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Development and psychometric evaluation of a new assessment method for childhood maltreatment experiences: The interview for traumatic events in childhood (ITEC)

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ABSTRACT

Objective: We conducted a comprehensive assessment of the reliability and validity of the Interview for Traumatic Events in Childhood (ITEC, Lobbestael, Arntz, Kremers, & Sieswerda, 2006), a retrospective, semi-structured interview for childhood maltreatment. The ITEC aims to yield dimensional scores for severity of experiences of different childhood maltreatment dimensions.
Methods: Initial psychometric properties were tested with the pilot version of the ITEC in 362 participants. A second study assessed the revised ITEC in 217 participants, patients and non-patients.
Results: Factor analyses produced the best fit for a five-factor model (sexual, physical and emotional abuse, physical and emotional neglect). The scales had good internal consistency, except for the physical neglect subscale, and excellent inter-rater reliability. The scales were highly associated with equivalent scales of the Childhood Trauma Questionnaire (i.e., good convergent validity), and showed good correspondence with patient file information (i.e., good criterion validity).
Conclusion: These results support the reliability and validity of the ITEC, making it a potentially useful tool for assessing a broad range of traumatic events in childhood.
Practice implication: The first step in therapy for dealing with childhood maltreatment is to map abusive experiences and assess their severity and impact. Since maltreatment is a sensitive topic that is not reported on easily, trauma interviews are promising assessment instruments since they provide the opportunity to probe and clarify. There are hardly any well-validated trauma interviews available that assess the extent of maltreatment in and outside the family in various dimensions. The current study tries to fill this gap by presenting a new trauma interview; the Interview for Traumatic Events in Childhood.

During the last decades, numerous studies have examined the effects of childhood trauma, mainly using retrospective assessment of traumatic experiences. While many early studies used retrospective trauma methods of unknown reliability and validity, several promising trauma assessment instruments have subsequently been developed, and initial findings on their reliability and validity have been reported. The most thoroughly validated and widely used retrospective trauma instrument is the Childhood Trauma Questionnaire (CTQ), a self-report questionnaire that measures 3 types of abuse (i.e., physical, sexual, and emotional), and 2 types of neglect (i.e., physical and emotional) (CTQ; Bernstein & Fink, 1998). Studies in clinical and community based samples have consistently supported the reliability and validity of the CTQ, including replications of its five-factor structure (Bernstein et al., 2003; Scher, Stein, Asmundson, McCreary, & Forde, 2001), convergent and

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discriminant validity with other trauma instruments (Bernstein, Ahluvalia, Pogge, & Handelsman, 1997; Lipschitz, Bernstein, Winegar, & Southwick, 1999), and criterion-validity with independently corroborated trauma ratings (Bernstein et al., 1997, 2003).

Although questionnaires like the CTQ have the advantage of being quickly and easily administered and scored, and of affording some anonymity that might reduce the chance of social desirable responding, they are limited in comparison to retrospective trauma interviews, which can provide a richer and more detailed description of early traumatic experiences. Trauma interviews provide the opportunity to probe and clarify traumatic events. The interviewer can assess whether the experienced events can be labeled as abusive in light of an objective definition of trauma, reducing the variability caused by the interpretation of the interviewee. Interviews can include follow-up questions, for example, to fill in details about the identity of the perpetrator, age of onset and duration of the maltreatment, and specific characteristics of the abusive acts themselves. Thus, while interviews are more labor intensive than questionnaires, they provide some distinct advantages that questionnaires lack.

Several retrospective interviews for childhood trauma have been reported in the literature (e.g., Bremner, Vermetten, & Mazure, 2000; Draijer, 1989; Gallagher, Flye, Hurt, Stone, & Hull, 1992), of which the Childhood Experience of Care and Abuse (CECA, Bifulco, Brown, & Harris, 1993) and the Childhood Trauma Interview (CTI, Fink, Bernstein, Handelsman, Foote, & Lovejoy, 1995) have received the most empirical attention. Compared to many other trauma interviews, the CECA and the CTI assess a broader range of traumatic childhood events. The CECA has been extensively validated (Bifulco, Brown, & Harris, 1994; Bifulco, Brown, & Jarvis, 1997; Moran, Bifulco, Ball, Jacobs, & Benaim, 2002), while the validation of the CTI has been limited to a drug and alcohol dependent sample (Fink et al., 1995).

In the current report, we present extensive data regarding the reliability and validity of the Interview for Traumatic Events in Childhood (ITEC). The ITEC is a retrospective trauma interview developed by our group that has already been used in several published studies examining the relationship between childhood trauma and psychopathology (Arntz, Dietzel, & Dreessen, 1999; Giesen-Bloo et al., 2005; Kremers, Van Giezen, Van der Does, van Dyck, & Spinhoven, 2007; Lobbestael, Arntz, & Sieswerda, 2005). Furthermore, the study of Lobbestael, Arntz, and Bernstein (in press) validated the ITEC against personality disorders. Good test–retest reliability of the ITEC has been demonstrated by Kremers et al. (2007) in patients with Borderline Personality Disorder who were assessed before and after treatment.

The ITEC has several potential advantages that will be evaluated in this manuscript. First, the ITEC aims to assess multiple types of childhood traumatic events, including sexual abuse, physical abuse, emotional abuse, and neglect. Furthermore, the ITEC is designed in such a way that it is highly likely that it determines whether experienced events correspond to objective events; it does not label these events a priori as abusive (i.e., by using questions that include the term "abuse" or other similar terms). In this way, subjective appraisal of abuse will be avoided, minimizing the chance of an interpretation bias by the respondent (Engelhard et al., in preparation). A final innovation is that the ITEC utilizes an empirically based scoring system for determining the severity of traumatic events. Each subscale yields a composite score indicating the severity of maltreatment. Severity of trauma is based on ratings by a large group of therapists and by a sample from the open population, expecting to yield more objective estimates of severity than relying on a single rater or the interviewee's judgment.

