Nein$_0$

   Bitte kennzeichnen Sie jedes für Sie zutreffende Alter.

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

4. Verhielte(n) sie sich so, dass Sie Angst hatten, körperlich verletzt zu werden. ☐ Ja$_1$ ☐ Nein$_0$

   Bitte kennzeichnen Sie jedes für Sie zutreffende Alter.

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

   Empfanden Sie dabei Hilflosigkeit? ☐ Ja$_1$ ☐ Nein$_0$

   Empfanden Sie dabei intensive Angst oder Entsetzen? ☐ Ja$_1$ ☐ Nein$_0$

[1] in: Schauer, M., Neuner, F., Elbert, T. (2011 2nd Edition) Narrative Exposure Therapy (NET). A Short-Term Intervention for Traumatic Stress. Cambridge/ Göttingen: Hogrefe & Huber Publishers

5. Drohte(n) sie fortzugehen oder Sie zu verlassen. ☐ Ja$_1$ ☐ Nein$_0$

Bitte kennzeichnen Sie jedes für Sie zutreffende Alter.

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

Empfanden Sie dabei Hilflosigkeit? ☐ Ja$_1$ ☐ Nein$_0$

Empfanden Sie dabei intensive Angst oder Entsetzen? ☐ Ja$_1$ ☐ Nein$_0$

6. Schloss(en) sie Sie in einem Schrank, Speicher, Keller, einer Garage oder einem anderen, womöglich auch sehr engen, dunklen Ort ein. ☐ Ja$_1$ ☐ Nein$_0$

Bitte kennzeichnen Sie jedes für Sie zutreffende Alter.

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

Empfanden Sie dabei Hilflosigkeit? ☐ Ja$_1$ ☐ Nein$_0$

Empfanden Sie dabei intensive Angst oder Entsetzen? ☐ Ja$_1$ ☐ Nein$_0$

7. Schubste(n), packte(n), stieß(en), ohrfeigte(n), kniff(en) sie Sie absichtlich, schlug(en) sie Sie mit der Faust oder trat(en) sie nach Ihnen. ☐ Ja$_1$ ☐ Nein$_0$

Bitte kennzeichnen Sie jedes für Sie zutreffende Alter

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

Empfanden Sie dabei Hilflosigkeit? ☐ Ja$_1$ ☐ Nein$_0$

Empfanden Sie dabei intensive Angst oder Entsetzen? ☐ Ja$_1$ ☐ Nein$_0$

8. Schlug(en) sie Sie so stark, dass dies für mehr als ein paar Minuten Spuren auf Ihrem Körper hinterließ. ☐ Ja$_1$ ☐ Nein$_0$

Bitte kennzeichnen Sie jedes für Sie zutreffende Alter

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

Empfanden Sie dabei Hilflosigkeit? ☐ Ja$_1$ ☐ Nein$_0$

Empfanden Sie dabei intensive Angst oder Entsetzen? ☐ Ja$_1$ ☐ Nein$_0$

9. Schlug(en) sie Sie so stark oder verletzte(n) sie Sie absichtlich in irgendeiner Form, so dass Sie ärztlich versorgt wurden oder ärztlicher Versorgung bedurft hätten. ☐ Ja$_1$ ☐ Nein$_0$

Bitte kennzeichnen Sie jedes für Sie zutreffende Alter

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

Empfanden Sie dabei Hilflosigkeit? ☐ Ja$_1$ ☐ Nein$_0$

Empfanden Sie dabei intensive Angst oder Entsetzen? ☐ Ja$_1$ ☐ Nein$_0$

10. Schlug(en) sie Sie mit der offenen Hand auf Gesäß, Arme oder Beine. ☐ Ja$_1$ ☐ Nein$_0$

Bitte kennzeichnen Sie jedes für Sie zutreffende Alter

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

Empfanden Sie dabei Hilflosigkeit? ☐ Ja$_1$ ☐ Nein$_0$

Empfanden Sie dabei intensive Angst oder Entsetzen? ☐ Ja$_1$ ☐ Nein$_0$

11. Schug(en) sie Sie auf Ihr nacktes (unbekleidetes) Gesäß. ☐ Ja$_1$ ☐ Nein$_0$

Bitte kennzeichnen Sie jedes für Sie zutreffende Alter

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

Empfanden Sie dabei Hilflosigkeit? ☐ Ja$_1$ ☐ Nein$_0$

Empfanden Sie dabei intensive Angst oder Entsetzen? ☐ Ja$_1$ ☐ Nein$_0$

12. Schlug(en) sie Sie mit einem Gegenstand, wie z.B. einem Riemen, einem Gürtel, einer Bürste, einem Stock, einem Rohr, einem Besen, einem Kochlöffel usw. ☐ Ja$_1$ ☐ Nein$_0$

Bitte kennzeichnen Sie jedes für Sie zutreffende Alter

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

Empfanden Sie dabei Hilflosigkeit? ☐ Ja$_1$ ☐ Nein$_0$

Empfanden Sie dabei intensive Angst oder Entsetzen? ☐ Ja$_1$ ☐ Nein$_0$

13. Machte(n) sie Ihnen gegenüber unangebrachte sexuelle Kommentare oder Andeutungen. ☐ Ja$_1$ ☐ Nein$_0$

Bitte kennzeichnen Sie jedes für Sie zutreffende Alter

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

Empfanden Sie dabei Hilflosigkeit? ☐ Ja$_1$ ☐ Nein$_0$

Empfanden Sie dabei intensive Angst oder Entsetzen? ☐ Ja$_1$ ☐ Nein$_0$

14. Berührte(n) oder begrabschte(n) sie Ihren Körper auf eine sexuelle Art und Weise. ☐ Ja$_1$ ☐ Nein$_0$

Bitte kennzeichnen Sie jedes für Sie zutreffende Alter

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

Empfanden Sie dabei Hilflosigkeit? ☐ Ja$_1$ ☐ Nein$_0$

Empfanden Sie dabei intensive Angst oder Entsetzen? ☐ Ja$_1$ ☐ Nein$_0$

15. Brachte(n) sie Sie dazu, deren Körper (den Körper des Erwachsenen) auf eine sexuelle Art und Weise zu berühren. ☐ Ja$_1$ ☐ Nein$_0$

Bitte kennzeichnen Sie jedes für Sie zutreffende Alter

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

Empfanden Sie dabei Hilflosigkeit? ☐ Ja$_1$ ☐ Nein$_0$

Empfanden Sie dabei intensive Angst oder Entsetzen? ☐ Ja$_1$ ☐ Nein$_0$

16. *Versuchte(n)* sie in irgendeiner Form (oral, anal oder vaginal) Geschlechtsverkehr mit Ihnen zu haben (Einführen von Penis oder Gegenständen in die Scheide, den After oder den Mund). ☐ Ja$_1$ ☐ Nein$_0$

Bitte kennzeichnen Sie jedes für Sie zutreffende Alter

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

Empfanden Sie dabei Hilflosigkeit? ☐ Ja$_1$ ☐ Nein$_0$

Empfanden Sie dabei intensive Angst oder Entsetzen? ☐ Ja$_1$ ☐ Nein$_0$

17. *Hatte(n)* sie in irgendeiner Form (oral, anal oder vaginal) Geschlechtsverkehr mit Ihnen (Einführen von Penis oder Gegenständen in die Scheide, den After oder den Mund). ☐ Ja$_1$ ☐ Nein$_0$

Bitte kennzeichnen Sie jedes für Sie zutreffende Alter

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

Empfanden Sie dabei Hilflosigkeit? ☐ Ja$_1$ ☐ Nein$_0$

Empfanden Sie dabei intensive Angst oder Entsetzen? ☐ Ja$_1$ ☐ Nein$_0$

Manchmal tun Eltern, Stiefeltern oder andere mit im Haushalt lebende Erwachsene den Geschwistern (Schwester, Bruder, Stiefgeschwistern) verletzende Dinge an. Falls dies in Ihrer Kindheit (im Verlauf Ihrer ersten 18 Lebensjahre) geschah, schätzen Sie bitte Ihr Alter zum Zeitpunkt des Geschehens bestmöglich ein.

Bitte kennzeichnen Sie jedes für Sie zutreffende Alter.

18. Wurden Ihre Geschwister (Stiefgeschwister) absichtlich geschubst, gepackt, gestoßen, geohrfeigt, gekniffen, mit der Faust geschlagen oder getreten. ☐ Ja$_1$ ☐ Nein$_0$

Bitte kennzeichnen Sie jedes für Sie zutreffende Alter

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

Empfanden Sie, als Sie das miterlebten, Hilflosigkeit? ☐ Ja$_1$ ☐ Nein$_0$

Empfanden Sie, als Sie das miterlebten, intensive Angst oder Entsetzen? ☐ Ja$_1$ ☐ Nein$_0$

19. Wurden Ihre Geschwister (Stiefgeschwister) so stark geschlagen, dass diese Schläge für mehr als ein paar Minuten Spuren auf deren Körper hinterließen. ☐ Ja$_1$ ☐ Nein$_0$

Bitte kennzeichnen Sie jedes für Sie zutreffende Alter

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

Empfanden Sie, als Sie das miterlebten, Hilflosigkeit? ☐ Ja$_1$ ☐ Nein$_0$

Empfanden Sie, als Sie das miterlebten, intensive Angst oder Entsetzen? ☐ Ja$_1$ ☐ Nein$_0$

20. Wurden Ihre Geschwister (Stiefgeschwister) so stark geschlagen oder in irgendeiner Form absichtlich verletzt, so dass sie ärztlich versorgt wurden oder ärztlicher Versorgung bedurft hätten. ☐ Ja$_1$ ☐ Nein$_0$

Bitte kennzeichnen Sie jedes für Sie zutreffende Alter

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

Empfanden Sie, als Sie das miterlebten, Hilflosigkeit? ☐ Ja$_1$ ☐ Nein$_0$

Empfanden Sie, als Sie das miterlebten, intensive Angst oder Entsetzen? ☐ Ja$_1$ ☐ Nein$_0$

21. Wurden Ihren Geschwistern (Stiefgeschwistern) gegenüber unangebrachte sexuelle Kommentare oder Andeutungen gemacht. ☐ Ja$_1$ ☐ Nein$_0$

Bitte kennzeichnen Sie jedes für Sie zutreffende Alter

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

Empfanden Sie, als Sie das miterlebten, Hilflosigkeit? ☐ Ja$_1$ ☐ Nein$_0$

Empfanden Sie, als Sie das miterlebten, intensive Angst oder Entsetzen? ☐ Ja$_1$ ☐ Nein$_0$

22. Wurden Ihre Geschwister (Stiefgeschwister) auf sexuelle Art und Weise berührt oder begrabscht. ☐ Ja$_1$ ☐ Nein$_0$

Bitte kennzeichnen Sie jedes für Sie zutreffende Alter

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

Empfanden Sie, als Sie das miterlebten, Hilflosigkeit? ☐ Ja$_1$ ☐ Nein$_0$

Empfanden Sie, als Sie das miterlebten, intensive Angst oder Entsetzen? ☐ Ja$_1$ ☐ Nein$_0$

23. Wurden Ihre Geschwister (Stiefgeschwister) dazu gebracht, deren Körper (den Körper des Erwachsenen) auf eine sexuelle Art und Weise zu berühren. ☐ Ja$_1$ ☐ Nein$_0$

Bitte kennzeichnen Sie jedes für Sie zutreffende Alter

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

Empfanden Sie, als Sie das miterlebten, Hilflosigkeit? ☐ Ja$_1$ ☐ Nein$_0$

Empfanden Sie, als Sie das miterlebten, intensive Angst oder Entsetzen? ☐ Ja$_1$ ☐ Nein$_0$

5

24. Hatten Ihre Geschwister (Stiefgeschwister) in irgendeiner Form (oral, anal oder vaginal) Geschlechtsverkehr mit Eltern (Stiefeltern oder anderen im Haushalt lebenden erwachsenen Personen) oder versuchte(n) diese Person(en), Geschlechtsverkehr mit Ihren Geschwistern zu haben (Einführen von Penis oder Gegenständen in die Scheide, den After oder den Mund). ☐ Ja$_1$ ☐ Nein$_0$

Bitte kennzeichnen Sie jedes für Sie zutreffende Alter

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

Empfanden Sie, als Sie das miterlebten, Hilflosigkeit? ☐ Ja$_1$ ☐ Nein$_0$

Empfanden Sie, als Sie das miterlebten, intensive Angst oder Entsetzen? ☐ Ja$_1$ ☐ Nein$_0$

25. Wurde Ihren Geschwistern angedroht, sie zu verletzen. ☐ Ja$_1$ ☐ Nein$_0$

Bitte kennzeichnen Sie jedes für Sie zutreffende Alter

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

Empfanden Sie, als Sie das miterlebten, Hilflosigkeit? ☐ Ja$_1$ ☐ Nein$_0$

Empfanden Sie, als Sie das miterlebten, intensive Angst oder Entsetzen? ☐ Ja$_1$ ☐ Nein$_0$

Manchmal tun andere Erwachsene oder ältere NICHT mit im Haushalt lebende Personen (also nicht Ihre Eltern, nicht Stiefeltern, nicht direkte Mitbewohner) Ihnen verletzende Dinge an. Falls dies in Ihrer Kindheit (im Verlauf Ihrer ersten 18 Lebensjahre) geschah, schätzen Sie bitte Ihr Alter zum Zeitpunkt des Geschehens bestmöglich ein.

Bitte kennzeichnen Sie jedes für Sie zutreffende Alter.

26. Machte(n) sie Ihnen gegenüber unangebrachte sexuelle Kommentare oder Anmerkungen. ☐ Ja$_1$ ☐ Nein$_0$

Bitte kennzeichnen Sie jedes für Sie zutreffende Alter

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

Empfanden Sie dabei Hilflosigkeit? ☐ Ja$_1$ ☐ Nein$_0$

Empfanden Sie dabei intensive Angst oder Entsetzen? ☐ Ja$_1$ ☐ Nein$_0$

27. Berührte(n) oder begrabschte(n) sie Ihren Körper auf eine sexuelle Art und Weise. ☐ Ja$_1$ ☐ Nein$_0$

Bitte kennzeichnen Sie jedes für Sie zutreffende Alter

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

Empfanden Sie dabei Hilflosigkeit? ☐ Ja$_1$ ☐ Nein$_0$

Empfanden Sie dabei intensive Angst oder Entsetzen? ☐ Ja$_1$ ☐ Nein$_0$

28. Brachte(n) sie Sie dazu, deren Körper (den Körper des Erwachsenen) auf eine sexuelle Art und Weise zu berühren. ☐ Ja$_1$ ☐ Nein$_0$

Bitte kennzeichnen Sie jedes für Sie zutreffende Alter

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

Empfanden Sie dabei Hilflosigkeit? ☐ Ja$_1$ ☐ Nein$_0$

Empfanden Sie dabei intensive Angst oder Entsetzen? ☐ Ja$_1$ ☐ Nein$_0$

29. Versuchte(n) sie in irgendeiner Form (oral, anal oder vaginal) Geschlechtsverkehr mit Ihnen zu haben (Einführen von Penis oder Gegenständen in die Scheide, den After oder den Mund). ☐ Ja$_1$ ☐ Nein$_0$

Bitte kennzeichnen Sie jedes für Sie zutreffende Alter

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

Empfanden Sie dabei Hilflosigkeit? ☐ Ja$_1$ ☐ Nein$_0$

Empfanden Sie dabei intensive Angst oder Entsetzen? ☐ Ja$_1$ ☐ Nein$_0$

30. Hatte(n) sie in irgendeiner Form (oral, anal oder vaginal) Geschlechtsverkehr mit Ihnen (Einführen von Penis oder Gegenständen in die Scheide, den After oder den Mund). ☐ Ja$_1$ ☐ Nein$_0$

Bitte kennzeichnen Sie jedes für Sie zutreffende Alter

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

Empfanden Sie dabei Hilflosigkeit? ☐ Ja$_1$ ☐ Nein$_0$

Empfanden Sie dabei intensive Angst oder Entsetzen? ☐ Ja$_1$ ☐ Nein$_0$

Manchmal kommt es zu heftigem Streit oder körperlichen Auseinandersetzungen zwischen Eltern, Stiefeltern oder anderen MIT im Haushalt lebenden Erwachsenen (z.B. Partnern, Partnerinnen, Großeltern). Falls dies in Ihrer Kindheit (im Verlauf Ihrer ersten 18 Lebensjahre) geschah, schätzen Sie bitte Ihr Alter zum Zeitpunkt des Geschehens bestmöglich ein.

