

# **Reactions of Adolescents to Traumatic Stress questionnaire (RATS)**

User's Manual

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## Acknowledgements

This manual was not possible without the openness, trust, and willingness of the young people who filled in the questions of the questionnaire. I owe them a great debt. I am also thankful for the cooperation of the schools, reception centers and all of the other organizations that made it possible to administer the questionnaire. I also thank all of the students that have helped me over the years in the data collection process. I would like to thank my colleagues from De Vonk; Wim Kleijn, Trudy Mooren, Maartje Schoorl and Odile Swagemakers, my colleagues from CED Rotterdam; Willem de Vos and Rianne Doeleman and Ilse Derluyn from the University of Ghent for allowing me to use their data for constructing the manual. I want to especially thank Rob Banning, my husband, for his willingness to proofread the Dutch manuscript and to Marieke Barnhoorn who helped with the English translation. I thank Centrum '45 for all of the support I received in my work. I thank Stichting Achmea Slachtoffer en Samenleving and Zorg Onderzoek Nederland for their financial support. In conclusion, I thank Liesbeth Eurelings-Bontekoe and Philip Spinhoven for their support and supervision during this long and sometimes very difficult journey.

Tammy Bean

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## **1. Introduction: Reactions of adolescents to traumatic stress**

There are a limited number of reliable and valid diagnostic instruments that can be used with refugee adolescents to measure psychosocial problems (Kouratovsky, 2002). This is the main reason for the development of The "Reactions of Adolescents to Traumatic Stress" (RATS) questionnaire for refugee adolescents (RATS). The questionnaire should be administered with the goal of screening adolescents that are at risk for developing Posttraumatic Stress Disorder (PTSD).

The known literature on this topic has provided us with a depiction of the prevalence rates of psychosocial symptoms that are reported by refugee adolescents (Boothby, 1988; Felsman, Leong, Johnson & Felsman, 1990; Masser, 1992; Sack, Clarck, Him, Dickason, Goff, Lanham & Kinzie, 1993; Macksoud & Aber, 1996; Miller, 1996; Veer, van der, 1998; Sourander, 1998; Becker, Weine, Vojvoda & McGlashan, 1999; Berthhold, 1999). The most frequently reported symptoms are somatic complaints, anxiety, depression, and posttraumatic stress reactions. These symptoms are reported by the adolescents themselves, by their parents and by important others such as their teachers. Caregivers often report a lower prevalence of internalizing problems than the adolescents themselves. It may be difficult for caretakers; teachers and professional caregivers to determine to what extent the adolescents suffer from posttraumatic stress reactions. That is why it is important that adolescents should be able to inform adults in a reliable and valid way, that they are experiencing emotional distress.

The witnessing or experiencing of a stressful or traumatic event is the first criterium (A) which needs to be met, according to the DSM-IV (APA, 1994), if Posttraumatic Stress Disorder (PTSD) is to be diagnosed (appendix 1). Literature on this topic has shown that experiencing catastrophic stress (such as war, an earthquake (Pynoos, Goenjian, Tashjian, Karakashian, Manjikian, Manoukian, Steinberg & Fairbanks, 1993), fire (Green, 1991), kidnapping (Terr, 1983), sexual abuse/rape (Briggs & Joyce, 1997), physical abuse (Roth, Newman, Pelcovitz, van der Kolk & Mandel, 1997) or a combination of daily stressors (such as relationship problems, bereavement, miscarriage (Burstein, 1985; Helzer et al. 1987; Solomon & Canino, 1990)) can cause psychological problems. Research has also shown that qualitative factors such as the intensity, duration of exposure and/or frequency of exposure are important factors in determining the effect of stressful life events. Experiencing intense reactions of fear, helplessness or revulsion form the second part of the first criterium (A) of a PTSD defined in the DSM IV (APA, 1994). Certain research (Kuterovac, Dyregrov & Stuvland, 1994; Macksoud & Aber, 1996; Sack et al., 1996; Almqvist & Brandell-Forsberg, 1997; Husain, Nair, Holcomb, Reid, Varga & Nair, 1998; Paardekooper, de Jong & Hermans, 1999; Thabet & Vostanis; 1999; Papageorgiou, Frangou-Garunovic, Ioranidou, Yule, Smith & Vostanis, 2000) conducted with refugee children and adolescents has shown a strong relationship between the number of stressful life events and psychopathology (dose-effect relationship).