Nonewithstanding the established psychometric properties of the CECA and CTI, their widespread use, and their comprehensive nature, the ITEC has several relative advantages compared to these interviews. First, the ITEC systematically gathers detailed information on each experienced maltreatment event based on a standard format which permits and facilitates objective scoring. Second, the ITEC inquires about witnessing maltreatment events and both the objective and subjective impact of the traumatic events on the respondent. Third, in administering the ITEC, the interviewers merely have to score detailed and objective parameters of the events (i.e., specifications of acts, perpetrators, age of onset, duration of maltreatment), while the raters of the CECA and the CTI have to decide whether respondents meet the criteria for neglect or abuse, and judge the severity of abuse, which requires extensive training of the raters, and increases the chance for subjective scoring. Fourth, all intra- and extrafamiliar maltreatment experiences are inquired for in the ITEC, while the CECA only does so for sexual abuse. Thus, the ITEC differs from other interviews by the addition of parameters of maltreatment it assesses, as well as the nature of the scoring system. Finally, at this moment, the ITEC is the only trauma assessment interview published and validated in Dutch.

In this report, we first describe a study assessing the factorial structure of the first version of the ITEC (Study I). The aim of the second study was to provide a more extended psychometric assessment of the second version of the ITEC (Study II).

Study I

Method

Participants. The pilot ITEC was administered to 362 adults, including patients from several psychiatric hospitals (20.7%, $n = 75$), community mental health centres (51.6%, $n = 188$), TBS-clinics (4%, $n = 14$) and prisons (3.7%, $n = 13$) in the Netherlands and Belgium, and non-patients (20%, $n = 72$). TBS clinics are part of the Dutch forensic system and refer to forensic psychiatric hospitals for the residential treatment of mentally disordered offenders who are sentenced by criminal court to involuntary

admission because of diminished responsibility for the offence(s) they committed (de Ruiter & Testman, 2007). Of the total group, 56.5% were female and 43.5% male, with a mean age of 37.4 years (*SD* = 10.84, range = 18–59). With respect to educational level, 0.4% did not complete any education, 12.3% only completed primary school and 44.8% high school or low-level vocational studies, while 19% completed a secondary education, and 23.4% a higher education.

Two hundred seven of the 362 participants had SCID-I and SCID-II data available. Of this group, 28.5% ($n = 59$) received no diagnosis on Axis I. The remaining participants received one or more Axis I diagnoses of anxiety disorders (40.6%), mood disorders (40.1%), eating disorders (7.2%), substance abuse or dependence (7.2%), or other mental disorders (<3%). Thirty-eight percent ($n = 79$) received no diagnosis on Axis II. The remaining 61.4% received one or more Axis II diagnoses of Borderline (33.8%), Avoidant (20.3%), Depressive (16.4%), Obsessive–Compulsive (14%), Antisocial (7.2%), Dependent (4.3%), Paranoid (4.3%), or other personality disorders (<3%).

Measures. SCID-I and SCID-II: Dutch versions of the Structured Clinical Interview for DSM-IV Axis I and Axis II disorders (SCID-I and SCID-II, First, Spitzer, Gibbon, Williams, & Benjamin, 1994; First, Spitzer, Gibbon, & Williams, 1997; van Groenestijn et al., 1999; Weertman, Arntz, & Kerkhofs, 2000) were used to assess DSM-IV Axis I diagnoses and personality pathology. Psychometric properties of the SCID-I and SCID-II proved to be good (e.g., Maffei et al., 1997; Martin, Pollock, Bukstein, & Lynch, 2000; Weertman, Arntz, Dreessen, van Velzen, & Vertommen, 2003).

Interview for Traumatic Events in Childhood (ITEC)—pilot version: The pilot ITEC was designed to assess three forms of childhood maltreatment prior to the age of 18: sexual, physical and emotional abuse/neglect. These scales were based on the following definitions (partly derived from Bernstein et al., 2003; Johnson et al., 2003). Childhood sexual abuse (7 items) was defined as attempted or actual sexual contact between a child younger than 18 years and an adult or older person, against the child's will; childhood physical abuse (13 items) as bodily assaults on a child by an adult or older person that posed a risk of or resulted in injury; childhood emotional abuse/neglect (13 items) as humiliating or demeaning behaviour directed towards a child by an adult or the failure of caretakers to meet children's basic emotional and physical needs.

The items assessing sexual abuse were preceded by the screening question "Have you ever been pressured or forced into sexual contact against your wishes?". The other categories were not introduced by screening questions. The items used neutral, non-pejorative language to inquire about childhood maltreatment, to avoid biasing respondents' responses. For each category to which the interviewees responded positively, follow-up questions were used to gather detailed information about perpetrators (e.g., mother, uncle, teacher); age of onset (0–6 years, 6–12 years or 12–18 years) frequency (once or more often), and duration of trauma (less than 1 year, 1–3 years, 4–6 years, 7–9 years, or 10 years or longer); and the impact on the victims in the past (not at all, a little, considerably, severely, or very severely) and in the present (less distressful now and more distressful now). On average, the administration time of the pilot ITEC was about 20 min but could take up to 1 h in case of multiple maltreatment. The ITEC is a semi-structured interview with clear screening- and follow-up questions probing specific traumatic events, but allowing the possibility to probe and clarify inconsistencies in the participants' reports. Interviewers need to be at least at a master-level and have to undergo extensive training in the administration of the ITEC.

Procedure. The patients of the clinics and prisons were contacted to participate in this study by their therapists. The therapists provided general verbal information and an information letter of this study to these patients and if the patients indicated that they were willing to participate, they were contacted by the investigator. Non-patients were recruited by means of advertisement in local papers. After a full explanation of the research procedure, written informed consent was obtained from all participants. Most participants (57%, divided over the 5 subgroups) were diagnosed by means of SCID-I and SCID-II before the pilot ITEC was administered; in other cases (43%), it was not possible to conduct the SCID interviews due to time restraint. Finally, participants were administered the pilot ITEC. This study was approved by the Medical Ethical Committee of the Academic Hospital of Maastricht.

Statistical analyses. The fit of three confirmatory factor models was tested in the entire sample of 362 adult patients and non-patients: (1) the original scaling of the pilot ITEC with the three subscales of sexual, physical and emotional abuse/neglect, (2) a model in which the neglect items were set apart from the emotional abuse scale, leading to 4 factors of sexual abuse, physical abuse, emotional abuse and neglect, and (3) a further division of the neglect scale into emotional and physical neglect producing a five-factor model identical to the structure of the Childhood Trauma Questionnaire (Bernstein et al., 2003) with sexual abuse, physical abuse, emotional abuse, emotional neglect and physical neglect as subscales. Items for these analyses were scored unweighted as either present or absent. Factor structures were tested by means of confirmatory factor analyses (CFA), employing structural equation modelling (SEM, LISREL software 8.54, Jöreskog & Sörbom, 2001). Missing data (0.20%, i.e., less than 1%) were estimated by means of missing value analyses. The goodness-of-fit was evaluated using the comparative fit index (CFI), the Standardized Root Mean Square Residual (SRMR), the Non-Normed Fit Index (NNFI) and the χ^2 in combination with the degrees of freedom. Following Hu and Bentler (1999), CFI and NNFI values above .90 and an SRMR value below or equal to .09 can be considered indicative of an adequate fit.