Bitte kennzeichnen Sie jedes für Sie zutreffende Alter.

31. Sie beobachteten, wie mit im Haushalt lebende Erwachsene heftig mit Ihrem Vater (Stiefvater, Pflegevater oder Großvater) stritten, ihn beleidigten oder drohten, ihn zu verletzen. ☐ Ja$_1$ ☐ Nein$_0$

Bitte kennzeichnen Sie jedes für Sie zutreffende Alter

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

Empfanden Sie, als Sie das miterlebten, Hilflosigkeit? ☐ Ja$_1$ ☐ Nein$_0$

Empfanden Sie, als Sie das miterlebten, intensive Angst oder Entsetzen? ☐ Ja$_1$ ☐ Nein$_0$

32. Sie beobachteten, wie mit im Haushalt lebende Erwachsene heftig mit Ihrer Mutter (Stiefmutter, Pflegemutter oder Großmutter) stritten, sie beleidigten oder drohten, sie zu verletzen. ☐ Ja$_1$ ☐ Nein$_0$

Bitte kennzeichnen Sie jedes für Sie zutreffende Alter

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

Empfanden Sie, als Sie das miterlebten, Hilflosigkeit? ☐ Ja$_1$ ☐ Nein$_0$

Empfanden Sie, als Sie das miterlebten, intensive Angst oder Entsetzen? ☐ Ja$_1$ ☐ Nein$_0$

33. Sie sahen, wie mit im Haushalt lebende Erwachsene Ihre Mutter (Stiefmutter, Pflegemutter oder Großmutter) schubsten, packten, ohrfeigten oder Dinge nach ihr warfen. ☐ Ja$_1$ ☐ Nein$_0$

Bitte kennzeichnen Sie jedes für Sie zutreffende Alter

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

Empfanden Sie, als Sie das miterlebten, Hilflosigkeit? ☐ Ja$_1$ ☐ Nein$_0$

Empfanden Sie, als Sie das miterlebten, intensive Angst oder Entsetzen? ☐ Ja$_1$ ☐ Nein$_0$

34. Sie sahen, wie mit im Haushalt lebende Erwachsene Ihre Mutter (Stiefmutter, Pflegemutter oder Großmutter) so stark schlugen, dass dies für mehr als ein paar Minuten Spuren auf ihrem Körper hinterließ. ☐ Ja$_1$ ☐ Nein$_0$

Bitte kennzeichnen Sie jedes für Sie zutreffende Alter

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

Empfanden Sie, als Sie das miterlebten, Hilflosigkeit? ☐ Ja$_1$ ☐ Nein$_0$

Empfanden Sie, als Sie das miterlebten, intensive Angst oder Entsetzen? ☐ Ja$_1$ ☐ Nein$_0$

35. Sie sahen, wie mit im Haushalt lebende Erwachsene Ihre Mutter (Stiefmutter, Pflegemutter oder Großmutter) so stark schlugen oder sie in irgendeiner Form verletzten, so dass sie medizinisch versorgt wurde oder medizinischer Versorgung bedurft hätte. ☐ Ja$_1$ ☐ Nein$_0$

Bitte kennzeichnen Sie jedes für Sie zutreffende Alter

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

Empfanden Sie, als Sie das miterlebten, Hilflosigkeit? ☐ Ja$_1$ ☐ Nein$_0$

Empfanden Sie, als Sie das miterlebten, intensive Angst oder Entsetzen? ☐ Ja$_1$ ☐ Nein$_0$

36. Sie sahen, wie mit im Haushalt lebende Erwachsene Ihren Vater (Stiefvater, Pflegevater oder Großvater) schubsten, packten, ohrfeigten oder Dinge nach ihm warfen. ☐ Ja$_1$ ☐ Nein$_0$

Bitte kennzeichnen Sie jedes für Sie zutreffende Alter

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

Empfanden Sie, als Sie das miterlebten, Hilflosigkeit? ☐ Ja$_1$ ☐ Nein$_0$

Empfanden Sie, als Sie das miterlebten, intensive Angst oder Entsetzen? ☐ Ja$_1$ ☐ Nein$_0$

37. Sie sahen, wie mit im Haushalt lebende Erwachsene Ihren Vater (Stiefvater, Pflegevater oder Großvater) so stark schlugen, dass dies für mehr als ein paar Minuten Spuren auf seinem Körper hinterließ. ☐ Ja$_1$ ☐ Nein$_0$

Bitte kennzeichnen Sie jedes für Sie zutreffende Alter

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

Empfanden Sie, als Sie das miterlebten, Hilflosigkeit? ☐ Ja$_1$ ☐ Nein$_0$

Empfanden Sie, als Sie das miterlebten, intensive Angst oder Entsetzen? ☐ Ja$_1$ ☐ Nein$_0$

38. Sie sahen, wie mit im Haushalt lebende Erwachsene Ihren Vater (Stiefvater, Pflegevater oder Großvater) so stark schlugen oder ihn in irgendeiner Form verletzten, so dass er medizinisch versorgt wurde oder medizinischer Versorgung bedurft hätte. ☐ Ja$_1$ ☐ Nein$_0$

Bitte kennzeichnen Sie jedes für Sie zutreffende Alter

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

Empfanden Sie, als Sie das miterlebten, Hilflosigkeit? ☐ Ja$_1$ ☐ Nein$_0$

Empfanden Sie, als Sie das miterlebten, intensive Angst oder Entsetzen? ☐ Ja$_1$ ☐ Nein$_0$

Manchmal tun gleichaltrige oder ältere Kinder/Jugendliche verletzende Dinge, wie beispielsweise mobben oder schikanieren. Falls dies in Ihrer Kindheit (im Verlauf Ihrer ersten 18 Lebensjahre) geschah, schätzen Sie bitte Ihr Alter zum Zeitpunkt des Geschehens bestmöglich ein.

Bitte kennzeichnen Sie jedes für Sie zutreffende Alter.

39. Die beschimpfte(n), verfluchte(n) Sie, sagte(n) beleidigende Dinge wie Sie seien „dick", „hässlich", „dumm", usw. mehr als nur wenige Male im Jahr. ☐ Ja$_1$ ☐ Nein$_0$

Bitte kennzeichnen Sie jedes für Sie zutreffende Alter

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

Falls Ihnen obiges durch eine(n) Freund(in)/Partner(in) – jemanden mit dem Sie sich auf einer sozialen, romantischen oder intimen Ebene verbunden fühlten – geschehen ist, geben Sie bitte hier an, in welchem Alter dies war. ☐ Ja$_1$ ☐ Nein$_0$

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

40. Die sagte(n) verletzende Dinge, die Sie traurig machten, beschämten oder demütigten. ☐ Ja$_1$ ☐ Nein$_0$

Bitte kennzeichnen Sie jedes für Sie zutreffende Alter

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

Falls Ihnen obiges durch eine(n) Freund(in)/Partner(in) geschehen ist, geben Sie bitte hier an, in welchem Alter dies war. ☐ Ja$_1$ ☐ Nein$_0$

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

41. Die sprach(en) hinter Ihrem Rücken über Sie, erniedrigte(n) Sie öffentlich, setzte(n) Gerüchte über Sie in die Welt. ☐ Ja$_1$ ☐ Nein$_0$

Bitte kennzeichnen Sie jedes für Sie zutreffende Alter

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

Falls Ihnen obiges durch eine(n) Freund(in)/Partner(in) geschehen ist, geben Sie bitte hier an, in welchem Alter dies war. ☐ Ja$_1$ ☐ Nein$_0$

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

42. Die schloss(en) Sie aus Aktivitäten, Gruppen oder der Gemeinschaft aus. ☐ Ja$_1$ ☐ Nein$_0$

Bitte kennzeichnen Sie jedes für Sie zutreffende Alter

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

Falls Ihnen obiges durch eine(n) Freund(in)/Partner(in) geschehen ist, geben Sie bitte hier an, in welchem Alter dies war. ☐ Ja$_1$ ☐ Nein$_0$

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

43. Die verhielt(en) sich so, dass Sie Angst hatten, körperlich verletzt zu werden. ☐ Ja$_1$ ☐ Nein$_0$

Bitte kennzeichnen Sie jedes für Sie zutreffende Alter

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

Falls Ihnen obiges durch eine(n) Freund(in)/Partner(in) geschehen ist, geben Sie bitte hier an, in welchem Alter dies war. ☐ Ja$_1$ ☐ Nein$_0$

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

44. Die bedrohte(n) Sie, um Ihnen Geld oder Besitztümer abzunehmen. ☐ Ja$_1$ ☐ Nein$_0$

Bitte kennzeichnen Sie jedes für Sie zutreffende Alter

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

Falls Ihnen obiges durch eine(n) Freund(in)/Partner(in) geschehen ist, geben Sie bitte hier an, in welchem Alter dies war. ☐ Ja$_1$ ☐ Nein$_0$

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

45. Die zwang(en) oder bedrohte(n) Sie, um Sie dazu zu bringen, Dinge zu tun, die Sie nicht tun wollten. ☐ Ja$_1$ ☐ Nein$_0$

Bitte kennzeichnen Sie jedes für Sie zutreffende Alter

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

Wenn ja, nennen Sie bitte Beispiele

Falls Ihnen obiges durch eine(n) Freund(in)/Partner(in) geschehen ist, geben Sie bitte hier an, in welchem Alter dies war. ☐ Ja$_1$ ☐ Nein$_0$

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

46. Die schubste(n), packte(n), stieß(en), ohrfeigte(n), kniff(en) Sie absichtlich, schlug(en) Sie mit der Faust oder trat(en) nach Ihnen. ☐ Ja$_1$ ☐ Nein$_0$

Bitte kennzeichnen Sie jedes für Sie zutreffende Alter

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

Falls Ihnen obiges durch eine(n) Freund(in)/Partner(in) geschehen ist, geben Sie bitte hier an, in welchem Alter dies war. ☐ Ja$_1$ ☐ Nein$_0$

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

47. Die schlug(en) Sie so stark, dass dies für mehr als ein paar Minuten Spuren auf Ihrem Körper hinterließ. ☐ Ja$_1$ ☐ Nein$_0$

Bitte kennzeichnen Sie jedes für Sie zutreffende Alter

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

Falls Ihnen obiges durch eine(n) Freund(in)/Partner(in) geschehen ist, geben Sie bitte hier an, in welchem Alter dies war. ☐ Ja$_1$ ☐ Nein$_0$

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

11

48. Die schlug(en) Sie so stark oder verletzte(n) Sie in irgendeiner Form, so dass Sie medizinisch versorgt wurden oder medizinischer Versorgung bedurft hätten. ☐ Ja$_1$ ☐ Nein$_0$

Bitte kennzeichnen Sie jedes für Sie zutreffende Alter

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

Falls Ihnen obiges durch eine(n) Freund(in)/Partner(in) geschehen ist, geben Sie bitte hier an, in welchem Alter dies war. ☐ Ja$_1$ ☐ Nein$_0$

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

49. Die zwang(en) Sie zu sexuellen Aktivitäten gegen Ihren Willen. ☐ Ja$_1$ ☐ Nein$_0$

Bitte kennzeichnen Sie jedes für Sie zutreffende Alter

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

Falls Ihnen obiges durch eine(n) Freund(in)/Partner(in) geschehen ist, geben Sie bitte hier an, in welchem Alter dies war. ☐ Ja$_1$ ☐ Nein$_0$

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

50. Die zwang(en) Sie dazu, sexuelle Dinge zu tun, die Sie nicht tun wollten. ☐ Ja$_1$ ☐ Nein$_0$

Bitte kennzeichnen Sie jedes für Sie zutreffende Alter

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

Falls Ihnen obiges durch eine(n) Freund(in)/Partner(in) geschehen ist, geben Sie bitte hier an, in welchem Alter dies war. ☐ Ja$_1$ ☐ Nein$_0$

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

Bitte geben Sie an, ob die folgenden Aussagen auf Sie und Ihre Familie in Ihrer Kindheit zutrafen sowie Ihr Alter zu den Zeiten, in denen Sie diese als zutreffend empfanden.

Bitte kennzeichnen Sie jedes für Sie zutreffende Alter.

51. Sie hatten das Gefühl, dass Ihre Mutter (Stiefmutter, Pflegemutter oder Großmutter) zwar im Haushalt anwesend war, für Sie jedoch, aus Gründen wie Drogen- oder Alkoholkonsum, zu viel Arbeit (Workaholic/„Arbeitstier"), einer Affäre, dem rücksichtslosen Verfolgen eigener Ziele, emotional nicht verfügbar war/Ihnen emotional nicht zugewandt war. ☐ Ja$_1$ ☐ Nein$_0$

Bitte kennzeichnen Sie jedes für Sie zutreffende Alter

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

52. Sie hatten das Gefühl, dass Ihr Vater (Stiefvater, Pflegevater oder Großvater) zwar im Haushalt anwesend war, für Sie jedoch, aus Gründen wie Drogen- oder Alkoholkonsum, zu viel Arbeit (Workaholic/„Arbeitstier"), einer Affaire, dem rücksichtslosen Verfolgen eigener Ziele, emotional nicht verfügbar war/Ihnen emotional nicht zugewandt war.

☐ Ja$_1$ ☐ Nein$_0$

Bitte kennzeichnen Sie jedes für Sie zutreffende Alter

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

53. Sie hatten das Gefühl, dass Ihre Mutter (Stiefmutter, Pflegemutter oder Großmutter) für Sie aus anderen Gründen, wie etwa der Pflege eines kranken Verwandten, schulischer oder geschäftlicher Verpflichtungen, emotional nicht verfügbar war.

☐ Ja$_1$ ☐ Nein$_0$

Bitte kennzeichnen Sie jedes für Sie zutreffende Alter

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

54. Sie hatten das Gefühl, dass Ihr Vater (Stiefvater, Pflegevater oder Großvater) für Sie aus anderen Gründen, wie etwa dem Militärdienst, der Pflege eines kranken Verwandten, schulischer oder geschäftlicher Verpflichtungen, emotional nicht verfügbar war.

☐ Ja$_1$ ☐ Nein$_0$

Bitte kennzeichnen Sie jedes für Sie zutreffende Alter

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

55. Ein Elternteil oder eine andere wichtige elterliche Person konnte nur sehr schwer zufriedengestellt werden.

☐ Ja$_1$ ☐ Nein$_0$

Bitte kennzeichnen Sie jedes für Sie zutreffende Alter

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

56. Ein Elternteil oder eine andere wichtige elterliche Person hatte keine Zeit oder kein Interesse, mit Ihnen zu sprechen.