This questionnaire should not be used alone (without other instruments and information from other sources) to make a complete diagnosis. It is meant to be used with the SLE (Bean, Eurelings-Bontekoe, Derluyn & Spinhoven, 2004b) to determine if an adolescent has experienced a traumatic event in which they could be having posttraumatic reactions to. The questionnaire should be used for screening purposes to indicate which adolescents (between the ages of 12 and 18 years) are at risk for the development of psychopathology. The use of many different kinds of instruments/tests and observations are required to make a thorough and accurate diagnosis. It is important that significant adults in the lives of the adolescents are also asked to report on the behavior and emotional distress of an adolescent.

The questionnaire is suited for making a quick inventory of symptoms experienced by refugee adolescents. The questionnaire can be used by psychologists, psychiatrists, school psychologists, school doctors, etc. who are capable of professionally assessing the well-being of adolescents. Professional in the mental health fields with experience in using standardized diagnostic techniques may also use this questionnaire. The questionnaire can also be used in a research setting and for the monitoring of symptoms during a specified period. In all settings, one must be aware that the questionnaire may trigger emotional distress. The questions can trigger disturbing memories. Follow-up care should be arranged prior to the administration of the questionnaire. The integrity of the adolescents must be protected at all times.

It was necessary to make certain modifications to the questionnaire to make it both “adolescent friendly” and “multi-cultural”. Instead of using only words for the rating scale, use has been made of colored circles that increase in size. The items of the questionnaire have been arranged in the same order as the criteria of the PTSD diagnosis of the DSM-IV (APA, 1994). Five of the 17 PTSD criteria from the DSM-IV, specifically B3, C1, C5, D1 and D2, have been split into two items to clarify which stress reactions the adolescent is experiencing. Items from other questionnaires such as the Self-inventory Checklijst (SIL) (Hovens, Bramsen & van der Ploeg, 2000), Impact of Events Lijst-R (IES-R) (Weiss & Marmar, 1997) and the UCLA PTSD Index for DSM-IV (Pynoos, Rodriguez, Steinberg, Stuber & Frederick, (1998), have also been split in the same way to measure posttraumatic stress reactions that are defined in the DSM-IV (APA,1994).The items were composed using the “Vocabulary List for 12 to 15 year olds” (Projectbureau OVB Rotterdam), to make the questionnaires suitable for the reading level of this population. The items are as short as possible and are written for a primary level of reading. All language versions are bilingual, the foreign language in the first column and English in the second column. The questionnaires are available in 19 different languages: Dutch, English, French, Russian, Arabic, Amharic, Albans, Mongols, Badini, Farsi, Dari, German, Turkish, Somali, Portuguese, Spanish, Servo-Croatian, Chinese (Mandarin), and Soerani. Adolescents have the opportunity to read and answer the questions in their native language.

Earlier research has shown that refugee adolescents have a limited concentration span (Bean, 2000; Vervuurt & Kleijn, 1997). The time required to complete the questionnaires should be limited. Questionnaires yield less diagnostic information than extensive structured interviews; however, they are not as intrusive. Questionnaires have been proven to be of practical value with cultural diverse population groups.

The main objective of using this questionnaire would be to identify possible traumatic stress reactions of refugee adolescents between the ages of 12 and 18 years. The range of psychosocial symptoms of refugee adolescents requires a broad diagnostic examination to establish a thorough and complete diagnosis.

## **2. Psychometric properties of the Reactions of Adolescents to Traumatic Stress (RATS)**

### **Reactions of Adolescents to Traumatic Stress (RATS)**

The RATS is intended to be used to gain insight into whether an adolescent might be suffering from a PTSD. The RATS should be administered in combination with the SLE. Each item was constructed so that the questionnaire can be used to measure the reactions of adolescents to several types of stressful life events. The checklist consists of 22 items that are derived from the 17 criteria (B, C and D) of PTSD as found in the DSM-IV.