Internal consistency of the pilot ITEC subscales was assessed by Cronbach's alpha. Values above .90 were interpreted as excellent, >.80 as good, and >.70 as adequate. Correlations between the factors are described using SEM Pearson correlations corrected for attenuation.

Table 1
Goodness-of-fit indices of the pilot ITEC ($n = 362$).

Model	Number of factors	CFI	NNFI	SRMR	χ^2 (*df*)
SA PA EAN	3	.95	.94	.07	1390.86 (492)
SA PA EA N	4	.95	.95	.06	1303.77 (489)
SA PA EA EN PN	5	.95	.95	.06	1248.47 (485)*

Note: CFI, Comparative Fit Index; NNFI, Non-Normed Fit Index; SRMR, Standardized Root Mean Square Residual; χ^2, Chi-square; *df*, degrees of freedom; SA, sexual abuse; PA, physical abuse; EAN, emotional abuse/neglect; N, neglect; EN, emotional neglect; PN, physical neglect.
* This model is significantly better than the other models at the $p < .001$ level.

Results and discussion

Factor structure. Table 1 provides the goodness-of-fit indices for the three models. For all models, the CFI and NNFI are well above .90, and SRMR values lower than .09, indicating good fits. Testing of the Chi-square values and the associated degrees of freedom revealed a significant *p*-value, indicating that the five-factor model provided a better fit than the three- and four-factor solutions. These data indicate that it is preferable to separate emotional neglect and physical neglect from the emotional abuse/neglect scale, leading to a five-factor model of sexual abuse, physical abuse, emotional abuse, emotional neglect and physical neglect. This suggests that the ITEC has a five-factor structure similar to that of the CTQ (Bernstein et al., 2003).

Internal consistency and inter-correlations between subscales. Cronbach's alpha values for the pilot ITEC subscales were good for sexual abuse ($\alpha = .84$), physical abuse ($\alpha = .87$), and emotional abuse ($\alpha = .84$), moderate for the emotional neglect scale ($\alpha = .76$), and inadequate for the physical neglect scale ($\alpha = .60$).

Inter-correlations between the pilot ITEC factors indicate low to moderate correlations between the factors, ranging from .35 to .83, median = .54. The highest correlation was found between the emotional abuse factor and the emotional neglect factor ($r = .83$). The fact that the confidence interval ($\pm 2SE$) around the correlation estimates between these two factors did not include 1.0, indicates emotional abuse and emotional neglect do represent distinct constructs (Anderson & Gerbing, 1988).

Study II

During the administration of the pilot ITEC, some participants reported maltreatment events and perpetrators that were not specified in the pilot ITEC. Therefore, for Study II, a new version of the ITEC was constructed. In this new version, several new events and perpetrators of childhood maltreatment were added. Moreover, in line with previous studies that stressed the importance of witnessing abusive events in the development of psychopathology (Glodich, 1998; Luster, Small, & Lower, 2002), witnessing abusive items were added to the ITEC subscales. Finally, scoring of age, duration, perpetrators and impact (past and current) was now required for each abusive event so that the ITEC could provide weighted severity scores for each abusive item, as opposed to the pilot ITEC which only provided unweighted severity scores.

The aim of this second study was to conduct a thorough assessment of the reliability and validity of the ITEC. First, the factor structure of this new ITEC version was evaluated. Second, internal consistency reliabilities and inter-correlations between the subscales were assessed. Third, inter-rater reliability was determined. Fourth, convergent validity with the CTQ (Bernstein et al., 2003) was assessed. Fifth, criterion-related validity was determined by comparing the ITEC with file information about patients' maltreatment histories.

Method

Participants. The revised ITEC (further merely referred to as the ITEC) was administered to 217 adults, including 178 patients from several community mental health centres (42.4%, $n = 92$), psychiatric hospitals (29.5%, $n = 64$), TBS clinics (5.5%, $n = 12$) and prisons (4.6%, $n = 10$) in the Netherlands, and 39 non-patients (18%). Of the total group, 71.3% was female and 26.9% male, with a mean age of 33.75 years ($SD = 10.54$, range = 18–61). With respect to educational level, 0.9% did not complete any education, 7.9% completed only primary school, 30.1% high school or low-level vocational studies, while 35.2% completed a secondary education, and 22.3% a higher education. Axis I diagnoses were available for 204 of the 217 participants. Forty-three percent of this group received anxiety disorders diagnoses, 32.4% had mood disorders, 21.8% substance abuse or dependence disorders, 8.8% eating disorders, and 6.5% somatoform disorders. Axis II data were available for 202 participants. Within this group, 30.1% had Borderline, 18.1% Avoidant, 13.9% Obsessive–Compulsive, 12% Depressive, 7.9% Antisocial, 6% Dependent, 6% Passive–Aggressive and 6% Schizoid Personality Disorder. Other Axis II disorders were diagnosed in 3% or less of the participants.

The data of all participants were used to determine the factor structure, internal reliability and inter-correlations between the factors (aims 1 and 2). Inter-rater reliability (aim 3) was based on 20 interviews, including 12 patients from several community mental health centres (55%) and TBS clinics (5%), and 8 non-patients (40%). One hundred thirty-three participants also filled out the CTQ in order to assess construct validity (aim 4). This subsample included 99 patients from several

community mental health centres (38.3%, $n = 51$), 28 from psychiatric hospitals (21.1%), 12 from TBS clinics (9%) and 8 from prisons (6%) in the Netherlands, and 34 non-patients (25.6%). Fifty-one patient files were screened for indices of maltreatment for determining the criterion validity of the ITEC (aim 5). Eighty percent of these files were collected from a community mental health centre and 20% from a TBS clinic.

Measures. SCID-I and SCID-II: Diagnostic instruments for Study 2 were the same as for Study 1 (see above).