☐ Ja$_1$ ☐ Nein$_0$

Bitte kennzeichnen Sie jedes für Sie zutreffende Alter

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

57. Ein oder mehrere Familienmitglieder gab(en) Ihnen das Gefühl, geliebt zu werden.

☐ Ja$_1$ ☐ Nein$_0$

Bitte kennzeichnen Sie jedes für Sie zutreffende Alter

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

Wer? (z.B. Mutter, Tante, Großvater mütterlicherseits)

58. Ein oder mehrere Familienmitglieder half(en) Ihnen dabei, sich wichtig und besonders zu fühlen. ☐ Ja$_1$ ☐ Nein$_0$

Bitte kennzeichnen Sie jedes für Sie zutreffende Alter

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

Wer? (z.B. Mutter, Tante, Großvater mütterlicherseits)

59. Ein oder mehrere Familienmitglieder gab(en) auf Sie acht und beschützte(n) Sie. ☐ Ja$_1$ ☐ Nein$_0$

Bitte kennzeichnen Sie jedes für Sie zutreffende Alter

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

Wer? (z.B. Mutter, Tante, Großvater mütterlicherseits)

60. Ein oder mehrere Familienmitglieder hätte(n) Sie jederzeit, falls es je nötig gewesen wäre, zu einem Arzt oder in die Notaufnahme gebracht. ☐ Ja$_1$ ☐ Nein$_0$

Bitte kennzeichnen Sie jedes für Sie zutreffende Alter

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

Wer? (z.B. Mutter, Tante, Großvater mütterlicherseits)

61. Ein oder mehrere Familienmitglieder half(en) Ihnen bei Ihren Hausaufgaben oder dabei, sich für die Schule zu richten. ☐ Ja$_1$ ☐ Nein$_0$

Bitte kennzeichnen Sie jedes für Sie zutreffende Alter

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

Wer? (z.B. Mutter, Tante, Großvater mütterlicherseits)

Bitte geben Sie an, ob die folgenden Aussagen auf Sie und Ihre Familie in Ihrer Kindheit zutrafen sowie Ihr Alter zu den Zeiten, in denen Sie diese als zutreffend empfanden.
Bitte kennzeichnen Sie jedes für Sie zutreffende Alter.

62. Sie hatten nicht genug zu essen. ☐ Ja$_1$ ☐ Nein$_0$

Bitte kennzeichnen Sie jedes für Sie zutreffende Alter

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

63. Sie mussten ungewaschene Kleidung tragen. ☐ Ja$_1$ ☐ Nein$_0$

Bitte kennzeichnen Sie jedes für Sie zutreffende Alter

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

64. Sie wurden in einem Alter oder in Situationen, in denen es einer Aufsicht bedurfte, nicht beaufsichtigt. ☐ Ja$_1$ ☐ Nein$_0$

Bitte kennzeichnen Sie jedes für Sie zutreffende Alter

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

65. Sie hatten als Kind/Jugendliche(r) das Gefühl, die Verantwortungen eines Erwachsenen übernehmen zu müssen. ☐ Ja$_1$ ☐ Nein$_0$

Bitte kennzeichnen Sie jedes für Sie zutreffende Alter

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

66. Sie hatten als Kind/Jugendliche(r) das Gefühl, dass Ihre Familie unter einem enormen finanziellen Druck stand (z.B. zu wenig Geld, Schulden, Armut). ☐ Ja$_1$ ☐ Nein$_0$

Bitte kennzeichnen Sie jedes für Sie zutreffende Alter

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

67. Ein oder mehrere Familienmitglieder hielt(en) wichtige Dinge oder Tatsachen vor Ihnen geheim. ☐ Ja$_1$ ☐ Nein$_0$

Bitte kennzeichnen Sie jedes für Sie zutreffende Alter

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

68. Ihre Eltern waren getrennt. ☐ Ja$_1$ ☐ Nein$_0$

Bitte kennzeichnen Sie jedes für Sie zutreffende Alter

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

69. Ihre Eltern waren geschieden. ☐ Ja$_1$ ☐ Nein$_0$

Bitte kennzeichnen Sie jedes für Sie zutreffende Alter

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

70. Ein Elternteil oder eine andere wichtige elterliche Person starb. ☐ Ja$_1$ ☐ Nein$_0$

Bitte kennzeichnen Sie jedes für Sie zutreffende Alter

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

71. Sie mussten in zwei oder mehr Haushalten leben. ☐ Ja$_1$ ☐ Nein$_0$

Bitte kennzeichnen Sie jedes für Sie zutreffende Alter

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

72. Sie lebten bei einer Pflegefamilie oder im Heim. ☐ Ja$_1$ ☐ Nein$_0$

Bitte kennzeichnen Sie jedes für Sie zutreffende Alter

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

73. Mitglieder Ihrer Familie gaben aufeinander acht. ☐ Ja$_1$ ☐ Nein$_0$

Bitte kennzeichnen Sie jedes für Sie zutreffende Alter

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

74. Mitglieder Ihrer Familie fühlten sich einander nahe. ☐ Ja$_1$ ☐ Nein$_0$

Bitte kennzeichnen Sie jedes für Sie zutreffende Alter

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

75. Ihre Familie war eine Quelle der Kraft und Unterstützung für Sie. ☐ Ja$_1$ ☐ Nein$_0$

Bitte kennzeichnen Sie jedes für Sie zutreffende Alter

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

Belastende Kindheitserfahrungen (KERF-I)[1]

Standardisierte Auswertungsrichtlinien[2]

Die Auswertung des KERF-I ist sowohl auf Altersebene als auch auf Globalebene (in Kindheit und Jugend [KiJu] gesamt/ über die ersten 18. Lebensjahre hinweg) möglich. Tabelle 1 veranschaulicht die einzelnen Subskalen; Subskalenkürzel und Itemzusammensetzungen.

1. **Dateneingabe:**

- **Jedes Ja = 1, jedes Nein = 0** (dies gilt ebenfalls für die Codierung der „**einführenden Fragen zum Instrument**“)
- Sobald ein Items jemals (für ein Lebensjahr) in Kindheit oder Jugend zutrifft ist das Item *global* mit 1 einzugeben
- Lebte der Interviewte in KiJu **nicht** mit weiteren Kindern im Haushalt zusammen, so kann diese Info durch die entsprechenden Variablen im Zuge der **einführende Fragen zum Instrument (Item E5_KK)** vermerkt und mit Hilfe eines manuellen Filters berücksichtigt werden. Die betroffenen KERF Items zur *bezeugten Gewalt an Geschwistern* (Item 18-23) sind mit 0 einzugeben.

Beschreibung der KERF- Datenmatrix

- Mx_y steht für KERF Item mit Nummer x , im Alter von y Jahr; M1_2 steht z.B. für KERF Item 1 im Alter von 2 Jahre; etc.
- Mx steht für KERF Item mit Nummer x *global (KiJu) gesamt*; M2 steht z.B. für KERF Item 2 *global (KiJu gesamt*); etc.
- Mx_Hilflosigkeit steht für KERF Item mit Nummer x bezügl. der Zusatzinfo Hilflosigkeit (für Angst gilt Entsprechendes).
- Items mit Endung auf *a* beziehen sich auf Gewalt durch Peers; Items mit *b* auf Gewalt durch Partner (Items 39- einschließlich 50; in Tabelle 1 und Matrix als solche gekennzeichnet)

[1] Isele, D., Parigger, A., Ruf, M., Elbert, T., & Schauer, M. (2014; uneröffentlichtes Manuskript, Universität Konstanz).

[2] basierend auf Isele, Teicher, Ruf-Leuschner, Elbert, Kolassa, Schury & Schauer (2014). KERF – ein Instrument zur umfassenden Ermittlung belastender Kindheitserfahrungen -Erstellung und psychometrische Beurteilung der deutschsprachigen MACE (Maltreatment and Abuse Chronology of Exposure) Scale. *Zeitschrift für Klinische Psychologie und Psychotherapie, 43*(2), 121-130.

2. Rekodieren der inversen Items (Syntax 0)

- Vorgehen: **0 -> 1; 1- > 0**

Auf *globaler* Ebene ist hier explizit zu berücksichtigen, ob das Item für die gesamte KiJu zutrifft oder nicht: Sobald das Item nicht für die gesamte KiJu zutrifft, ist es *global* nicht erfüllt. Die Syntax übernimmt diese Kalkulation, ausgehend von den Altersbereichen, automatisch.

Ein Beispiel: Item 75. Ihre Familie war Quelle der Kraft und Unterstützung für Sie. **X Ja** Nein

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

In diesem Fall wäre das Item *zwar für die Altersbereiche 1-17, nicht jedoch global* zutreffend. Die Syntax ermittelt für die Rekodierung folgendes Muster: Für die Lebensjahre 1-17: 0; für das Lebensjahr 18: 1, global (basierend auf den Altersbereichen): 1.

3. Bildung der Summenwerte einzelner KERF- Subskalen – dimensionaler Auswertungsansatz (Syntax 1 und 2)

- **ermöglicht Aussage über Belastungsschwere pro Subskala**
- Vorgehen: 1. Summe der zutreffenden Items pro Subskala (Syntax 1)
  2. Transformation in Subskalen Summenwerte (mittels linearer Interpolation, Syntax 2)

lineare Interpolation:
4: 0→0; 1→2,5; 2→5; 3→7,5; 4→10
5: 0→0, 1→2, 2→4, 3→6, 4→8, 5→10
6: 0→0; 1→ 1 2/3; 2→3 1/3; 3→5; 4→6 2/3; 5→8 1/3; 6 →10
8: 0→0, 1→1,25, 2→2,5, 3→3,75, 4→5, 5→6,25, 6→7,5, 7→8,75, 8→10
10: *hier ist der Summenwert gleich dem Rohwert*

- Benennung: SUM_SKALENKÜRZEL *(global; KiJu gesamt)* bzw. SUM_SKALENKÜRZEL_y (Skalensummenwert im Alter y Jahre)

4. Berechnung des KERF Summenscores – dimensionaler Auswertungsansatz (Syntax 3)

- **ermöglicht Aussage über Belastungsschwere insgesamt/ über die 10 Subskalen hinweg**
- Vorgehen: Aufsummieren der 10 interpolierten Subskalensummenwerte
- Werte zwischen 0 und 100 (bzw. 90, für Probanden die ohne weiteren Kinder im Haushalt aufwuchsen) Punkten sind möglich.
- Benennung: KERF_SUM *(global; KiJu gesamt)* bzw. KERF_SUM_y *(im Alter y Jahre)*

5. Trifft eine KERF- Subskala zu? – kategorialer Auswertungsansatz (Syntax 4)

- Anhand von Cut -off Werten
- Vorgehen: Summenrohwerte pro Subskala >= Cut- off Wert → 1, ansonsten 0
- Benennung: MULTI_SUBSKALENKÜRZEL *(global; KiJu gesamt)* bzw. MULTI_SUBSKALENKÜRZEL_y *(im Alter y Jahre)*
  Zum momentanen Zeitpunkt liegen lediglich vorläufige Cut- off Empfehlungen vor.

6. Berechnung von KERF Multiscore –kategorialer Auswertungsansatz (Syntax 5)

- **ermöglicht Aussage über Belastungsbreite über die 10 Subskalen hinweg/ Anzahl erfüllter KERF- Typen**
- Vorgehen: Summe der zutreffenden Subskalen;
- Werte zwischen (min.) 0 und (max.) 10 (bzw. 9, für Probanden die ohne weiteren Kinder im Haushalt aufwuchsen) Punkten sind möglich.
- Benennung: KERF_MULTI *(global; KiJu gesamt)* bzw. KERF_MULTI_y *(im Alter y Jahre)*

Tabelle 1

Subskala	Subskalenkürzel	Itemzusammensetzung	*Anzahl Items*	*Cut- off Empfehlung*
Verbale Gewalt durch Eltern	*PVA*	*1,2,3,5*	4 Items	Cut- off: 3
Nonverbale emotionale Gewalt durch Eltern	*PNVEA*	4,6,55,65,67	5 Items	Cut- off: 3
Körperliche Gewalt durch Eltern	*PPA*	7,8,9,10,11,12	6 Items	Cut- off: 4
Emotionale Vernachlässigung	*EN*	51,52,53,54,57r,58r,73r,74r,75r,56	10 Items	Cut- off: 5
Körperliche Vernachlässigung	*PN*	59r,60r,62,63,64	5 Items	Cut- off: 3
Bezeugte körperliche Gewalt zwischen Eltern	*WITP*	33,34,36,37	4 Items	Cut- off: 2
Bezeugte Gewalt an Geschwistern	*WITS*	18,19,22,25	4 Items	Cut- off: 2
Emotionale Gewalt durch Peers[3]	*PEERE*	39a,40a,41a,42a,43a	5 Items	Cut- off: 4
Körperliche Gewalt durch Peers[2]	*PEERP*	44a,45a,46a,47a,48a	5 Items	Cut- off: 2
Sexuelle Gewalt	*SEXA*	14,15,17,27,28,30,49a,50a	8 Items	Cut- off: 2

[3] Eine Auswertung der Zusatzinformation *Emotionale (DATEE) bzw. Körperliche (DATEP) Gewalt durch ein(e) PartnerIn* in Analogie zu den Subskalen zur Peergewalt ist in Betracht zu ziehen (Items 39b-48b). Item **E6_P der einführenden Fragen** erfasst, ob ein Proband in den ersten 18 Lebensjahren in einer Partnerschaft lebte. Diese Info kann als manueller Filter berücksichtigt werden.

Belastende Kindheitserfahrungen Interview KERF (-I)
Kompakter Auswertungsbogen für klinisch psychologische Praktiker

Relevant für die klinische Praxis ist vor allem die qualitativ gewonnene Information. Die Summenwerte bildet Belastungsschwere pro Subskala sowie über die Subskalen hinweg ab. Der KERF- Multiscore ermöglicht Aussage über Belastungsbreite. Die Transformation dient zur gleich starken Berücksichtigung der Subskalen im KERF Summenwert. Die Auswertung erfolgt über die gesamte Kindheit und Jugend hinweg.