During a master's thesis project, the RATS was developed for use with adolescents from diverse cultures who did not speak Dutch as their mother tongue (Bean, 2000). School psychologists administered existing PTSD questionnaires during regular psychological assessment. The school psychologists found the questionnaires to be too difficult for the adolescents to understand (even when a translator was used). That is why it was necessary to construct the RATS by choosing and formulating items very carefully so that they would be comprehensible for refugee adolescents. The items of the RATS were inspired by several PTSD questionnaires such as the SIL (Hovens, Bramsen & van der Ploeg, 2000), Impact of Events Lijst-R (IES-R) (Weiss & Marmar, 1997) en de UCLA PTSD Index for DSM-IV (Pynoos, Rodriguez, Steinberg, Stuber & Frederick, 1998). The RATS consists of three different clusters; intrusion, numbing/avoidance and hyperarousal. A short description of the different clusters of the RATS is given below. In parentheses is designated the DSM-IV PTSD criteria which corresponds with the item.

### **Intrusion**

This cluster consists of the B criteria of PTSD from the DSM-IV (the traumatic events are persistently re-experienced in one or more ways).

1. I think often of the event(s) even if I don't want to. (B1)
2. I have bad dreams or nightmares of the event(s). (B2)
3. I have the feeling that the event(s) is happening all over again. (B3)
4. I feel afraid or sad (upset) if I think about the event(s). (B4)
5. I find myself sometimes acting like I did at the time of the event(s). (B3)
6. When I think about the event(s), I have strong feelings in my body. (B5)

### **Numbing/Avoidance**

This cluster consists of the items of the C criteria (persistent avoidance of stimuli associated with the trauma or numbing of the general responsiveness)

7. I try not to think or to talk about the event(s). (C1)
8. I try to push away my feelings about the event(s). (C1)
9. I try to stay away from people, places or things that remind me of the event(s). (C2)
10. I have forgotten important things about the event(s). (C3)
11. I feel all alone. (C5)
12. I do not feel close to the people around me. (C5)
13. I have trouble expressing my feelings. (C6)
14. I am not interested in things like sports, friends, school, and family. (C4)
15. I do not think positively about my future. (C7)

### **Hyperarousal**

These items concern the D criteria of PTSD (persistent increase of arousal/irritability).

16. I have trouble falling asleep. (D1)
17. I have trouble staying asleep or I wake up too early. (D1)
18. I have trouble concentrating or paying attention. (D3)
19. I am alert. (D4)
20. I startle easily. (D5)
21. I often have arguments with others. (D2)
22. I have angry outbursts. (D2)

### **3. Short description of the researched populations**

#### **3.1. Unaccompanied refugee minors research population**

The national and longitudinal research project "Alleenstaande Minderjarige Asielzoekers en de GGZ (Unaccompanied refugee minors and Dutch Mental Health Care)" (2001-2004) was conducted among unaccompanied refugee minors living in The Netherlands and their guardians, teachers and among professional mental health care providers. The goal of the project was to determine the level of psychological distress of unaccompanied refugee minors, their need for mental health care, the availability of mental health care for this group and, finally, the association between all of these factors. The results of the research project give insight into the way accessibility of professional mental health care can be improved for unaccompanied refugee minors.

The process of screening, diagnosing, admission, and treatment can be facilitated by creating a way to recognize high-risk groups within the population. A secondary aim of this research project was validating and standardizing a screening instrument for this population group.

Great care was taken in the design of this research project. Prior to the start of the project, 24-hour crisis care was arranged at mental health care services throughout the Netherlands for unaccompanied refugee minors that might emotionally decompensate as a direct result of participation in this research project. There was no need to make use of the pre-arranged crisis care. Unaccompanied refugee minors were only allowed to participate in this project after both they themselves and their legal guardians had given written permission for participation. Large amounts of resources were required to compose a representative population group. 1103 unaccompanied refugee minors participated in this research project between January 2002 and April 2003. 499 adolescents completed the questionnaires for a second time in the period between September 2003 and December 2003. Approximately 10% of the unaccompanied refugee minors between the ages 12 and 18, living in The Netherlands, participated in this research project (Nidos year report, 2002). This percentage was more than sufficient to gain a representative sample of the total unaccompanied refugee minors population group (Bean, 2002).