Interview for Traumatic Events in Childhood (*ITEC*): The revised version of the ITEC consisted of the original ITEC items and 8 new items: 3 for sexual abuse, 3 for emotional abuse, and 2 for emotional neglect. Based on the factor analytic results from the pilot study (see above), items for the physical neglect and emotional neglect scales were assigned to separate subscales, apart from the emotional abuse items. Thus, the revised ITEC consisted of 5 victimization subscales: physical, sexual, and emotional abuse, and physical and emotional neglect. In addition to the victimization scales, parallel scales were created for witnessing the various forms of abuse and neglect. The ITEC witnessing items had the same answer format as the victim items, with an additional item to determine the primary victim of the abusive act. No other changes were made to the ITEC's format. All of the ITEC's items are described in Table 2. On average, the administration time of the ITEC was about 30 min and could take up to 1 h in case of multiple abuse.

In order to objectively estimate the severity of abusive acts and perpetrators, 60 judges (30 therapists and 30 respondents from the community) were asked to rank the severity of the abusive acts per kind of abuse on a scale ranging from least severe abusive act to most severe abusive act, and the severity of the perpetrators on a scale ranging from least severe perpetrator to most severe perpetrator. Respondents had to make a forced raking from 1 to the highest number of abusive acts for that kind of abuse or perpetrator. Intra-class correlations (ICC) were calculated for each form of abuse and for all perpetrators. ICC values for the average rating of abusive events were excellent (sexual abuse: $ICC = .99$; physical abuse: $ICC = .99$; emotional abuse: $ICC = .98$; neglect: $ICC = .98$; mean $ICC = .99$), as well as the ICC value for the perpetrators ($ICC = .99$). Since we wished to generate severity scores that are reflective of both rater groups, scores of both rater groups were averaged. Severity scores of acts and perpetrators were calculated by dividing the mean scores (the absolute mean) by the total number of abusive acts in that category or perpetrators (the relative mean). This way, a score between 0 and 1 was yielded (see Tables 2 and 3). This was done in order to acquire similar scoring ranges for all severity parameters and to give them equal weight. Furthermore, maltreatment that started at the youngest age (between 0 and 6 years), lasted the longest (10 years or longer), had the most impact at that time (very severe), and even more impact later in life, received the highest severity scores, while their opposites (age between 12 and 18 years, a duration shorter than 1 year, no impact at that time and less impact later in life) received the lowest severity scores.

Childhood Trauma Questionnaire, short form (*CTQ-SF*): The Dutch version of the CTQ-SF (Arntz & Wessel, 1996; Bernstein & Fink, 1998; Bernstein et al., 2003) asks about experiences in childhood and adolescence. Each of the 28 items begins with the phrase "When I was growing up. . ." and is rated on a 5-point Likert frequency scale with response options ranging from never true to very often true. The CTQ has five empirically derived scales: physical, sexual, and emotional abuse and physical and emotional neglect. Each type of maltreatment is represented by five items. The CTQ also has a three-item minimization/denial validity scale that was developed to detect the underreporting of maltreatment. Studies have demonstrated the measurement invariance of the CTQ across clinical and community samples, and confirmed the CTQ's five-factor structure (Bernstein et al., 2003). All five scales showed adequate to good internal consistency reliabilities (α's ranging from .69 to .94, Scher et al., 2001). Self-reports of traumatic events on the CTQ scales are highly stable over time and show good convergent and divergent validity with trauma histories that have been ascertained by other measures, including cases in which child maltreatment can be corroborated with independent evidence (Bernstein et al., 2003; Scher et al., 2001).

Procedure. The recruitment method for patients and non-patients was identical to that of Study I. After participants gave informed consent, they were administered the SCID-I (with the exception of 13 participants divided over the 5 subgroups) and SCID-II (with the exception of 15 participants divided over the 5 subgroups) and the ITEC (revised version). Twenty ITEC interviews were taped, and then rescored by a second rater. Next, participants filled out the CTQ-SF. Frequency percentages for all abusive acts are given in Table 2. The 51 patient files necessary to calculate the criterion validity, were obtained from a community mental health center and a forensic clinic, and included both intake and therapy session reports.

Statistical analyses. To give an impression of the severity of maltreatment experienced by the total sample, it was calculated for each subscale which percentage of the sample had at least one experience of childhood maltreatment. In addition, for each subscale, the percentage of participants that experienced a low, medium or high severity score were given. These categories were calculated by dividing the maximum severity score that could be obtained for that subscale by three.

The first aim was to determine which factor structure would provide the best fit for the ITEC. Because several items for witnessing abuse (especially witnessing sexual abuse and witnessing neglect) had very low frequencies ($n < 5$), all witness items were left out of the factor analyses and CFA was performed using only the victim items. The witness items were also not used in any of the subsequent analyses, except in determining inter-rater reliability of the ITEC. Goodness-of-fit indices of these victimization items of the ITEC were calculated for three alternative models (identical to those of the pilot study): (1) the three-factor model with the subscales of sexual, physical and emotional abuse/neglect, (2) the four-factor model of sexual abuse, physical abuse, emotional abuse and neglect, and (3) the five-factor model with sexual abuse, physical abuse, emotional abuse, emotional neglect and physical neglect as subscales. Each model fit was tested on two weighted severity

Table 2
Abusive events in the ITEC, along with their absolute and relative severity scores, prevalence and factor loading for the dichotomous and continuous severity model.