Körperliche Gewalt durch Eltern — **Items: 7, 8, 9, 10, 11, 12**
Cut- off bei 4 von 6 Items

Anzahl Items zutreffend	→ **transformiert**	Subskalen-summenwert

Tansformation: 0→0; 1→ 1 2/3; 2→3 1/3; 3→5; 4→6 2/3; 5→8 1/3; 6 →10

Verbale Gewalt durch Eltern — **Items: 1, 2, 3, 5**
Cut- off bei 3 von 4 Items

Anzahl Items zutreffend	→ **transformiert**	Subskalen-summenwert

Tansformation: 0→0; 1→2.5; 2→5; 3→7.5; 4→10

Nonverbale emotionale Gewalt durch Eltern — **Items: 4, 6, 55, 65, 67**
Cut-off bei 3 von 5 Items

Anzahl Items zutreffend	→ **transformiert**	Subskalen-summenwert

Tansformation: 0→0; 1→2; 2→4; 3→6; 4→8; 5→10

Emotionale Vernachlässigung — **Items: 51, 52, 53, 54, 57r, 58r, 73r, 74r, 75r, 56**
Cut-off bei 5 von 10 Items

Anzahl Items zutreffend	=	Subskalen-summenwert

Körperliche Vernachlässigung — **Items: 59r, 60r, 62, 63, 64**
Cut-off bei 3 von 5 Items

Anzahl Items zutreffend	→ **transformiert**	Subskalen-summenwert

Tansformation: 0→0; 1→2; 2→4; 3→6; 4→8; 5→10

Bezeugte körperliche Gewalt zwischen Eltern — **Items: 33, 34, 36, 37**
Cut-off bei 2 von 4 Items

Anzahl Items zutreffend	→ **transformiert**	Subskalen-summenwert

Tansformation: 0→0; 1→2.5; 2→5; 3→7.5; 4→10

Bezeugte Gewalt an Geschwistern — **Items: 18, 19, 22, 25**
Cut-off bei 2 von 4 Items

Anzahl Items zutreffend	→ **transformiert**	Subskalen-summenwert

Tansformation: 0→0; 1→2.5; 2→5; 3→7.5; 4→10

Körperliche Gewalt durch Gleichaltrige — **Items: 44a, 45a, 46a, 47a, 48a**
Cut-off bei 2 von 5 Items

Anzahl Items zutreffend	→ **transformiert**	Subskalen-summenwert

Tansformation: 0→0; 1→2; 2→4; 3→6; 4→8; 5→10

Emotionale Gewalt durch Gleichaltrige — **Items: 39a, 40a, 41a, 42a, 43a**
Cut-off bei 4 von 5 Items

Anzahl Items zutreffend	→ **transformiert**	Subskalen-summenwert

Tansformation: 0→0; 1→2; 2→4; 3→6; 4→8; 5→10

Sexuelle Gewalt — **Items: 14, 15, 17, 27, 28, 30, 49a, 50a**
Cut-off bei 2 von 8 Items

Anzahl Items zutreffend	→ **transformiert**	Subskalen-summenwert

Tansformation: 0→0; 1→1.3;. 2→2.5; 3→3.8; 4→5; 5→6.3; 6→7.5; 7→8.8; 8→10

Summe der zehn Subskalensummenwerten = KERF Summenwert

Anzahl zutreffender Subskalen/ -typen (Summenrohwert der Subskala >= Cut-off Wert) = KERF Multiscore

Basierend auf Isele, Teicher, Ruf-Leuschner, Elbert, Kolassa, Schury & Schauer (2014). KERF – ein Instrument zur umfassenden Ermittlung belastender Kindheitserfahrungen - Erstellung und psychometrische Beurteilung der deutschsprachigen MACE (Maltreatment and Abuse Chronology of Exposure) Scale. *Zeitschrift für Klinische Psychologie und Psychotherapie, 43*(2), 121-130.

The *pediatric MACE interview* (*pediMACE*): tool and additional material

Information on the *pediatric MACE interview (pediMACE)*

Maltreatment and Abuse Chronology of Exposure – a *pediatric interview (pediMACE)*

Pediatric MACE interview standardized evaluation guidelines *(for SPSS- matrix and syntax see the annexed CD)*

Pediatric MACE interview (*pedi*MACE) compact evaluation sheet for clinical experts

Information on the pediatric MACE interview (*pedi*MACE)[1]

The pediatric MACE interview, as a broad screening tool, supports the assessment of interpersonal adversities in minors, by clinical psychological, psychiatric experts.

It asks for the exposure to

- Parental emotional violence (respectively adults living in the household),
- Parental physical violence (respectively adults living in the household),
- Emotional violence by sibling(s) (respectively children living in the household),
- Physical violence by sibling(s) (respectively children living in the household),
- Emotional neglect,
- Physical neglect,
- Witnessing interparental violence (respectively adults living in the household),
- Witnessing violence to siblings (respectively children living in the household),
- Peer (physical & emotional) violence
- Sexual violence as well as

- Parental loss.

Firstly, some introductive items inform on the familial constellation and the living environment of the minor. Than, 45 binary event items assess weather specific adverse situations have ever been experienced (response format: yes versus no). In case of endorsement, the experience is temporally integrated, in a second step. Temporal anchors, such as stages of formal education (kindergarten, primary-school, secondary-school), or other suitable references support this process. If an individual aversive situation has been experienced multiple times and at different ages, it correspondently is marked for several ages (years). There are as well some positively formulated items. As well for them there is the option to specify for which ages the situation was true, and when eventually there has been a burden.

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[1] Maltreatment and Abuse Chronology of Exposure - a pediatric interview (*pedi*MACE). Isele, D. Ruf-Leuschner, M., Schauer, M., & Elbert, T. (2015; unpublished manuscript, University of Konstanz).

Additionally to this core information, thus the individual aversive experiences and the age(s) of occurrence, the direct emotional reaction to the exposure in terms of intense fear or helplessness may be assessed (response format: yes versus no).

Some useful interviewer-information, in italics, guides the clinician though the interview. This information is not meant to be read out to the minor. Likeweise the core information of the individual *pedi*MACE items is set in italics. This helps the interviewer to keep in mind, what the individual item is about, in case there is the need to paraphrase and adapt the item to the cognitive and or linguistic skills of the interviewee.

Development and validation

The *pedi*MACE is developed for the use in approximately school-aged children by mental health professionals, with expertise in the realm of psychotraumatology and the work with children. Its construction and psychometric evaluation, in a community sample of 411 school-aged Tanzanian children is presented by Isele et al. (2015).

Analysis

There is the option to evaluate the *pedi*MACE on age level, which means for every year, as well as on a global level, which means across the entire childhood and youth/ ever.

Sum scores map the 'severity of exposure' on subscale and overall level, across several dimensions of the instrument. The Multi score maps the 'multiplicity or breadth of exposure', in the sense of the number of applying subscales.

Differential evaluation guidelines for scientist are described in the 'Pediatric MACE Interview standardized evaluation guidelines' sheet and supported by SPSS evaluation material.

To the clinician mainly the qualitative information, gathered by the *pedi*MACE, is of importance. A 'compact evaluation sheet for clinical psychological experts' summarizes the subscale compositions and some evaluation-background information.

Versions and Variants

There is both an English and a German version of the pediatric MACE interview, as well as variants without the additional items, specifying the age of exposure and the emotional reaction to exposure.

Literature

Isele, D., Hecker, T., Hermenau, K., Ruf-Leuschner, M., Schauer, M., Moran, J., Teicher, M. H. & Elbert, T. (2015). Assessing exposure to adversities in children: The pediatric Maltreatment and Abuse Chronology of Exposure Interview. *Manuscript submitted for publication.*

Maltreatment and Abuse Chronology of Exposure

- a pediatric interview (pediMACE) –

Isele, D. Ruf-Leuschner, M., Schauer, M. & Elbert, T. (2015; University of Konstanz)

Sometimes, life is tough and sad and sometimes other people behave in a mean and hurtful manner.
We would like to talk to you about these things.

First, we want to ask you some questions concerning **you**, **your family** and the **persons you are living with**.

How old** are **you? _____ years

Gender of the interviewed child: ❍ male ❍ female

Which persons** do you have in **your family?

❍ mother
❍ stepmother
❍ father
❍ stepfather
❍ sibling(s)
❍ stepsibling(s)
❍ grandmother
❍ grandfather
❍ foster/ adoptive parents
❍ foster/ adoptive sibling(s)
❍ other relatives: _____
❍ other persons (e.g. person in charge of an institution: _____

Who is *your main carer*?

❍ mother
❍ stepmother
❍ father
❍ stepfather
❍ sibling(s)
❍ stepsibling(s)
❍ grandmother
❍ grandfather
❍ foster/ adoptive parents
❍ foster/ adoptive sibling(s)
❍ other relatives: _____
❍ other persons (e.g. person in charge of an institution/ neighbours): _____

On the basis of the MACE, composed by Martin H. Teicher, McLean Hospital /Harvard Medical School & Angelika Parigger (University of Konstanz) *in Schauer, M., Neuner, F., Elbert, T. (2011; 2nd Edition) Narrative Exposure Therapy (NET). A Short-Term Intervention for Traumatic Stress Disorders. Cambridge/Göttingen: Hogrefe & Huber Publishers and* Teicher, M. H., & Parigger, A. (2015). The 'Maltreatment and Abuse Chronology of Exposure' (MACE) Scale for the Retrospective Assessment of Abuse and Neglect During Development. *PLos ONE, 10*(2).

***Which persons* are *you currently living* with *at home*? And *which persons have you been living with* throughout your whole life, up to now?** *Please only add persons who the interviewed child has lived with for at least a few years.*

❍ mother	from _____ to _____ years
❍ father	from _____ to _____ years
❍ sibling(s)	from _____ to _____ years
❍ new partner of your mother	from _____ to _____ years
❍ changing partners of your mother	from _____ to _____ years
❍ new partner of your father	from _____ to _____ years
❍ changing partners of your father	from _____ to _____ years
❍ stepsibling(s)/ children of your mother's/father's new partner	from _____ to _____ years
❍ foster or adoptive siblings	from _____ to _____ years
❍ grandmother	from _____ to _____ years
❍ grandfather	from _____ to _____ years
❍ other relatives: _____	from _____ to _____ years
❍ foster/ adoptive parents	from _____ to _____ years
❍ other persons (e.g. person in charge of an institution): _____	from _____ to _____ years

❍ *Apart from the interviewed child him-/herself, there were and are no other children (no siblings, step-/fostersibling(s), etc.) living at the home (-> skip module 1b concerning violence by siblings at home aswell as module 2 concerning witnessed violence towards children at home).*

***General interviewer advice*[1]**

Please check ***every*** *appropriate age. If children are* ***very young*** *or* ***difficult to interview****, it is possible to use* ***age-groups*** *instead of* ***exact age*** *ratings. Item 1 enables an orientation of children' educational development (or other phases in their life), this information might be used as temporal anchor for the interview.*
(➡)Means please go to the next question and *skip subitems concerning age of occurrence (and emotional reaction).*

Please **flexibly adapt the interview and the interview process responsively to the emotional state and to cognitive and linguistic capabilities of the interviewed child.**

_____

[1] *Interviewer information and remarks in italics are not meant to be read aloud to the interviewee.*

1. Was there a time in which *you were living in two or more homes*? ❍ **yes** ❍ **no** ➡

parental loss

How old were you at this time(s)?

	age-group	***exact age***
❍ Before kindergarten age	*(- years old)*	
/other anchor: _____		
❍ During kindergarten age	*(- years old*	
/other anchor: _____		
❍ During elementary school age	*(- years old*	
/other anchor: _____		
❍ During middle school age	*(- years old*	
/other anchor: _____		
❍ During high school age	*(- years old*	
/other anchor: _____		

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

2. Was there a time in which *you were living in foster care or a children´s home?* ❍ **yes** ❍ **no** ➡

parental loss

How old were you at this time(s)?

- ❍ Before kindergarten age
- ❍ During kindergarten age
- ❍ During elementary school age
- ❍ During middle school age
- ❍ During high school age

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

Module 1a and b

Parents, siblings or other adults or children living at your home sometimes behave in a mean and hurtful way. Sometimes parents e.g. scream at their children or slap them, sometimes siblings also act that way.

The following is about things **you may** have experienced **with your parents or other adults living in your home or your brothers or sisters or other children living in your home**.

*The following questions are about **any** **emotional, physical or sexual violence the interviewee** **ever** **experienced at the hands of adults or children living in the house**, **all** times of occurrence and their **emotional reaction to them**. Please mark subitems referring to violence by parents vs. siblings by different symbols to make the distinction clear.*

Emotional violence by
a) parent[2] *b) sibling*[3]
❍ ❍ ❍ ❍
yes no ➡ yes no ➡

3. Did anybody *call you names* or *say hurtful* things such as calling you "fat", "ugly" or "stupid" etc. (more than a few times a year)? *Check "yes" only if there has been a feeling of "threat"/ "humiliation" (e.g. in consequence of continuous or unpredictable occurrence)*

How old were you at this time(s)?

❍ Before kindergarten age
❍ During kindergarten age
❍ During elementary school age
❍ During middle school age
❍ During high school age

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

Did you feel helpless in this situation(s)? ❍ yes ❍ no
Did you feel terrified in this situation(s)? ❍ yes ❍ no

Emotional violence by
a) parent *b) sibling*
❍ ❍ ❍ ❍
yes no ➡ yes no ➡

4. Did anybody *yell /scream* at *you* (more than a few times a year)? *Check "yes" only if there has been a feeling of "threat"/"humiliation" (e.g. in consequence of continuous or unpredictable occurrence).*

How old were you at this time(s)?

❍ Before kindergarten age
❍ During kindergarten age
❍ During elementary school age
❍ During middle school age
❍ During high school age

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

Did you feel helpless in this situation(s)? ❍ yes ❍ no
Did you feel terrified in this situation(s)? ❍ yes ❍ no

Emotional violence by
a) parent *b) sibling*
❍ ❍ ❍ ❍
yes no ➡ yes no ➡

5. Did anybody *lock you* in a closet, attic, basement, garage, or another possibly narrow and dark place?

How old were you at this time(s)?

❍ Before kindergarten age
❍ During kindergarten age
❍ During elementary school age
❍ During middle school age
❍ During high school age

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

Did you feel helpless in this situation(s)? ❍ yes ❍ no
Did you feel terrified in this situation(s)? ❍ yes ❍ no

[2] means parents or other adults living at the home
[3] means sibling or other child living at the home

6. Did anybody intentionally *push, pinch, slap, punch or kick you*?

Physical violence by
a) parent *b) sibling*
❍ ❍ ❍ ❍
yes no ➡ yes no ➡

How old were you at this time(s)?

❍ Before kindergarten age
❍ During kindergarten age
❍ During elementary school age
❍ During middle school age
❍ During high school age

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

Did you feel helpless in this situation(s)? ❍ yes ❍ no
Did you feel terrified in this situation(s)? ❍ yes ❍ no

7. Did anybody *spank you with the palm of his/her hand on your buttocks, arms or legs?*

Physical violence by
a) parent *b) sibling*
❍ ❍ ❍ ❍
yes no ➡ yes no ➡

How old were you at this time(s)?

❍ Before kindergarten age
❍ During kindergarten age
❍ During elementary school age
❍ During middle school age
❍ During high school age

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

Did you feel helpless in this situation(s)? ❍ yes ❍ no
Did you feel terrified in this situation(s)? ❍ yes ❍ no

8. Did anybody *spank you with an object* such as a strap, belt, brush, stick, tube, broom, wooden spoon, etc?

Physical violence by
a) parent *b) sibling*
❍ ❍ ❍ ❍
yes no ➡ yes no ➡

How old were you at this time(s)?

❍ Before kindergarten age
❍ During kindergarten age
❍ During elementary school age
❍ During middle school age
❍ During high school age

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

Did you feel helpless in this situation(s)? ❍ yes ❍ no
Did you feel terrified in this situation(s)? ❍ yes ❍ no

9. Did anybody *hit you* so hard that *you were injured*?

Physical violence by

a) parent		*b) sibling*	
❍	❍	❍	❍
yes	**no** ➡	**yes**	**no** ➡

How old were you at this time(s)?

❍ Before kindergarten age	1	2				
❍ During kindergarten age	3	4	5			
❍ During elementary school age	6	7	8	9		
❍ During middle school age	10	11	12	13	14	15
❍ During high school age	16	17	18	years		

Did you feel helpless in this situation(s)? ❍ yes ❍ no

Did you feel terrified in this situation(s)? ❍ yes ❍ no

10. Did anybody *touch your body or your private parts* in a way that felt inappropriate to you or made you feel dirty or humiliated?