The adolescents completed the questionnaires in small groups (approx.10) during school hours. The school is a neutral environment; providing structure for the administration of questionnaires. A small group of adolescents completed the questionnaires at refugee reception centers or at the regional offices of the Nidos Foundation. If the adolescents did not attend school or were absent, the questionnaires were then completed at reception centers or at home. Three interviewers were always present to conduct a short interview and provide clarification for the questions.

	<b>Unaccompanied refugee minors research project*</b>	<b>Percentage</b>
<b>N</b>	1103	
<b>Sex</b>		
M	809	73%
F	292	27%
<b>Age</b>		
Mean Age	15, 81 years	
S. D.	1,97	
Range	8-21 years	
<b>Land of Origin</b>	<b>53 different countries</b>	
Angola	480	43%
Sierra Leone	105	10%
China/Tibet	90	8%
Guinea	86	7%
Afghanistan	35	3%
Congo/ Zaire	35	3%
Eritrea/Ethiopia	32	3%
Somalia	23	2%
Irmak/Iran	20	2%
Mongolia	15	1%
Turkey	15	1%
Other countries	165	15%

\*differences in number are the result of missing data

### 3.2. Belgium Newcomers Research at “Onthaalscholen” (referred to as the Belgium newcomers research in this manual)

Written by Ilse Derluyn, Department of Orthopedagogy, University of Gent

This doctorate research project was conducted by the Department of Orthopedagogy at the University of Gent (Belgium). The goal of this project was to gain insight into the prevalence rates of behavioral and emotional problems amongst foreign speaking, newcomer, minors, without the support of significant others. The setting was the ‘Newcomers classes- for non-Flemish speaking newcomers’ in the secondary education (11- to 18-year olds). In these classes, foreign-speaking adolescents can learn Flemish during a period of one full school year.

This project was conducted in the period between November 2002 and May 2003. Thirty-seven of the forty-two secondary schools with ‘Newcomers classes’ were asked to take part in this project. Three schools declined; 34 schools agreed to participate in the project. Information about the project was provided to the schools that took part in the project. The schools also received an informed consent letter to give to the parents of the young people who would take part in the study.

The research project took place in classical setting, during school hours. First, the goals and procedure of the project were explained. Informed consent forms were handed out in duplicate to each newcomer; one for the researcher to keep and one for the newcomer to keep. The latter gave pupils the possibility to contact the researcher for further explanations if necessary. Pupils could complete the questionnaires at their own pace and where possible in their own native language. The researchers’ presence (minimally two persons per class) provided the possibility for individual support of adolescents when needed. Completing the questionnaires usually took 1½ to 2 hours per class.

1294 foreign speaking newcomers completed the questionnaires. This is a large percentage of the total population of foreign speaking newcomers in Newcomers classes; the total number of pupils in ‘Newcomers classes- for non-Flemish speaking newcomers’ in the secondary education was 1341 on the 1<sup>st</sup> of October 2003 and 1982 on the 1st of June 2003 (F. Roekens, Department of Education, Ministry of the Flemish Community, personal announcements 03/07/2003).

	Belgium newcomers research*	Percentage
<b>N</b>	1294	
<b>Sex</b>		
M	683	54%
F	584	46%
<b>Age</b>		
Mean Age	15,41 years	
S.D.	1.88	
Range	10-26 years	
<b>Land van Origin</b>	111 different countries	
Morocco	180	14%
Ghana	135	11%
Turkey	120	9%
Angola	40	7%
Tsjetsjenia	38	3%
Bulgaria	37	3%
Iran	36	3%
Kosovo	32	2%
Former Yugoslavia	30	2%
China	28	2%
Poland	27	2%
Afghanistan	26	2%
Armenia	26	2%
Iraq	24	1%
Congo	23	1%
Albania	23	1%
Slovakia	20	1%
Somalia	19	1%
Other countries	422	33%

\*differences in number are the result of missing data



### 3.3. Belgium indigenous research

Written by Ilse Derluyn, Department of Orthopedagogy, University of Gent

Seventeen randomly chosen secondary schools (11 to 18 year olds), in five Flemish provinces, participated in the Belgium indigenous research project. The study-choice and distribution of these schools across the five Flemish provinces can be found in the table below. 617 adolescents completed the questionnaires.