ITEC abusive events per subscale	Severity scores abusive events		Frequency ($n = 217$)		Item loadings ($n = 217$)
	Absolute mean (*SD*)	Relative mean	Victim	Witness	
Sexual abuse					
1. Forced into sexually sadistically acts (e.g. sadomasochism or sex with animals)	11.05 (1.52)	.92	3.2	–	.46
2. Forced into anal intercourse	10.10 (1.48)	.84	2.8	–	.48
3. Forced into vaginal intercourse	9.27 (1.59)	.77	13.9	2.3	.66
4. Sexual acts in which spectators were present, direct or indirect[a,b]	8.42 (2.57)	.70	5.6		.41
5. Sexual acts in which objects were used	8.08 (1.94)	.67	4.6	–	.61
6. Sexually satisfying someone by mouth	7.05 (1.65)	.59	9.3	.5	.63
7. Being sexually satisfied (by hand or mouth)	5.85 (1.72)	.49	11.6	-	.70
8. Blackmailed to remain silent about the sexual acts[a]	5.73 (3.25)	.48	14.8	.9	.71
9. Sexually satisfying someone by hand	5.15 (1.67)	.43	16.7	–	.81
10. Sexually palpitated	3.43 (1.37)	.29	35.2	1.9	.80
11. Forced to observe sexual acts[a,b]	2.47 (1.32)	.21	6.5		.46
12. Sexually approached[b]	1.40 (1.15)	.12	24.1		.73
Physical abuse					
1. Being cut with knife or other sharp object	12.17 (1.04)	.94	4.2	1.9	.34
2. Taken by the throat	11.12 (1.98)	.86	14.4	4.6	.60
3. Caused burns by someone	10.93 (1.71)	.84	3.2	–	.36
4. Hit with a stick or other object	9.03 (1.88)	.69	16.2	6.5	.60
5. Tied with a rope or locked up	8.75 (2.90)	.67	13.9	4.2	.62
6. Being punched	7.88 (1.77)	.60	28.2	10.6	.80
7. Being kicked	6.77 (2.21)	.52	32.4	10.2	.77
8. Dragged along the ground	5.42 (2.16)	.42	19.4	5.1	.77
9. Clothes ripped of the body	5 (2.39)	.38	10.2	.9	.46
10. Being hit	4.77 (2.14)	.37	56.9	19.4	.65
11. Pulled by hair	3.58 (1.51)	.28	33.8	6.5	.64
12. Threatened with a physical abusive act	3.12 (3.16)	.24	21.8	5.1	.59
13. Something thrown at	2.5 (1.56)	.19	26.4	5.6	.56
Emotional abuse					
1. Forced to protect yourself from family members[a]	7.30 (2)	.81	19.4	6	.65
2. Wrongfully or cruelly punished	7.15 (1.99)	.79	24.1	5.1	.59
3. Nagged, belittled or called names	6.10 (1.47)	.68	58.8	11.6	.63
4. Not being allowed to express feeling or needs, or being punished if you did	5.57 (2.10)	.62	39.4	8.8	.63
5. An object you liked was destroyed	5.37 (2.34)	.60	26.4	3.7	.57
6. Hurtful or insulting things were said	4.87 (1.91)	.54	59.3	9.7	.69
7. Threatened with words	3.93 (1.96)	.44	38.4	7.4	.71
8. Many arguments between family members[a,b]	2.45 (1.83)	.27	51.9		.50
9. Many problems with the police in the family[a,b]	2.27 (1.74)	.25	7.4		.29
Emotional neglect					
1. Received no warmth or love	6.18 (1.33)	.88	36.1	6.9	.71
2. Left to your own device[b]	5.27 (1.37)	.75	23.6		.67
3. No one in the family who took your defense[a]	4.51 (1.61)	.64	25.5	2.3	.62
4. Parents addicted to alcohol or drugs[b]	4.29 (1.78)	.61	24.1		.47

Table 2 (*Continued*)

ITEC abusive events per subscale	Severity scores abusive events		Frequency ($n = 217$)		Item loadings ($n = 217$)
	Absolute mean (*SD*)	Relative mean	Victim	Witness	
5. Take care of parents or other family members	3.33 (1.65)	.48	29.6	2.8	.49
6. Left alone a lot[b]	3.19 (1.29)	.46	17.6		.43
7. No clear agreements or responsibilities[a,b]	1.98 (1.43)	.28	13.9		.41
Physical neglect					
1. Having too little to eat	1.24 (.48)	.62	3.7	.9	.65
2. Having to wear dirty or torn clothes	.55 (.37)	.28	4.2	1.9	.63

Note: Item loading are only presented for witnessing physical abuse and witnessing emotional abuse since baseline levels of the other witness items were too low and therefore not could included as separate items in further analyses.

[a] These items were not included in the pilot version of the ITEC.

[b] These items do not have a witness variant.

Table 3
Mean scores and ranking of perpetrators.

Perpetrators	Absolute mean (*SD*)	Relative mean
Mother	24.28 (.80)	.97
Father	24.25 (.70)	.97
Stepfather	19.13 (3.89)	.77
Stepmother	19.08 (3.92)	.76
Brother	18.77 (3.13)	.75
Sister	18.53 (3.11)	.74
Grandmother	18.28 (2.73)	.73
Grandfather	18.17 (2.64)	.73
Several persons	16.73 (6.69)	.67
Partner	15.87 (6.80)	.63
Confident	13.62 (5.64)	.54
Uncle	12.65 (3.25)	.51
Aunt	12.45 (3.21)	.50
Social worker	11.68 (6.25)	.47
Teacher	10.89 (4.88)	.44
Brother-in-law	9.33 (3.97)	.37
Cousin (male)	9.23 (3.55)	.37
Friend	9.18 (5.45)	.37
Sister-in-law	9.15 (3.59)	.37
Cousin (female)	8.82 (3.58)	.35
Neighbor (female)	6.83 (3.36)	.27
Neighbor (male)	6.70 (3.32)	.27
Acquaintance of parents	5.08 (2.93)	.20
Acquaintance	4.12 (3.10)	.16
Stranger	2.07 (4.47)	.08

calculations: the summing of the objective severity items (i.e., event, perpetrator, age and duration) and the summing of the subjective severity items (i.e., current and past impact of the event). The reason for this was that the aim of this study was to construct a weighted severity index that was as objective as possible. Therefore, we tested whether using objective severity parameters was indeed preferable to using subjective severity indices. In total, the fits of 6 models were tested. The choice for the specific objective severity indices was based on the findings by several studies that the nature of the specific events, closeness of the perpetrator, age of onset, and duration influences the severity of the traumatic events (APAPTF, 1996; Groves, 1999; Shelov & Hannemann, 1999).

Internal reliability of the ITEC subscales (aim 2) were assessed by calculating Cronbach's alpha: values above .90 were interpreted as excellent, >.80 as good, and >.70 as adequate. Correlations between the factors were calculated by means of Pearson correlations corrected for attenuation.

Inter-rater reliability (aim 3) between two raters blind to each other's ratings were calculated by means of ICC for dimensional scores, with a two-way random model, consistency type. Single measures reliabilities were used, because the second rater was only necessary to address inter-rater reliability, while standard scoring of the ITEC is done by a single rater. Values of ICC range between −1, which indicates perfect opposite inter-rater reliability, and 1.0, which represents perfect inter-rater reliability. According to Altman (1991) ICC values below .20 should be interpreted as poor, between .21 and .40 as fair, between .41 and .60 as moderate, between .61 and .80 as good and above .81 as excellent.