Sexual violence by

a) parent		*b) sibling*	
❍	❍	❍	❍
yes	**no** ➡	**yes**	**no** ➡

How old were you at this time(s)?

❍ Before kindergarten age	1	2				
❍ During kindergarten age	3	4	5			
❍ During elementary school age	6	7	8	9		
❍ During middle school age	10	11	12	13	14	15
❍ During high school age	16	17	18	years		

Did you feel helpless in this situation(s)? ❍ yes ❍ no

Did you feel terrified in this situation(s)? ❍ yes ❍ no

11. *Did you have to touch anybody´s body or private parts* in a way that felt inappropriate to you or made you feel dirty or humiliated?

Sexual violence by

a) parent		*b) sibling*	
❍	❍	❍	❍
yes	**no** ➡	**yes**	**no** ➡

How old were you at this time(s)?

❍ Before kindergarten age	1	2				
❍ During kindergarten age	3	4	5			
❍ During elementary school age	6	7	8	9		
❍ During middle school age	10	11	12	13	14	15
❍ During high school age	16	17	18	years		

Did you feel helpless in this situation(s)? ❍ yes ❍ no

Did you feel terrified in this situation(s)? ❍ yes ❍ no

12. *Did anybody enter anything* (penis or object) *into any part of your body* (mouth, private parts or buttocks)?

Sexual violence by

a) parent ❍ ❍ **yes no** ➡

b) sibling ❍ ❍ **yes no** ➡

How old were you at this time(s)?

- ❍ Before kindergarten age
- ❍ During kindergarten age
- ❍ During elementary school age
- ❍ During middle school age
- ❍ During high school age

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

Did you feel helpless in this situation(s)? ❍ yes ❍ no

Did you feel terrified in this situation(s)? ❍ yes ❍ no

Module 2

Parents or other adults living at your home sometimes behave in a hurtful way **towards siblings or other children living at home**.

Please indicate whether **you have seen or heard** your sibling(s) experiencing the following situations.

*The following questions are about **ever witnessed** **emotional, physical or sexual violence by parents (adults living at the house)**, **towards siblings (children living at the house)**, **all** times of occurrence and **emotional reaction of the interviewed child/adolescent to them**.*

13. Have *you witnessed* anybody *pushing, pinching, slapping, punching or kicking at your sibling*?

❍ **yes** ❍ **no** ➡

witnessed (physical) violence towards siblings

How old were **you** at this time(s)?

- ❍ Before kindergarten age
- ❍ During kindergarten age
- ❍ During elementary school age
- ❍ During middle school age
- ❍ During high school age

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

Did **you** feel helpless in this situation(s)? ❍ yes ❍ no

Did **you** feel terrified in this situation(s)? ❍ yes ❍ no

14. Have *you witnessed* anybody *hitting your sibling with the palm of his/her hand* on his/her buttocks, arms or legs? ❍ yes ❍ no

witnessed (physical) violence towards siblings

How old were **you** at this time(s)?

- ❍ Before kindergarten age
- ❍ During kindergarten age
- ❍ During elementary school age
- ❍ During middle school age
- ❍ During high school age

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

Did **you** feel helpless in this situation(s)? ❍ yes ❍ no

Did **you** feel terrified in this situation(s)? ❍ yes ❍ no

15. Have *you witnessed* anybody *hitting your sibling* so hard that he/she *was injured*? ❍ yes ❍ no

witnessed (physical) violence towards siblings

How old were **you** at this time(s)?

- ❍ Before kindergarten age
- ❍ During kindergarten age
- ❍ During elementary school age
- ❍ During middle school age
- ❍ During high school age

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

Did **you** feel helpless in this situation(s)? ❍ yes ❍ no

Did **you** feel terrified in this situation(s)? ❍ yes ❍ no

16. Have *you witnessed* anybody, t*ouching your sibling's body or private parts* in an inappropriate, dirty or humiliating way? ❍ yes ❍ no

witnessed (sexual) violence towards siblings

How old were **you** at this time(s)?

- ❍ Before kindergarten age
- ❍ During kindergarten age
- ❍ During elementary school age
- ❍ During middle school age
- ❍ During high school age

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

Did **you** feel helpless in this situation(s)? ❍ yes ❍ no

Did **you** feel terrified in this situation(s)? ❍ yes ❍ no

17. Have *you witnessed your sibling being made to touch the body or private parts of an adult* in an inappropriate, dirty or humiliating way?

❍ yes ❍ no ➡

witnessed (sexual) violence towards siblings

How old were **you** at this time(s)?

- ❍ Before kindergarten age
- ❍ During kindergarten age
- ❍ During elementary school age
- ❍ During middle school age
- ❍ During high school age

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

Did **you** feel helpless in this situation(s)? ❍ yes ❍ no

Did **you** feel terrified in this situation(s)? ❍ yes ❍ no

18. Have *you witnessed* anybody, *entering anything* (penis or object) *into any part of your sibling's body* (mouth, private parts or buttocks)?

❍ yes ❍ no ➡

witnessed (sexual) violence towards siblings

How old were **you** at this time(s)?

- ❍ Before kindergarten age
- ❍ During kindergarten age
- ❍ During elementary school age
- ❍ During middle school age
- ❍ During high school age

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

Did **you** feel helpless in this situation(s)? ❍ yes ❍ no

Did **you** feel terrified in this situation(s)? ❍ yes ❍ no

Module 3

Sometimes there are arguments between **parents, or other adults you are living with** (new partner of your mother/ father, grandparents). Please indicate if you have seen or heard the following.

*The following questions are about **any witnessed** **verbal, physical or sexual violence between parents (adults living at the household)**, **all** times of occurrence and **emotional reaction of the interviewed child/ juvenile to them.***

19. Have *you witnessed adults* living at your home *arguing intensively*? *Check "yes" only if there was a feeling of "threat"/ "humiliation" (e.g. in consequence of continuous or unpredictable occurrence).*

❍ **yes** ❍ **no** ➡

witnessed (verbal) violence between adults at home

How old were **you** at this time(s)?

- ❍ Before kindergarten age
- ❍ During kindergarten age
- ❍ During elementary school age
- ❍ During middle school age
- ❍ During high school age

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

Did **you** feel helpless in this situation(s)? ❍ yes ❍ no

Did **you** feel terrified in this situation(s)? ❍ yes ❍ no

20. Have *you witnessed adults* living at your house *pushing, pinching, slapping your mother* (or any woman living at your house) or *throwing things at her*?

❍ **yes** ❍ **no** ➡

witnessed (physical) violence between adults at home

How old were **you** at this time(s)?

- ❍ Before kindergarten age
- ❍ During kindergarten age
- ❍ During elementary school age
- ❍ During middle school age
- ❍ During high school age

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

Did **you** feel helpless in this situation(s)? ❍ yes ❍ no

Did **you** feel terrified in this situation(s)? ❍ yes ❍ no

21. Have *you witnessed adults* living at your house *pushing, pinching, slapping your father* (or any man living at your house) or *throwing things at him*?

❍ **yes** ❍ **no** ➡

witnessed (physical) violence between adults at home

How old were **you** at this time(s)?

- ❍ Before kindergarten age
- ❍ During kindergarten age
- ❍ During elementary school age
- ❍ During middle school age
- ❍ During high school age

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

Did **you** feel helpless in this situation(s)? ❍ yes ❍ no

Did **you** feel terrified in this situation(s)? ❍ yes ❍ no

22. Have *you witnessed adults* living at your house *hitting* your *mother* (or any woman living at your home*)* so hard *that she was injured*?

❍ **yes** ❍ **no** ➡

witnessed (physical) violence between adults at home

How old were **you** at this time(s)?

- ❍ Before kindergarten age
- ❍ During kindergarten age
- ❍ During elementary school age
- ❍ During middle school age
- ❍ During high school age

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

Did **you** feel helpless in this situation(s)? ❍ yes ❍ no

Did **you** feel terrified in this situation(s)? ❍ yes ❍ no

23. Have *you witnessed adults* living at your house *hitting your father* (or any man living at your home) so hard *that he was injured*?

❍ **yes** ❍ **no** ➡

witnessed (physical) violence between adults at home

How old were **you** at this time(s)?

- ❍ Before kindergarten age
- ❍ During kindergarten age
- ❍ During elementary school age
- ❍ During middle school age
- ❍ During high school age

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

Did **you** feel helpless in this situation(s)? ❍ yes ❍ no

Did **you** feel terrified in this situation(s)? ❍ yes ❍ no

24. Have *you witnessed* adults living at your house, *touching your mother's* (woman living in your house*) body or private parts* against her will, *or wanting her* to *touch this person's body, private parts*, or *entering anything* (penis or object) into *any part of her body* (mouth, private parts or buttocks)?

Please underline the appropriate event.

❍ **yes** ❍ **no** ➡

witnessed (sexual) violence between adults at home

How old were **you** at this time(s)?

- ❍ Before kindergarten age
- ❍ During kindergarten age
- ❍ During elementary school age
- ❍ During middle school age
- ❍ During high school age

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

Did **you** feel helpless in this situation(s)? ❍ yes ❍ no

Did **you** feel terrified in this situation(s)? ❍ yes ❍ no

25. Have *you witnessed adults* living at your house, *touching your father's* (man living in your house) *body or private parts* against his will *or wanting him to touch this person's body, private parts* or *entering anything* (penis or object) into *any part of his body* (mouth or buttocks)? *Please underline the appropriate event.*

❍ **yes** ❍ **no** ➡

witnessed (sexual) violence between adults at home

How old were **you** at this time(s)?

- ❍ Before kindergarten age
- ❍ During kindergarten age
- ❍ During elementary school age
- ❍ During middle school age
- ❍ During high school age

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

Did **you** feel helpless in this situation(s)? ❍ yes ❍ no

Did **you** feel terrified in this situation(s)? ❍ yes ❍ no

Module 4

Now we would like to ask you some questions about **you** and **your family**. Please indicate if the following statements apply to you and your family.

*The following questions refer **to emotional or physical neglect ever** experienced as well as **parental loss** and **all times of occurrence.***

26. Was there *a time in which both your mother and your father* (or other main attachment figures/parental figures) *did not try to understand your feelings, and were never there for you*? *Refers to a lack of emotional availability, although they were present in the child's life. Check "yes" only if none of the parents (parental figures) were emotionally available.*

❍ **yes** ❍ **no** ➡

emotional neglect

How old were you at this time(s)?

- ❍ Before kindergarten age
- ❍ During kindergarten age
- ❍ During elementary school age
- ❍ During middle school age
- ❍ During high school age

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

27. Was there *a time in which neither your mother nor your father* (or other main attachment figures/parental figures) had *time to talk to you*, or were not *interested in talking to you*? *Check "yes" only if none of the parents (parental figures) spoke to the interviewee.*

❍ yes ❍ no ➡ *emotional neglect*

How old were you at this time(s)?

- ❍ Before kindergarten age
- ❍ During kindergarten age
- ❍ During elementary school age
- ❍ During middle school age
- ❍ During high school age

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

28. *Did any family member* (parent or parental figure) *make you feel loved*?

❍ yes ❍ no (r) ➡ *emotional neglect*

How old were you at this time(s)?

- ❍ Before kindergarten age
- ❍ During kindergarten age
- ❍ During elementary school age
- ❍ During middle school age
- ❍ During high school age

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

29. *Did any family member (parent or parental figure) take care of you*?

❍ yes ❍ no (r) ➡ *physical neglect*

How old were you at this time(s)?

- ❍ Before kindergarten age
- ❍ During kindergarten age
- ❍ During elementary school age
- ❍ During middle school age
- ❍ During high school age

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

30. *Did any family member* (parent or parental figure) *help you with your homework, or help you to get ready for school*?

❍ yes ❍ no (r) ➡ *physical neglect*

How old were you at this time(s)?

- ❍ Before kindergarten age
- ❍ During kindergarten age
- ❍ During elementary school age
- ❍ During middle school age
- ❍ During high school age

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

31. Was there a time in which *you did not have enough to eat*?

❍ yes ❍ no ➡

physical neglect

How old were you at this time(s)?

- ❍ Before kindergarten age
- ❍ During kindergarten age
- ❍ During elementary school age
- ❍ During middle school age
- ❍ During high school age

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

32. Was there a time in which *you had to wear dirty clothes*?

❍ yes ❍ no ➡

physical neglect

How old were you at this time(s)?

- ❍ Before kindergarten age
- ❍ During kindergarten age
- ❍ During elementary school age
- ❍ During middle school age
- ❍ During high school age

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

33. Did a family member (parent or parental figure) *bring you to the doctor* when necessary?

❍ yes ❍ no (r) ➡

physical neglect

How old were you at this time(s)?

- ❍ Before kindergarten age
- ❍ During kindergarten age
- ❍ During elementary school age
- ❍ During middle school age
- ❍ During high school age

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

34. Were *your parents separated* or *divorced*?

❍ yes ❍ no ➡

parental loss

How old were you at this time(s)?

- ❍ Before kindergarten age
- ❍ During kindergarten age
- ❍ During elementary school age
- ❍ During middle school age
- ❍ During high school age

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

35. Has either your mother or your father or another parental figure *passed away*? ❍ yes ❍ no ➡

parental loss

How old were you at this time(s)?

❍ Before kindergarten age
❍ During kindergarten age
❍ During elementary school age
❍ During middle school age
❍ During high school age

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

Module 5

Adults not living at your home sometimes behave in a hurtful manner. Please indicate if you experienced the following situations.

*The following questions are about **sexual violence ever experienced by an adult person not living at the household**, **all** times of occurrence and **emotional reaction to them.***

36. Did anybody *touch your body or your private parts* in a way that felt inappropriate or made you feel dirty or humiliated? ❍ yes ❍ no ➡

sexual violence (by foreign adult)

How old were you at this time(s)?

❍ Before kindergarten age
❍ During kindergarten age
❍ During elementary school age
❍ During middle school age
❍ During high school age

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

Did you feel helpless in this situation(s)? ❍ yes ❍ no
Did you feel terrified in this situation(s)? ❍ yes ❍ no

37. Did anybody *make you touch his/her body or private parts* in a way that felt inappropriate or made you feel dirty or humiliated? ❍ yes ❍ no ➡

sexual violence (by foreign adult)

How old were you at this time(s)?

❍ Before kindergarten age
❍ During kindergarten age
❍ During elementary school age
❍ During middle school age
❍ During high school age

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

Did you feel helpless in this situation(s)? ❍ yes ❍ no
Did you feel terrified in this situation(s)? ❍ yes ❍ no

38. Did anybody *enter anything* (penis or object) into *any part of your body* (mouth, private parts or buttocks)? ❍ yes ❍ no ➡

sexual violence (by foreign adult)

How old were you at this time(s)?

❍ Before kindergarten age
❍ During kindergarten age
❍ During elementary school age
❍ During middle school age
❍ During high school age

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

Did you feel helpless in this situation(s)? ❍ yes ❍ no

Did you feel terrified in this situation(s)? ❍ yes ❍ no

Module 6

Sometimes children your own age or older do hurtful things. Please indicate if children or juveniles did any of the following things to you.

*The following questions are about **any** **emotional, physical** and **sexual violence**, **ever** **experienced by peers (children not living at the household)** and **all** times of occurrence.*

39. Did anybody *call you names* or *say hurtful things*, such as calling you "fat", "ugly" or "stupid" etc. (more than a few times a year)? *Check "yes" only if there has been a feeling of "threat"/ "humiliation" (e.g. in consequence of continuous or unpredictable occurrence).* ❍ yes ❍ no ➡

emotional violence by peers

How old were you at this time(s)?

❍ Before kindergarten age
❍ During kindergarten age
❍ During elementary school age
❍ During middle school age
❍ During high school age

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

Did you feel helpless in this situation(s)? ❍ yes ❍ no

Did you feel terrified in this situation(s)? ❍ yes ❍ no

❍ ❍

40. Did anybody *say things behind your back*, post *derogatory messages about you*, or *spread rumors about you*? **yes** **no** ➡

emotional violence by peers

How old were you at this time(s)?

❍ Before kindergarten age	1	2				
❍ During kindergarten age	3	4	5			
❍ During elementary school age	6	7	8	9		
❍ During middle school age	10	11	12	13	14	15
❍ During high school age	16	17	18	years		

Did you feel helpless in this situation(s)? ❍ yes ❍ no

Did you feel terrified in this situation(s)? ❍ yes ❍ no

41. Did anybody *exclude you* from activities or groups? ❍ ❍

yes **no** ➡

emotional violence by peers

How old were you at this time(s)?

❍ Before kindergarten age	1	2				
❍ During kindergarten age	3	4	5			
❍ During elementary school age	6	7	8	9		
❍ During middle school age	10	11	12	13	14	15
❍ During high school age	16	17	18	years		

Did you feel helpless in this situation(s)? ❍ yes ❍ no

Did you feel terrified in this situation(s)? ❍ yes ❍ no

42. Did anybody intentionally *push, pinch, slap, punch or kick you*? ❍ ❍

yes **no** ➡

physical violence by peers

How old were you at this time(s)?

❍ Before kindergarten age	1	2				
❍ During kindergarten age	3	4	5			
❍ During elementary school age	6	7	8	9		
❍ During middle school age	10	11	12	13	14	15
❍ During high school age	16	17	18	years		

Did you feel helpless in this situation(s)? ❍ yes ❍ no

Did you feel terrified in this situation(s)? ❍ yes ❍ no

43. Did anybody *hit you* so hard that you were *injured*?

❍ yes ❍ no ➡

physical violence by peers

How old were you at this time(s)?

- ❍ Before kindergarten age
- ❍ During kindergarten age
- ❍ During elementary school age
- ❍ During middle school age
- ❍ During high school age

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

Did you feel helpless in this situation(s)? ❍ yes ❍ no

Did you feel terrified in this situation(s)? ❍ yes ❍ no

44. Did anybody *touched your body or your private parts* in a way that felt inappropriate or made you feel dirty or humiliated, or *made you touch his/her body or private parts* in a way that felt inappropriate or made you feel dirty or humiliated? *Please underline the appropriate event.*

❍ yes ❍ no ➡

sexual violence (by peers)

How old were you at this time(s)?

- ❍ Before kindergarten age
- ❍ During kindergarten age
- ❍ During elementary school age
- ❍ During middle school age
- ❍ During high school age

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

Did you feel helpless in this situation(s)? ❍ yes ❍ no

Did you feel terrified in this situation(s)? ❍ yes ❍ no

45. Did anybody *enter anything* (penis or object) *into any part of your body* (mouth, private parts or buttocks)?

❍ yes ❍ no ➡

sexual violence (by peers)

How old were you at this time(s)?

- ❍ Before kindergarten age
- ❍ During kindergarten age
- ❍ During elementary school age
- ❍ During middle school age
- ❍ During high school age

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

Did you feel helpless in this situation(s)? ❍ yes ❍ no

Did you feel terrified in this situation(s)? ❍ yes ❍ no

The *pediatric MACE interview* (*pedi*MACE)[1] standardized evaluation guidelines

General information: There is the option to evaluate *pedi*MACE on an *age level* as well as on *a global level*. *Global level* means across the entire childhood and youth.

1. **Data entry: both on *age* as well as on *global level***

- Every 'Yes' = '1', every 'No' = '0' both on *age* as well as global level and for additional items on the age of occurrence and the emotional reaction.
- As soon as the item is endorsed for at least one age, enter '1' on global level (except for inverse items).
- Enter '2' if the interviewee has not yet reached this age.
- If the interviewee has not been living with any child in the house, please enter this information in the 'introductory questions' section (Intro_siblings_children_ever_living) and enter 0 for *pedi*MACE Items 3b to 9b and 13 to 18.

[1] Maltreatment and Abuse Chronology of Exposure - a pediatric interview (*pedi*MACE). Isele, D. Ruf-Leuschner, M., Schauer, M., & Elbert, T. (2015; unpublished manuscript, University of Konstanz).
Evaluation guidelines based on Isele, D., Hecker, T., Hermenau, K., Ruf-Leuschner, M., Schauer, M., Moran, J., et al. *(2015).* Assessing exposure to adversities in children: The pediatric Maltreatment and Abuse Chronology of Exposure Interview *Manuscript submitted for publication.*

***Pedi*MACE- Data matrix:**

- px_y means *pedi*MACE Item number x at the age of y years; p1_2 means *pedi*MACE item number 1 at the age of 2 years
- pMx means *pedi*MACE item number x on *global level*; pM2 means *pedi*MACE item number 2 on *global level*
- pMx_helpless means *pedi*MACE item number x additional information 'helplessness' ('terrified' should be classified in the same way).
- Items ending with '*a*' refer to violence by parents; items ending with '*b*' refer to the same items, but with violence by siblings instead of parents (concerning *pedi*MACE items 3 to inclusive 12)
- **Instructions for data entry and encoding of inverse items (28, 29, 30, 33; ending with '*r*' for *recode*): As soon as an item is endorsed for at least one year, enter 0 on *global level*.**

2. Recoding of inverse items (syntax A)

- Recoding is performed by this syntax on *age* and *global level* (if information was entered according to the instruction above, see **1. Data entry**).

3. Raw values on subscale level (syntax B)

- **Sum of endorsed items on subscale level.**
- Similarly on *global level* and *age* level
- Naming: subscale abbreviation *(on global level;* subscale abbreviation _y (raw value on subscale level at the age of y)

4. Transformation of subscale raw data to subscale sum scores (by linear interpolation; syntax C)

- **Maps 'severity of exposure' on subscale level**
- Naming: SUM_ subscale abbreviation *(global level); respectively* SUM_ subscale abbreviation _y (subscale sum score at the age of y years).
- Similarly on global and age level

Linear interpolation depending on the number of items of the subscale:

3 items: 0→0; 1→3 1/3; 2→6 2/3; 3→10

4 items: 0→0; 1→2,5 ; 2→5; 3→7,5; 4→10

5 items: 0→0, 1→2, 2→4, 3→6, 4→8, 5→10

5. Does the *pedi*MACE type apply? (syntax D)

- **According to our statistical preliminary cut-off proposals.**
- Based on cut-off values.
- Raw value of the subscale >= cut-off → 1; otherwise 0.
- Similarly on global and age level.
- Naming: MULTI_ subscale abbreviation *(global level)*, MULTI_subscale abbreviation _y (subscale sum score at the age of y years).

6. MACE sum score (overall severity of exposure; syntax E)

- **'Overall severity of exposure across the 10 subscales'.**
- Summing up of the 10 interpolated subscale sum scores.
- Values from (minimum) 0 to (maximum) 100 points.
- Similarly on global and age level.
- Naming: pediMACE_SUM *(global level)*; pediMACE_SUM_y (at the age of y years)

7. MACE multi score (sum of event types applying; syntax E)

- **'Multiplicity/ breadth of exposure'**
- Sum of applying subscales/subtypes.
- Values from (minimum) 0 to (maximum) 10.
- Similarly on global and age level.
- Naming: pediMACE_MULTI *(global level)*; pediMACE_MULTI_y (at the age of y years)

Scale	*Subscale abbreviation*	Items endorsed	*Items non-endorsed*
Parental physical violence *Cut-off: 3 items*	*ppa*	6a, 7a, 8a, *9a*	-
Parental emotional violence *Cut-off: 2 items*	*pea*	3a, 4a, 5a	-
Physical violence by sibling(s) *Cut-off: 3 items*	*spa*	6b, 7b, 8b, 9b	-
Emotional violence by sibling(s) *Cut-off: 2 items*	*sea*	3b, 4b, 5b	-
Sexual violence Cut-off: *1 item*	*sexa*	10a, 10b, 36, 44	37, 38 11a, 11b, 12a, 12b, 45
Witnessing interparental violence Cut-off: *1 item*	*witp*	20, 21, 22, 23,	*19, 25 ,24*
Witnessing violence to sibling(s) Cut-off: *2 items*	*wits*	13, 14, 15, 16	17, 18
Physical neglect Cut-off: *3 items*	*pn*	29r, 30r, 31, 32, 33r	-
Emotional neglect Cut-off: *2 items*	*en*	26, 27, 28r	-
Peer (physical & emotional) violence Cut-off: *3 items*	*peer*	39, 40, 42, 43	41

Pediatric MACE interview (*pedi*MACE)

Compact evaluation sheet for clinical psychological experts

For the clinician, the qualitative information is of primary importance. Sum scores enable an evaluation of the 'severity of exposure' on subscale and overall level. The *pedi*MACE multi score enables an evaluation of the 'breadth/ multiplicity' of exposure. Rawscores are transformed to give equal weight every individual subscale by calculating the *pedi*MACE sum score. The evaluation encompasses the entire childhood and youth.

Parental physical violence
Cut-off: 3 out of 4 items

Items belonging to this dimension: **6a, 7a, 8a, 9a**

Amount of items endorsed	→ **transformed**	Sum Score (Subscale)

Transformation: 0→0; 1→2.5; 2→5; 3→7.5; 4→10

Physical violence by siblings
Cut-off: 3 out of 4 items

Items belonging to this dimension**: 6b, 7b, 8b, 9b**

Amount of items endorsed	→ **transformed**	Sum Score (Subscale

Transformation: 0→0; 1→2.5; 2→5; 3→7.5; 4→10

Parental emotional violence
Cut-off: 2 out of 3 items

Items belonging to this dimension**: 3a, 4a, 5a**

Amount of items endorsed	→ **transformed**	Sum Score (Subscale

Transformation: 0→0; 1→3.3; 2→6.6; 3→10

Emotional violence by siblings
Cut-off: 2 out of 3 items

Items belonging to this dimension**: 3b, 4b, 5b**

Amount of items endorsed	→ **transformed**	Sum Score (Subscale

Transformation: 0→0; 1→3.3; 2→6,6 3→10

Sexual violence
Cut-off: 1 out of 4 items

Items belonging to this dimension**: 10a, 10b, 36, 44**

Amount of items endorsed	→ **transformed**	Sum Score (Subscale

Transformation: 0→0; 1→2.5; 2→5; 3→7.5; 4→10

Physical neglect
Cut-off: 3 out of 5 items

Items belonging to this dimension**: 29r, 30r, 31,32, 33r**

Amount of items endorsed	→ **transformed**	Sum Score (Subscale

Transformation: 0→0; 1→2; 2→4; 3→6; 4→8; 5→10

Emotional neglect
Cut-off: 2 out of 3 items

Items belonging to this dimension**: 26, 27, 28r**

Amount of items endorsed	→ **transformed**	Sum Score (Subscale

Transformation: 0→0; 1→3.3; 2→6.6; 3→10

Peer violence
Cut-off: 3 out of 4 items

Items belonging to this dimension**: 39, 40, 42, 43**

Amount of items endorsed	→ **transformed**	Sum Score (Subscale

Transformation: 0→0; 1→2.5; 2→5; 3→7.5; 4→10

Witnessing interparental violence
Cut-off: 1 out of 4 items

Items belonging to this dimension**: 20, 21, 22, 23**

Amount of items endorsed	→ **transformed**	Sum Score (Subscale

Transformation: 0→0; 1→2.5; 2→5; 3→7.5; 4→10

Witnessing violence to sibling(s)
Cut-off: 2 out of 4 items

Items belonging to this dimension**: 13, 14,15,16**

Amount of items endorsed	→ **transformed**	Sum Score (Subscale

Transformation: 0→0; 1→2.5; 2→5; 3→7.5; 4→10

***Pedi*MACE sum score = Sum of the ten subscale sum scores**

***Pedi*MACE multi score = Sum of applying subscales**

based on Isele, D., Hecker, T., Hermenau, K., Ruf-Leuschner, M., Schauer, M., Moran, J., et al. *(2015).* Assessing exposure to adversities in children: The pediatric Maltreatment and Abuse Chronology of Exposure Interview. *Manuscript submitted for publication.*

Maltreatment and Abuse Chronology of Exposure-

Skala Belastende Kindheitserfahrungen (KERF)- Itemsynopsis of available versions

Including

Maltreatment and Abuse Chronology of Exposure (MACE-X; Teicher & Parigger, 2011, 2015)

Skala **Belastende Kindheitserfahrungen (KERF**; Isele, Parigger, Ruf, Elbert, & Schauer, 2014, unveröffentlichtes Manuskript, Universität Konstanz)

The *pediatric* MACE interview (*pedi*MACE)/ KERF- Kinderinterview (Isele, Ruf-Leuschner, Schauer, & Elbert, 2015, unpublished manuscript, University of Konstanz)

KERF/MACE-40 (-I; Isele, Schauer, Ruf-Leuschner, & Elbert, unpublished manuscript, University of Konstanz)

KERF-/MACE-20-I (Isele, Schauer, Ruf-Leuschner, & Elbert, unpublished manuscript, University of Konstanz)

Maltreatment and Abuse Chronology of Exposure (MACE) - Skala Belastende Kindheitserfahrungen (KERF)

Itemsynopsis of available versions

MACE-X (Teicher & Parigger, 2011, 2015)	**KERF** (Isele, Parigger, Ruf, Elbert, & Schauer, 2014)	**KERF-Kinderinterview/ *pediatric* MACE interview** (Isele, Ruf-Leuschner, Schauer & Elbert, 2015)	**KERF/MACE-40 (-I)** (Isele, Schauer, Ruf-Leuschner, & Elbert)	**KERF-/MACE-20-I (**Isele, Schauer, Ruf-Leuschner, & Elbert)
Non-Verbal Emotional Abuse	**Nonverbal emotionale Gewalt durch Eltern (PNVEA)**	**Parental emotional violence (pea); equivalent: emotional violence by siblings, sea)**	**Parental emotional violence (pea); equivalent: emotional violence by siblings, sea)**	**Parental emotional violence (pea); equivalent: emotional violence by siblings, sea)**
[> Parental Emotional Abuse]	4. Verhielte(n) sie sich so, dass Sie Angst hatten, körperlich verletzt zu werden.	-	-	-
6. Locked you in a closet, attic, basement or garage.	6. Schloss(en) sie Sie in einem Schrank, Speicher, Keller, einer Garage oder einem anderen, womöglich auch sehr engen, dunklen Ort ein.	5. Did anybody *lock you* in a closet, attic, basement, garage, or another possibly narrow and dark place**?**	3. **Locked you** in a closet, attic, basement, garage, or another possibly narrow and dark place?	2. **Locked you** in a closet, attic, basement, garage, or another possibly narrow and dark place?
55. A parent or other important parental figure was very difficult to please.	55. Ein Elternteil oder eine andere wichtige elterliche Person konnte nur sehr schwer zufriedengestellt werden.		5. **Were very difficult to please**.	3**. Were very difficult to please**?