Convergent and divergent validity of the ITEC (aim 4) was assessed by calculating the Pearson correlations between the subscales of the ITEC and CTQ. It was statistically tested whether these correlation coefficients differed significantly from each other by means of the Corr.exe program (Gahlinger & Abramson, 1993–1999).

Criterion related validity (aim 5) was assessed by measuring the degree of agreement between the ITEC results and the information on childhood maltreatment obtained from patient files. Since the patient files did not reveal information on emotional and physical neglect separately, these subscales were combined, so that the criterion validity of four subscales was tested: sexual, physical, and emotional abuse, and (combined emotional and physical) neglect. Furthermore, since the patient files only contained information on whether a specific abusive act took place or not without further severity specifications, the unweighted severity scores of the ITEC were compared to the patient file information, in order to optimize comparison. History of maltreatment was routinely assessed at the clinics. A positive history of maltreatment was reported in patient records when maltreatment was present, but a negative history was not always reported when maltreatment was judged to be absent. For our purposes, when maltreatment history was not reported in the files, it was scored as absent. Sensitivity of the ITEC for detecting each of these four forms of maltreatment was calculated by dividing the number of patients that scored positively on both the ITEC and on patient file information, by the number of patients that scored positively on patient file information. Because the rates of false negative trauma histories in patient's files were probably high, specificity values were not calculated for this study, because they would be misleading. In order to assess whether each form of maltreatment reported in the ITEC uniquely predicts that same form of maltreatment as reported in the patient files, logistic regression analyses were executed by means of the enter method with patient file maltreatment as the dependent variable, and ITEC maltreatment scores as the independent variables.

Table 4
Goodness-of-fit indices of the ITEC ($n = 217$).

Severity parameters	Model	Number of factors	CFI	NNFI	SRMR	χ^2 (*df*)
Objective	SA PA EAN	3	.752	.739	.11	4338.57 (857)
	SA PA EA N	4	.904	.898	.086	2045.06 (854)
	SA PA EA EN PN	5	.905	.900	.086	2018.16 (850)*
Subjective	SA PA EAN	3	.878	.872	.10	2591.27 (857)
	SA PA EA N	4	.884	.877	.10	2511.55 (854)
	SA PA EA EN PN	5	.886	.879	.10	2468.79 (850)*

Note: CFI, Comparative Fit Index; NNFI, Non-Normed Fit Index; SRMR, Standardized Root Mean Square Residual; χ^2, Chi-square; *df*, degrees of freedom; SA, sexual abuse; PA, physical abuse; EAN, emotional abuse/neglect; N, neglect; EN, emotional neglect; PN, physical neglect.
* This model is significantly better than the other models at the $p < .001$ level.

Results

Prevalence traumatic experiences. Based on the ITEC prevalence, 91% of the total sample ($n = 217$) reported at least one experience asked for in the ITEC. Thirty-nine percent of the participants experienced at least one sexual abusive event, 68.7% at least one physical abusive event, 81.11% at least one abusive emotional event, 60.4% at least one emotional neglect event, and 6.5% at least one physical neglect event. Furthermore, the severity of 90.3% of the participants for sexual abuse was low, medium for 7.4% and high for 2.3%. The severity of physical abuse was low for 79.7%, medium for 15.2%, and high for 5.1%. The severity of emotional abuse was low for 62.2%, medium for 27.6%, and high for 10.1%. Emotional neglect was in the low range for 76.5% of the participants, in the medium range for 20.3% and high for 3.2%. Finally, physical neglect was of low severity for 94.5% of the sample, medium severity for 4.1% and high severity for 1.4%.

Factor structure (aim 1). To address the first research question 6 models were tested; 3 models composed out of objective severity parameters, and 3 models composed out of subjective severity parameters. Goodness-of-fit indices are presented in Table 4 and reveal that, concerning the objective severity model, the five-factor model provided the best fit because it had the highest CFI and NNFI values, and testing of the Chi-square values and the associated degrees of freedom revealed a significant *p*-value, indicating that this five-factor model provided a better fit than the three- and four-factor solutions. The SRMR values of all subjective severity models exceeded the maximum level of .08, stressing the superiority of the objective severity models. In conclusion, these data reveal the best fit for the five-factor model with sexual, physical and emotional abuse, and emotional and physical neglect, replicating Study 1, and when severity scores are based on objective parameters. We also tested an unweighted model of the ITEC (i.e., merely summing the number of traumatic events a participant experienced without taking other severity parameters into account). Since results were slightly favorable for the weighted models (although differences did not always reach significance), and the main aim of this study was to determine *severity* of abuse, subsequent analyses are only given for the weighted models.

Table 2 shows the item loadings of the ITEC. In this five-factor model, item loadings range from .34 to .81 with a mean loading of .59. There was one item with a factor loading clearly smaller than .30 (i.e., "Many problems with the police in the family", item loading of .30).

Internal consistency and inter-correlations between subscales (aim 2). Internal consistencies of the ITEC are presented in Table 5. Cronbach's alpha values range from .58 to .89 with a mean of .79. The reliability for the physical neglect scale is inadequate, while the other scales display moderate to good reliability.

Table 5 depicts the inter-correlations between the ITEC factors (corrected for attenuation). Correlations between the victim scales are low to moderate and range from .39 to .77, with a mean of .51. In line with the pilot ITEC data, the highest correlations are found between the emotional abuse scale and the emotional neglect scale. Again, since the confidence interval ($\pm 2SE$) around the correlation estimates between these two subscales did not include 1.0, emotional abuse and emotional neglect do represent two distinct constructs (Anderson & Gerbing, 1988).

Table 5
Internal reliability of the subscales of the ITEC and factor inter-correlations between the ITEC subscales, corrected for attenuation ($n = 217$).

ITEC subscales	SA	PA	EA	EN	PN
SA	.89				
PA	.39	.88			
EA	.41	.74	.83		
EN	.52	.52	.77	.75	
PN	.30	.44	.44	.56	.58

Note: SA, sexual abuse; PA, physical abuse; EA, emotional abuse; EN, emotional neglect; PN, physical neglect; the figures on the diagonal represent internal consistency estimates of the subscales of the ITEC.

Table 6
Pearson correlations between the ITEC and CTQ subscales ($n = 133$).

ITEC					CTQ
subscales	*SA*	*PA*	*EA*	*EN*	*PN*
SA	**.80****	.26**	.30**	.29**	.29**
PA	.22*	**.67****	.44**	.39**	.50**
EA	.40**	.59**	**.54****	.50**	.53**
EN	.41**	.58**	.61**	**.67****	.72**
PN	.20*	.35**	.19*	.24**	**.46****

Note: SA, sexual abuse; PA, physical abuse; EA, emotional abuse; EN, emotional neglect; PN, physical neglect; bold figures indicate corresponding correlations between parallel subscales of ITEC and CTQ.

* $p < .05$.

** $p < .001$.

Inter-rater reliability (aim 3). Results showed excellent agreement between the raters for most subscales (ICC sexual and physical abuse = 1.00; ICC emotional abuse and neglect = .99; ICC witnessing physical abuse = .88; ICC witnessing emotional abuse = .96) and good agreement for the physical neglect scale (ICC = .72).

Convergent and discriminant validity (aim 4). Pearson correlations between the corresponding five factors of the ITEC and the CTQ are shown in Table 6. Both correlations between parallel and non-parallel subscales are shown. Correlations between parallel subscales vary between .46 and .80 (mean $r = .62$). The highest correlations were obtained for the parallel sexual abuse scales, and the lowest for the physical neglect scales. All correlations between the parallel subscales were highly significant, revealing clear and strong associations between all parallel ITEC and CTQ subscales. Extra support for the discriminant validity of the ITEC sexual and physical abuse scales and the physical neglect subscale was obtained by the fact that despite the (mostly) significant correlations between non-parallel subscales (ranging between .22 and .59), correlations were always lower than the correlations between parallel subscales, p's $\leq$002, with the exception of the physical neglect scales of the ITEC and CTQ and the relationship between physical abuse of the CTQ and physical neglect of the ITEC. Correlations between emotional abuse and physical neglect and non-corresponding scales, however, were not markedly lower than the correlations between their parallel subscales, p's > .08, except for the relationship between the emotional neglect scales of the ITEC and CTQ and the relationship between sexual abuse of the CTQ and emotional neglect of the ITEC yielding less support for the discriminant validity of the ITEC' emotional abuse and physical neglect subscales.

Criterion related validity (aim 5). Childhood history of maltreatment was indicated as positive in the ITEC for 92.16% of the 51 subjects. Table 7 demonstrates the percentage of corresponding and non-corresponding information of the ITEC and the patient files. Correspondence between the ITEC and patient files ranged between 58.82 and 78.48% (both present summed with both absent). Fifteen to 39.22% of the disagreement between the interview and patients records can be ascribed to maltreatment being detected with the ITEC but not reported in the records. In 1.96–9.8% of the cases, maltreatment was mentioned in the patient files, but not detected by the ITEC. Thus, the ITEC detected almost all maltreatment found in the records, but approximately 25% of the maltreatment detected with the ITEC was not mentioned in the patient files. Sensitivities of the ITEC subscales were excellent, ranging from .82 to .96 (see Table 7).

Results of the logistic regression analyses indicated that sexual abuse in the patient file was only predicted by the ITEC sexual abuse subscale, *Wald* (1) = 9.11, $p = .003$, $OR = 4.88$. Likewise, physical abuse in the patient file was only predicted by the ITEC physical abuse subscale, *Wald* (1) = 5.59, $p = .02$, $OR = 4.55$, and neglect in the patient file was only predicted by the ITEC neglect subscale, *Wald* (1) = 6.75, $p = .009$, $OR > 10$. In contrast, emotional abuse in the patient file was not predicted by the emotional abuse scale of the ITEC, *Wald* (1) = .39, $p = .53$, $OR = .72$, nor by any of the other ITEC subscales.

Table 7
Agreement in percentage between abuse reportage in the ITEC and in the patient file records ($n = 51$).

	Sexual abuse	Physical abuse	Emotional abuse	Neglect
ITEC present, file present	27.5	52.94	56.86	47.06
ITEC absent, file absent	50.98	5.88	3.92	23.53
ITEC present, file absent	15.69	39.22	33.33	19.61
ITEC absent, file present	5.88	1.96	5.88	9.8
Percentage agreement[a] ITEC	78.48	58.82	60.78	70.59
Sensitivity ITEC[b]	–	.96	.91	.83

[a] Sum of 'ITEC present, file present' and 'ITEC absent, file absent.

[b] Sensitivity of the sexual abuse subscale could not be calculated because there were no patient charts with positive sexual abuse scores.

General discussion

To our knowledge, this is the first validation study of a trauma interview for childhood events to examine so many different aspects of reliability and validity. The findings provide initial support for the reliability and validity of the ITEC. A five-factor model consisting of sexual, physical and emotional abuse, emotional and physical neglect underlay the maltreatment reports when only victimization items were included in Study I. When several new items were added to the ITEC (Study II), the best fit was again provided by a five-factor model. Further factor analyses revealed that summing objective aspects of the abusive events (i.e., severity of the abusive event, closeness of the perpetrator, age of onset and duration) is the best way to express the severity of maltreatment. All five subscales of the ITEC demonstrated moderate to excellent internal consistencies, with the exception of the neglect subscales. Inter-correlations between the five ITEC factors were moderate, which shows that although different types of abuse often co-occur, these scales do represent sufficiently distinct entities. Furthermore, the ITEC showed good to excellent inter-rater reliabilities of the different subscales. Additionally, high correlations with the corresponding subscales of CTQ (Bernstein et al., 1997, 2003; Bernstein & Fink, 1998) were obtained, indicating good convergent validity. Finally, criterion validity was assessed by comparing the presence of maltreatment as mapped by the ITEC with patient file information. Data indicated that the ITEC's sensitivity was excellent, and sexual and physical abuse and neglect were uniquely predicted by their scores on their parallel ITEC subscales. This was not the case for emotional abuse.