56**.** A parent or other important parental figure did not have the time or interest to talk to you.	[> Emotional neglect]	-	-	-
65. You felt that you had to shoulder adult responsibilities.	65. Sie hatten als Kind /Jugendlicher das Gefühl, die Verantwortung eines Erwach-senen übernehmen zu müssen.	-	-	-
66. You felt that your family was under severe financial pressure.	66. Sie hatten als Kind/jugendliche® das Gefühl, dass Ihre Familie unter einem enormen finanziellen Druck stand (z.B. zu wenig Geld, Schulden, Armut).	-	-	-
67. One or more individuals kept important secrets or facts from you.	67. Ein oder mehrere Familienmitglieder hielt(en) wichtige Dinge oder Tatsachen vor Ihnen geheim.	-	-	-

Parental Verbal Abuse	**Verbale Gewalt durch Eltern (PVA)**			
1. Swore at you, called you names, said insulting things like your "fat", "ugly", "stupid", etc. more than a few times a year.	1. Verfluchte(n) sie Sie, beschimpfte(n) sie Sie, sagte(n) sie beleidigende Dinge zu Ihnen, wie Sie seien „dick", „hässlich", „dumm", usw. mehr als nur wenige Male im Jahr.	3. Did anybody *call you names* or *say hurtful* things such as calling you "fat", "ugly" or "stupid" etc. (more than a few times a year)? *Check "yes" only if there has been a feeling of "threat"/ "humiliation" (e.g. in consequence of continuous or unpredictable occurrence)*	1. **Called you names or said hurtful things** such as calling you "fat", "ugly" or "stupid" etc.**, more than a few times a year?**	1. **Called you names, said hurtful things or yelled at you more than a few times a year?**
2. Said hurtful things that made you feel bad, embarrassed or humiliated more than a few times a year.	2. Sagte(n) sie verletzende Dinge, die Sie traurig machten, beschämten oder demütigten mehr als nur wenige Male im Jahr.			
3. Yelled or screamed at you more than a few times per year.	3. Schrie(n) oder brüllte(n) sie Sie mehr als nur wenige Male im Jahr an.	4. Did anybody *yell /scream* at *you* (more than a few times a year)? *Check "yes" only if there has been a feeling of "threat"/"humiliation" (e.g. in consequence of continuous or unpredictable occurrence).*	2. **Yelled or screamed at you more than a few times a year?**	-
4. Acted in a way that made you afraid that you might be physically hurt.	[> Non-Verbal Emotional Abuse]	-	-	-

5. Threatened to leave or abandon you.	5. Drohte(n) sie fortzugehen oder Sie zu verlassen.	-	4. **Threatened to leave or abandon you.**	-

Parental Physical Maltreatment	**Körperliche Gewalt durch Eltern (PPA)**	**Parental physical violence (ppa) equivalent: violence by siblings)**	**Parental physical violence (ppa) equivalent: violence by siblings,)**	**Parental physical violence (ppa) violence by siblings,)**
7. Intentionally pushed, grabbed, shoved, slapped, pinched, punched or kicked you.	7. Schubste(n), packte(n), stieß(en), ohrfeigte(n), kniff(en) sie Sie absichtlich, schlug(en) sie Sie mit der Faust oder trat(en) sie nach	6. Did anybody intentionally *push, pinch, slap, punch or kick you*?	6. **Intentionally pushed, grabbed, shoved, slapped, pinched, punched or kicked you?**	
8. Hit you so hard that it left marks for more than a few minutes.	8. Schlug(en) sie Sie so stark, dass dies für mehr als ein paar Minuten auf Ihrem Körper hinterließ.	9. Did anybody *hit you* so hard that *you were injured*?	9. **Hit you so hard** or intentionally harmed you in such a way **that you were injured**?	6. **Hit you so hard** or intentionally harmed you in such a way **that you were injured**?
9. Hit you so hard, or intentionally harmed you in some way, that you received or should have received medical attention.	9. Schlug(en) sie Sie so stark oder verletzte(n) sie Sie absichtlich in irgendeiner Form, so dass Sie ärztlich versorgt wurden oder ärztlicher Versorgung bedurft hätten.			
10. Spanked you on your buttocks, arms or legs.	10. Schlug(en) sie Sie mit der offenen Hand auf Gesäß, Arme oder Beine.	7. Did anybody *spank you with the palm of his/her hand on your buttocks, arms or legs?*	7. **Spanked you with their open hand** on your buttocks, arms or legs	4**. Spanked you with their open hand on your buttocks, arms or legs**?

11. Spanked you on your bare (unclothed) buttocks.	11. Schug(en) sie Sie auf Ihr nacktes (unbekleidetes) Gesäß.	-	-	-
12. Spanked you with an object such as a strap, belt, brush, paddle, rod, etc.	12. Schlug(en) sie Sie mit einem Gegenstand, wie z.B. einem Riemen, einem Gürtel, einer Bürste, einem Stock, einem Rohr, einem Besen, einem Kochlöffel usw.	8. Did anybody *spank you with an object* such as a strap, belt, brush, stick, tube, broom, wooden spoon, etc?	8. **Spanked you with an object** such as a strap, belt, brush, stick, tube, broom, wooden spoon, rod, etc?	5**. Spanked you with an object** such as a strap, belt, brush, stick, tube, broom, wooden spoon, rod, etc?

Familial and Non-Familial Sexual Abuse	**Sexuelle Gewalt (SEXA)**	**Sexual violence (sexa)**	**Sexual violence (sexa)**	**Sexual violence (sexa)**
13. Made inappropriate sexual comments or suggestions to you. [parents]	13. Machte(n) sie Ihnen gegenüber unangebrachte sexuelle Kommentare oder Andeutungen.	-	-	-
14. Touched or fondled your body in a sexual way. [parents]	14. Berührte(n) oder begrabschte(n) sie Ihren Körper auf eine sexuelle Art und Weise.	10. Did anybody *touch your body or your private parts* in a way that felt inappropriate to you or made you feel dirty or humiliated? [a) parents, b) siblings]	10. **Touched or fondled your body in a sexual way**? [A) parents, B) siblings]	12A;B**. Touched or fondled your body in a sexual way**? ? [A) parents, B) siblings]
15. Had you touch their body in a sexual way. [parents]	15. Brachte(n) sie Sie dazu, deren Körper (den Körper des Erwachsenen auf eine sexuelle Art und Weise zu berühren.	11. *Did you have to touch anybody´s body or private parts* in a way that felt inappropriate to you or made you feel dirty or humiliated? [a) parents, b) siblings]	11. **Had you to touch their body in a sexual way**? [A) parents, B) siblings]	13A;B. **Had you touch their body in a sexual way**? ? [A) parents, B) siblings]
16. Attempted to have any type of sexual intercourse (oral, anal or vaginal) with you. [parents]	16. Versuchte(n) sie in irgendeiner Form (oral, anal oder vaginal) Geschlechtsverkehr mit Ihnen zu haben (Einführen von Penis oder Gegenständen in die Scheide, den After oder den Mund).	-	-	-

17. Actually had any type of sexual intercourse (oral, anal or vaginal) with you. [parents]	17. Hatte(n) sie in irgendeiner Form (oral, anal oder vaginal) Geschlechtsverkehr mit Ihnen (Einführen von Penis oder Gegenständen in die Scheide, den After oder den Mund). [other adults]	12. *Did anybody enter anything* (penis or object) *into any part of your body* (mouth, private parts or buttocks)? [a) parents, b) siblings]	12**. Had any type of sexual intercourse** (oral, anal or vaginal) **with you** (*Entering penis or object into vagina, buttocks or mouth)?* [A) parents, B) siblings]	14A; B. **Had any type of sexual intercourse** (oral, anal or vaginal) **with you**? ? [A) parents, B) siblings]
26. Made inappropriate sexual comments or suggestions to you. [other adults]	26. Machte(n) sie Ihnen gegenüber unangebrachte sexuelle Kommentare oder Anmerkungen. [other adults]	-	-	-
27. Touched or fondled your body in a sexual way. [other adults]	27. Berührte(n) oder begrabschte(n) sie Ihren Körper auf eine sexuelle Art und Weise. [other adults]	36. Did anybody *touch your body or your private parts* in a way that felt inappropriate or made you feel dirty or humiliated? [other adults]	13. **Touched or fondled your body in a sexual way**? [other adults]	12C**. Touched or fondled your body in a sexual way**? [other adults]
28. Had you touch their body in a sexual way. [other adults]	28. Brachte(n) sie Sie dazu, deren Körper (den Körper des Erwachsenen) auf eine sexuelle Art und Weise zu berühren. [other adults]	37. Did anybody *make you touch his/her body or private parts* in a way that felt in-appropriate or made you feel dirty or humiliated? [other adults]	14. **Had you touch their body in a sexual way**? [other adults]	13C. **Had you touch their body in a sexual way**? [other adults]

29. Attempted to have any type of sexual intercourse (oral, anal or vaginal) with you. [other adults]	29. Versuchte(n) sie in irgendeiner Form (oral, anal oder vaginal) Geschlechts-verkehr mit Ihnen zu haben (Einführen von Penis oder Gegenständen in die Scheide, den After oder den Mund). [other adults]	-	-	-
30. Actually had sexual intercourse (oral, anal or vaginal) with you. [other adults]	30. Hatte(n) sie in irgendeiner Form (oral, anal oder vaginal) Geschlechtsverkehr mit Ihnen (Einführen von Penis oder Gegenständen in die Scheide, den After oder den Mund). [other adults]	38. Did anybody *enter anything* (penis or object) into *any part of your body* (mouth, private parts or buttocks)? [other adults]	15. **Had any type of sexual intercourse** (oral, anal or vaginal) **with you** (*Entering penis or object into vagina, buttocks or mouth)?* [other adults]	14C. **Had any type of sexual intercourse** (oral, anal or vaginal) **with you**? [other adults]
49. Forced you to engage in sexual activity against your will. [peers]	49. Die zwang(en) Sie zu sexuellen Aktivitäten gegen Ihren Willen. [peers]	44. Did anybody *touched your body or your private parts* in a way that felt inappropriate or made you feel dirty or humiliated, or *made you touch his/her body or private parts* in a way that felt inappropriate or made you feel dirty or humiliated? *Please underline the appropriate event.* [peers]	31**. Forced you to engage in sexual activity against your will**? [peers]	12D**. Touched or fondled your body in a sexual way**? [peers] 13D. **Had you touch their body in a sexual way**? [peers]

50. Forced you to do things sexually that you did not want to do. [peers]	50. Die zwang(en) Sie dazu, sexuelle Dinge zu tun, die Sie nicht tun wollten. [peers]	45. Did anybody *enter anything* (penis or object) *into any part of your body* (mouth, private parts or buttocks)? [peers]	32. **Forced you to do things sexually that you did not want to do**? [peers]	14D. **Had any type of sexual intercourse** (oral, anal or vaginal) **with you**? [peers]

Witnessing Interparental Violence	**Bezeugte körperliche Gewalt zwischen Eltern (WITP)**	**Witnessing interparental violence (witp)**	**Witnessing interparental violence (witp)**	**Witnessing interparental violence (witp)**
31. Witnessed adults living in the household argue intensely with your mother (stepmother, grandmother), say derogatory things to her, or threaten her with harm.	31. Sie beobachteten, wie mit im Haushalt lebende Erwachsene heftig mit Ihrem Vater (Stiefvater, Pflegevater oder Großvater) stritten, ihn beleidigten oder drohten, ihn zu verletzen.	-	**… arguing intensively**?	-
32, Witnessed adults living in the household argue intensely with your father (stepfather, grandfather), say derogatory things to him, or threaten him with harm.	32. Sie beobachteten, wie mit im Haushalt lebende Erwachsene heftig mit Ihrer Mutter (Stiefmutter, Pflegemutter oder Großmutter) stritten, sie beleidigten oder drohten, sie zu verletzen.	-		-
33. Saw adults living in the household push, grab, slap or throw something at your mother (stepmother, grandmother).	33. Sie sahen, wie mit im Haushalt lebende Erwachsene Ihre Mutter (Stiefmutter, Pflegemutter oder Groß-mutter) schubsten, packten, ohrfeigten oder Dinge nach ihr warfen.	20. Have *you witnessed adults* living at your house *pushing, pinching, slapping your mother* (or any woman living at your house) or *throwing things at her*?	22. … **pushing, grabbing, slapping or throwing something or kicking at your mother** /any woman living in your home?	-

34. Saw adults living in the household hit your mother (stepmother, grandmother) so hard that it left marks for more than a few minutes.	34. Sie sahen, wie mit im Haushalt lebende Erwachsene Ihre Mutter (Stiefmutter, Pflegemutter oder Großmutter) so stark schlugen, dass dies für mehr als ein paar Minuten Spuren auf ihrem Körper hinterließ.	22. Have *you witnessed adults* living at your house *hitting* your *mother* (or any woman living at your home*)* so hard *that she was injured*?	23. … **hitting your mother** /any woman living in your home **so hard** or intentionally harmed her in such a way **that she was injured.**	7. … **any person living in your home being hitting so hard** or intentionally harmed in such a way, **that he/she was injured**?
35. Saw adults living in the household hit your mother (stepmother, grandmother) so hard, or intentionally harm her in some way, that she received or should have received medical attention	*35. Sie sahen, wie mit im Haushalt lebende Erwachsene Ihre Mutter (Stiefmutter, Pflege-mutter oder Großmutter) so stark schlugen oder sie in irgendeiner Form verletzten, so dass sie medizinisch versorgt wurde oder medizinischer Versorgung bedurft hätte*			
36. Saw adults living in the household push, grab, slap or throw something at your father (stepfather, grandfather).	36. Sie sahen, wie mit im Haushalt lebende Erwachsene Ihren Vater (Stiefvater, Pflegevater oder Großvater) schubsten, packten, ohrfeigten oder Dinge nach ihm warfen.	21. Have *you witnessed adults* living at your house *pushing, pinching, slapping your father* (or any man living at your house) or *throwing things at him*?	24. … **pushing, grabbing, slapping or throwing something or kicking at your father** /any man living in your home	-

37. Saw adults living in the household hit your father (stepfather, grandfather) so hard that it left marks for more than a few minutes.	37. Sie sahen, wie mit im Haushalt lebende Erwachsene Ihren Vater (Stiefvater, Pflegevater oder Großvater) so stark schlugen, dass dies für mehr als ein paar Minuten Spuren auf seinem Körper hinterließ			
		23. Have *you witnessed adults* living at your house *hitting your father* (or any man living at your home) so hard *that he was injured*?	25. … **hitting your father** /any man living in your home **so hard** or intentionally harmed him in such a way **that he was injured**?	7. … **any person living in your home being hitting so hard** or intentionally harmed in such a way, **that he/she was injured**?
38. Saw adults living in the household hit your father (stepfather, grandfather) so hard, or intentionally harm him in some way, that he received or should have received medical attention.	38**.** Sie sahen, wie mit im Haushalt lebendeErwachsene Ihren Vater (Stiefvater,Pflege -vater oder Großvater) so stark schlugen oder ihn in irgendeiner Form verletzten, so dass er medizinisch ver- sorgt wurde oder medizinischer Versorgung bedurft hätte			
-	-	24. Have *you witnessed* adults living at your house, *touching your mother's* (woman living in your house*) body or private parts* against her will, <u>*or*</u> *wanting her* to *touch this person's body, private parts*, <u>or</u> *entering any- thing* (penis or object) into *any part of her body* (mouth, private parts or buttocks)?		8**. ... any person living in your home being touched or fondeled, or having to touch an other persons body or having any type of sexual intercourse** (oral, anal or vaginal)?