Overall, the psychometric quality of the emotional abuse and the physical neglect scales appeared markedly lower than that of the other subscales. First, regarding emotional abuse, this emerged in a moderate internal reliability of the subscale, lower discriminant validity of this scale visible in lower unique correlations with corresponding CTQ subscales, and the fact that emotional abuse as assessed with the ITEC did not uniquely predict the presence of emotional abuse in the patients' records. The lower reliability of emotional abuse might have been due to a lack of clarity in our definition of emotional abuse since we, unlike some other studies (e.g., Bifulco, Moran, Baines, Bunn, & Stanford, 2002; Moran et al., 2002), did not differentiate psychological abuse (sadistic form of coercion) from antipathy (hostile and critical parental behavior), while these two constructs might represent different forms of emotional abuse. The low item loading of the police-item might have reduced the internal consistency of the emotional abuse scale too; the police is typically called for issues related to physical threat so that despite the emotional impact on a child, it might also be a marker of physical abuse. Thus, the emotional abuse scale of the ITEC needs further refinement. Second, the lower psychometric quality of the physical neglect scale was reflected in inadequate internal reliability. It could be speculated that physical neglect is less common in the Netherlands than in the USA, because relatively few people in the Netherlands live in extreme poverty (Wollf, Rutten, & Bayens, 1992). Nonetheless, given the reasonable convergent validity of the physical neglect scale with the CTQ and the fact that the inadequate reliability of this subscale is likely to be due to this subscale only containing two items, we think that including more physical neglect items would improve this subscale's reliability. Possible candidates for additional physical neglect items are denying someone medical care, failure to support the family financially, failure to provide regular meals, and failure to assist with bathing or grooming.

Although the model fit of the subjective severity indices (past and present experienced impact of the trauma) were poorer than that of the objective indices, this does not diminish the value of these subjective indices for descriptive purposes. It can be informative to compare subjective with objective severity indices between pathological subgroups. For example, it could be possible that in patient groups high in denial (e.g., forensic patients) correspondence between objective and subjective severity parameters are low. Therefore, we suggest object severity scores should be interpreted separately from subjective scores, because summing objective and subjective severity indices increases the chance on tautological conclusions due to differences in appraisal between groups.

The presence of maltreatment cases detected by the ITEC that went unreported in the patient files indicates that the ITEC is more sensitive in detecting maltreatment history than standard intake procedures. This supports the incremental value of the ITEC in clinical practice. Future studies should test whether the CTQ is equally effective as the ITEC in detecting child maltreatment when compared to the patients' charts.

There are several concerns to the external validity of the present study.

First, some of the abusive experiences measured by the ITEC were infrequently reported by the present sample, for example, having been cut with a knife or burned by someone, and the items for witnessing sexual abuse. Consequently, the contribution of the ITEC to the valid assessment of witnessing childhood maltreatment is unclear at this moment because no analyses could be conducted. These events however may be more common in other populations, or may have important clinical correlates. We have decided to retain these items until we can determine their base rates in other samples, and investigate their clinical utility. Thus, future research should focus on the development of inventories of witnessing abuse. Second, there was a gender imbalance in the study group of Study II, which limits generalization to male samples. Third, although the total sample of this study was diverse and drawn from different populations, some research questions were tested in smaller subsamples. More specifically, inter-rater reliability was only tested in patients from community mental health care centres and criterion validity only in patients from community mental health care centres and TBS clinics. Consequently, findings on these research questions cannot be generalized to the whole spectrum of patients.

Other limitations of the current study have to do with the internal validity of the ITEC. First, while there was high agreement among raters as to the severity of different types of abusive events, rating them according to severity is a matter of subjective judgment. For example, giving hitting someone a severity score that is twice as high as that of throwing an

object at someone implies hitting someone is twice as severe. Clearly, this ratio is based on an assumption that cannot be tested objectively. Second, validating an instrument like the ITEC with patient records has inherent methodological problems. It has been repeatedly shown that patient records contain a high percentage of false negative trauma reports, leading to artificially low rates of specificity, when compared with trauma reports obtained by more systematic means, such as structured interviews. For this reason, we chose not to compute specificities for the ITEC in our study. Not surprisingly, the ITEC revealed several instances of maltreatment that had been missed in the clinical record. On the other hand, there were a number of cases of abuse that had been reported in the clinical record that were missed by the ITEC. These may have been real false negatives in the ITEC, or may instead have resulted from inaccurate clinical judgments, i.e. clinicians who incorrectly determined that maltreatment was present. Thus, the sensitivities for the ITEC reported in this study, though very high, may still underestimate the actual capacity of the instrument for detecting maltreatment.

Finally, this study raises some clinical concerns. The reasonably high level of agreement between the ITEC and the CTQ can also be interpreted in favour of the use of questionnaires, since it suggests comparable results on childhood maltreatment history can be obtained with a questionnaire that is less time consuming to administer. On the other hand, interviews like the ITEC provide the opportunity to ask follow-up questions and gather detailed information that is not possible with a questionnaire. Moreover, interviews can be scored using methods that are less dependent on the judgment of the interviewees themselves, making them potentially less vulnerable to biases such as socially desirable responding. Furthermore, because of the limited psychometric qualities of the emotional abuse and neglect subscales, these scales can only be used for research purposes, but cannot be recommended for clinical use at this moment.

Further studies will be required to refine the ITEC scales that performed less well (i.e., emotional abuse and physical neglect), and to cross-validate the current findings in other clinical and non-clinical groups. Cross-cultural comparisons will also be necessary with other linguistic, national, and ethnic groups (e.g., native English speakers). Cultural differences might cause some cultures to consider the inclusion of hitting someone in the physical abuse scale of the ITEC as overly inclusive. Thus, the validity of this item can depend on the culture. Nevertheless, this item was incorporated in the ITEC because corporal punishment does have a negative impact on the child's development (Koenen, Moffitt, Caspi, Taylor, & Purcell, 2003; Teicher, Glod, Surrey, & Swett, 1993) and increases the chance that a child will use physical means in conflicts later in life (Strassberg, Dodge, Pettit, & Bates, 1994).

In conclusion, our findings support several aspects of the ITEC's reliability and validity, including its factorial validity; internal consistency reliability; convergent and discriminant validity with the CTQ; and criterion validity with therapists' trauma reports. Additionally, our findings provide empirical support for a scoring system that combines objective indicators of maltreatment severity. To our knowledge, the ITEC is the first childhood maltreatment instrument to have been validated in such a comprehensive manner. As an interview, it may improve upon self-report questionnaires in the ability to assess true presence of childhood maltreatment because of the lack of subjective appraisal and the possibility to probe and clarify. The ITEC provides broad assessment of maltreatment experiences, including both abuse and neglect. Taken together, these findings suggest that the ITEC is a promising new instrument for brief yet comprehensive assessment of childhood maltreatment.

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