-	-
	25. Have *you witnessed adults* living at your house, *touching your father's* (man living in your house) *body or private parts* against his will *or wanting him to touch this person's body, private parts* or *entering anything* (penis or object) into *any part of his body* (mouth or buttocks)?

Witnessing Violence to Siblings	**Bezeugte Gewalt an Geschwistern (WITS)**	**Witnessing sibling violence (wits)**	**Witnessing sibling violence (wits)**	**Witnessing sibling violence (wits)**
18. Intentionally pushed, grabbed, shoved, slapped, pinched, punched, or kicked your sibling (stepsibling).	18. Wurden Ihre Geschwister (Stiefgeschwister) absichtlich geschubst, gepackt, gestoßen, geohrfeigt, gekniffen, mit der Faust geschlagen oder getreten.	13. Have *you witnessed* anybody *pushing, pinching, slapping, punching or kicking at your sibling*?	17. … **pushing, grabbing, shoved, pinching, slapping, punching or kicking at your sibling(s)** /child(ren) living in your home?	-
-	-	14. Have *you witnessed* anybody *hitting your sibling with the palm of his/her hand* on his/her buttocks, arms or legs?	18. … **spanking your sibling(s)** /child(ren) living in your home **with their open hand** on the buttocks, arms or legs?	-
-	-	-	19. … **spanking your sibling(s)** /child(ren) living in your home **with an object** such as a strap, belt, brush, stick, tube, broom, wooden spoon, rod, etc?	-
19. Hit your sibling (stepsibling) so hard that it left marks for more than a few minutes.	19. Wurden Ihre Geschwister (Stiefgeschwister) so stark geschlagen, dass diese Schläge für mehr als ein paar Minuten Spuren auf deren Körper hinterließen	15. Have *you witnessed* anybody *hitting your sibling* so hard that he/she *was injured*?	20. ... **hitting sibling(s)** /child(ren) living in your home **so hard** or intentionally harmed him/her/them in such a way **that he/she**/they **was injured**?	7. … **any person living in your home being hitting so hard** or intentionally harmed in such a way, **that he/she was injured**?

20. Hit your sibling (stepsibling) so hard, or intentionally harmed him/her in some way, that he/she received or should have received medical attention.	20. Wurden Ihre Geschwister (Stiefgeschwister) so stark geschlagen oder in irgendeiner Form absichtlich verletzt, so dass sie ärztlich versorgt wurden oder ärztlicher Versorgung bedurft hätten.			
21. Made inappropriate sexual comments or suggestions to your sibling (stepsibling).	21. Wurden Ihren Geschwistern (Stiefgeschwistern) gegenüber unangebrachte sexuelle Kommentare oder Andeutungen gemacht.	-	-	-
22. Touched or fondled your sibling (stepsibling) in a sexual way.	22. Wurden Ihre Geschwister (Stiefgeschwister) auf sexuelle Art und Weise berührt oder begrabscht	16. Have *you witnessed* anybody, t*ouching your sibling's body or private parts* in an inappropriate, dirty or humiliating way?	21. … **adults living in the household touching or fondling your sibling´s** /any child(ren) living in your home´s **body in a sexual way?**	8**. ... any person living in your home being touched or fondeled, having to touch an other persons body or having any type of sexual intercourse** (oral, anal or vaginal)?
23. Had your sibling (stepsibling) touch their body in a sexual way.	23. Wurden Ihre Geschwister (Stiefgeschwister) dazu gebracht, deren Körper (den Körper des Erwachsenen) auf eine sexuelle Art und Weise zu berühren	17. Have *you witnessed your sibling being made to touch the body or private parts of an adult* in an inappropriate, dirty or humiliating way?	... **your sibling(s) /** any child(ren) living in your home **having to to touch their body** (the body of the adult person) **in a sexual way?**	

24. Had or attempted to have any type of sexual intercourse (oral, anal or vaginal) with your sibling (stepsibling).	24. Hatten Ihre Geschwister (Stiefgeschwister) in irgendeiner Form (oral, anal oder vaginal) Geschlechtsverkehr mit Eltern (Stiefeltern oder anderen im Haushalt lebenden erwachsenen Personen) oder versuchte(n) diese Person(en), Geschlechtsverkehr mit Ihren Geschwistern zu haben (Einführen von Penis oder Gegenständen in die Scheide, den After oder den Mund).	18. Have *you witnessed* anybody, *entering anything* (penis or object) *into any part of your sibling's body* (mouth, private parts or buttocks)?	.... **adults living in the household having any type of sexual intercourse** (oral, anal or vaginal) **with your sibling(s)/** any child(ren) living in your home (*Entering penis or object into vagina, buttocks or mouth)?*	
25. Threatened to harm your sibling (stepsibling*)*.	25. Wurde Ihren Geschwistern angedroht, sie zu verletzen.	-	16. … **threatening to harm your sibling(s)** /child(ren) living in your home?	-

Peer Emotional Abuse	**Körperliche Gewalt durch Peers (PEERE)**	**Peer violence (physical and emotional, peer)**	**Peer violence (physical and emotional, peer)**	**Peer violence (physical and emotional, peer)**
39. Swore at you, called you names, said insulting things like your "fat", "ugly", "stupid", etc. more than a few times a year.	39. Die beschimpfte(n), verfluchte(n) Sie, sagte(n) beleidigende Dinge wie Sie seien „dick", „hässlich", „dumm", usw. mehr als nur wenige Male im Jahr.	39. Did anybody *call you names* or *say hurtful things*, such as calling you "fat", "ugly" or "stupid" etc. (more than a few times a year)?	26. **Called you names or said hurtful things** such as calling you "fat", "ugly" or "stupid" etc., **more than a few times a year**?	9. **Called you names or said hurtful things more than a few times a year?**
40. Said hurtful things that made you feel bad, embarrassed or humiliated more than a few times a year.	40. Die sagte(n) verletzende Dinge, die Sie traurig machten, beschämten oder demütigten.			
41. Said things behind your back, posted derogatory messages about you, or spread rumors about you.	41. Die sprach(en) hinter Ihrem Rücken über Sie, erniedrigte(n) Sie öffentlich, setzte(n) Gerüchte über Sie in die Welt.	40. Did anybody *say things behind your back*, post *derogatory messages* about *you*, or *spread rumors about you*?	27. **Said things behind your back, posted derogatory messages about you, or spread rumors about you?**	10**. Said things behind your back, posted derogatory messages about you, or spread rumors about you?**
42. Intentionally excluded you from activities or groups.	42. Die schloss(en) Sie aus Aktivitäten, Gruppen oder der Gemeinschaft aus.	41. Did anybody *exclude you* from activities or groups?	28. **Excluded you from activities or groups?**	-
43. Acted in a way that made you afraid that you might be physically hurt.	43. Die verhielt(en) sich so, dass Sie Angst hatten, körperlich verletzt zu werden.	-	-	-

Peer Physical Bullying	**Körperliche Gewalt durch Peers (PEERP)**			
44. Threatened you in order to take your money or possessions.	44. Die bedrohte(n) Sie, um Ihnen Geld oder Besitztümer abzunehmen.			
45. Forced or threatened you to do things that you did not want to do.	45. Die zwang(en) oder bedrohte(n) Sie, um Sie dazu zu bringen, Dinge zu tun, die Sie nicht tun wollten.			
46. Intentionally pushed, grabbed, shoved, slapped, pinched, punched, or kicked you.	46. Die schubste(n), packte(n), stieß(en), ohrfeigte(n), kniff(en) Sie absichtlich, schlug(en) Sie mit der Faust oder trat(en) nach Ihnen.	42. Did anybody intentionally *push, pinch, slap, punch or kick you*?	29. Intentionally **pushed, grabbed, shoved, slapped, pinched, punched, or kicked you**?	
47. Hit you so hard that it left marks for more than a few minutes.	47. Die schlug(en) Sie so stark, dass dies für mehr als ein paar Minuten Spuren auf Ihrem Körper hinterließ.	43. Did anybody *hit you* so hard that you were *injured*?	30. **Hit you so hard** or intentionally harmed you in such a way **that you were injured**?	11. **Hit you so hard** or intentionally harmed you in such a way **that you were injured**?
48. Hit you so hard, or intentionally harmed you in some way, that you received or should have received medical attention.	48. Die schlug(en) Sie so stark oder verletzte(n) Sie in irgendeiner Form, so dass Sie medizinisch versorgt wurden oder medizin- ischer Versorgung bedurft hätten.			

Emotional Neglect	**Emotionale Vernachlässigung (EN)**	**Emotional neglect (en)**	**Emotional neglect (en)**	**Emotional neglect (en)**
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.	51. Sie hatten das Gefühl, dass Ihre Mutter (Stiefmutter, Pflegemutter oder Großmutter) zwar im Haushalt anwesend war, für Sie jedoch, aus Gründen wie Drogen oder Alkoholkonsum, zu viel Arbeit (Workaholic/ „Arbeitstier“), einer Affäre, dem rücksichtslosen Verfolgen eigener Ziele, emotional nicht verfügbar war/ Ihnen emotional nicht zugewandt war.	26. Was there *a time in which <u>both</u> your mother <u>and</u> your father* (or other main attachment figures/parental figures) *did not try to understand your feelings, and were never there for you*?	33. Was there a time in which **<u>both</u> your mother <u>and</u> your father** (or other main attachment figures/parental figures) **did not even try to understand your feelings**, **and were never there for you**?	15. **Was there a time in which <u>both</u> your mother <u>and</u> your father** (or other main attachment figures/parental figures) **did not even try to understand your feelings**, **and were never there for you**?
52. You felt that your father or other important paternal 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.	52. Sie hatten das Gefühl, dass Ihr Vater (Stiefvater, Pflegevater oder Großvater) zwar im Haushalt anwesend war, für Sie jedoch, aus Gründen wie Drogen- oder Alkoholkonsum, zu viel Arbeit (Workaholic/ „Arbeitstier“), einer Affaire, dem rücksichtslosen Verfolgen eigener Ziele, emotional nicht verfügbar war/Ihnen emotional nicht zugewandt war			

53. You felt that your mother or other important maternal figure was emotionally unavailable to you for a variety of reasons like military service, taking care of a sick relative, in school, business necessity.	53. Sie hatten das Gefühl, dass Ihre Mutter (Stiefmutter, Pflegemutter oder Groß mutter) für Sie aus anderen Gründen, wie etwa der Pflege eines kranken Verwandten, schulischer oder geschäftlicher Verpflichtungen, emotional nicht verfügbar war.			
54. You felt that your father or other important paternal figure was emotionally unavailable to you for a variety of reasons like military service, taking care of a sick relative, in school, business necessity.	54. Sie hatten das Gefühl, dass Ihr Vater (Stiefvater, Pflegevater oder Großvater) für Sie aus anderen Gründen, wie etwa dem Militärdienst, der Pflege eines kranken Verwandten, schulischer oder geschäftlicher Verpflichtungen, emotional nicht verfügbar war.			
[> Parentale Nonverbale Emotionale Gewalt]	56. Ein Elternteil oder eine andere wichtige elterliche Person hatte keine Zeit oder kein Interesse, mit Ihnen zu sprechen.	27. Was there *a time in which neither your mother nor your father* (or other main attachment figures/parental figures) had *time to talk to you*, or were not *interested in talking to you*?	34. Was there a time in which **neither your mother nor your father** (or other main attachment figures/parental figures) **had time to talk to you**, or **were not interested in talking to you**?	16. **Was there a time in which neither your mother nor your father** (or other main attachment figures/parental figures) **had time to talk to you**, or **were not interested in talking to you**?

57. One or more individuals in your family made you feel loved.	57. Ein oder mehrere Familienmitglieder gab(en) Ihnen das Gefühl, geliebt zu werden.	28. *Did any family member* (parent or parental figure) *make you feel loved*?	38. **Did any parent or parental figure make you feel loved**?	17. **Did any parent or parental figure always make you feel loved**?
58. One or more individuals in your family helped you feel important or special.	58. Ein oder mehrere Familienmitglieder half(en) Ihnen dabei, sich wichtig und besonders zu fühlen.	-	39. **Did any parent or parental figure help you to feel important or special**?	-
61. One or more individuals in your family would help you with your homework, or to get ready for school.	[> Physical neglect]	[> Physical neglect]	-	-
[> Physical neglect]	73. Mitglieder Ihrer Familie gaben aufeinander acht.	-	-	-
74. People in your family felt close to each other.	74. Mitglieder Ihrer Familie fühlten sich einander nahe.	-	-	-
75. Your family was a source of strength and support.	75. Ihre Familie war eine Quelle der Kraft und Unterstützung für Sie.	-	-	-

Physical Neglect	**Körperliche Vernachlässigung (PN)**	**Physical neglect (pn)**	**Physical neglect (pn)**	**Physical neglect (pn)**
59. One or more individuals in your family were there to take care of you and protect you.	59. Ein oder mehrere Familienmitglieder gab(en) auf Sie acht und beschützte(n) Sie.	29. *Did any family member (parent or parental figure) take care of you*?	40. **Did any parent or parental figure take care of you and protect you**?	18. **Did any parent or parental figure always take care of you and protect you**?
60. One or more individuals in your family were there to take you to the doctor or Emergency Room if the need ever arose.	60. Ein oder mehrere Familienmitglieder hätte(n) Sie jederzeit, falls es je nötig gewesen wäre, zu einem Arzt oder in die Notaufnahme gebracht.	33. Did a family member (parent or parental figure) *bring you to the doctor* when necessary?	35. **Did any family member (parent or parental figure) take you to the doctor if the need ever arose**?	19. **Did any family member (parent or parental figure) always take you to the doctor if the need ever arose**?
[> Emotional neglect]	61. Ein oder mehrere Familienmitglieder half(en) Ihnen bei Ihren Hausaufgaben oder dabei, sich für die Schule zu richten.	30. *Did any family member* (parent or parental figure) *help you with your homework, or help you to get ready for school*?	-	-
62. You didn't have enough to eat.	62. Sie hatten nicht genug zu essen.	31. Was there a time in which *you did not have enough to eat*?	36. **Was there a time in which you did not have enough to eat**?	20**. Was there a time in which you did not have enough to eat**?
63. You had to wear dirty clothes.	63. Sie mussten ungewaschene Kleidung tragen.	32. Was there a time in which *you had to wear dirty clothes*?	37. **Was there a time in which you had to wear dirty clothes**?	

64. You were left unsupervised at an age or in situations when you should have been supervised.	64. Sie wurden in einem Alter oder in Situationen, in denen es einer Aufsicht bedurfte, nicht beaufsichtigt.	-	-	-
72. You lived in foster care.	[> Parental loss]	-	-	-
73. People in your family looked out for each other.	[> Emotional neglect]	-	-	-
	Additional dimension: Parental loss			
	69. Ihre Eltern waren geschieden.	34. Were *your parents separated* or *divorced*?		
	70. Ein Elternteil oder eine andere wichtige elterliche Person starb.	35. Has either your mother or your father or another parental figure *passed away*?		
	71. Sie mussten in zwei oder mehr Haushalten leben.	1. Was there a time in which *you were living in two or more homes*?		
	72. Sie lebten bei einer Pflegefamilie oder im Heim.	2. Was there a time in which *you were living in foster care or a children´s home?*		

Note. The synopsis compiles the subscale composition of MACE, KERF, the condensed versions MACE/KERF- 40 and -20 as well as of the *pediatric MACE interview*. Items presented in grey are not part of the current standardized analysis algorithms.