This project was conducted in the period between January 2003 and May 2003. Information about the project was provided to the schools who participated in the study. The schools also received an informed consent letter to give to the parents of the young people who would take part in the study.

The research project took place in classical setting, during school hours. First, the goals and procedure of the project were explained. Informed consent forms were handed out in duplicate to each pupil; one for the researcher to keep and one for the pupil to keep. The latter gave pupils the possibility to contact the researcher if further explanations were desired. Pupils could complete the questionnaires at their own pace. The researchers' presence (minimally two persons per class) provided the possibility for individual support of adolescents when needed. Completing the questionnaires usually took half an hour per class

Each school received a short report of the findings at their school.

	Belgium reference research*	Percentage
<b>N</b>	617	
<b>Sex</b>		
M	336	55%
F	279	45%
<b>Age</b>		
Mean	16.46 years	
S.D.	1.92	
Range	13-21 years	
<b>Province</b>		
Antwerp	95	15%
Flemish-Brabant	65	11%
Limburg	71	12%
East -Vlaanderen	268	43%
West-Vlaanderen	118	19%
<b>Education</b>		
General secondary education	180	30%
Technical secondary education	301	50%
Trade secondary education	121	20%
<b>Land of origin</b>		
Belgium	604	99%
Other countries	2	1%

\* Differences in totals are the result of missing data

### 3.4. Dutch indigenous research

A secondary aim of the research project "Unaccompanied refugee minors and the Mental Health Care Services" was the validating and standardizing of the screening instrument for refugee and migrant adolescents in general, and specifically for unaccompanied refugee minors. It was important to have a representative group of indigenous Dutch adolescents, so we were able to compare the scores of the unaccompanied refugee minors. The prevalence rates of the psychological symptoms of the unaccompanied refugee minors can then be better placed in the correct context.

Thirteen secondary schools, scattered throughout The Netherlands participated in the Dutch indigenous research project, starting January 2004 and ending in February 2004. These schools had a limited number (approximately 10%) of foreign students. Schools were also approached if they had unaccompanied refugee minors who had already taken part in the study "Unaccompanied Refugee Minors and the Mental Health Care Services". Asking the schools that participated in the previous research project to participate in this project made the groups more comparable. Ten of the schools had taken part in the study "Unaccompanied Refugee Minors and the Mental Health Care Services".

Approximately 100 adolescents per school completed the screening instrument. The adolescents were between 12 and 21 years of age. Participation was voluntarily and anonymous and took place in groups of +/- 25. Prior to the administration of the questionnaires letters of approval were sent to the parents. Completing the questionnaires took roughly 15 minutes.

Each school received a short report of the findings at their school.

	Dutch indigenous research*	Percentage
<b>N</b>	1059	
<b>Sex</b>		
M	583	57%
F	442	43%
<b>Age</b>		
Mean	15.72 years	
S.D.	1.54	
Range	13-21 years	
<b>Province</b>		
South Holland	201	19%
North Holland	134	13%
Utrecht	102	10%
Gelderland	224	21%
Groningen	97	9%
Friesland	169	16%
Limburg	99	9%
Overijssel	33	3%
<b>Land of birth</b>		
The Netherlands	951	90%
Other countries (46 countries)	105	10%
<b>Native language</b>		
Dutch/dialect	885	84%
Other languages	169	16%

\* differences in number are the result of missing data

#### **4.1 Factor structure and Reliability**

The factor construct structure of the RATS was tested by means a confirmatory factor analyses of Simultaneous Components Analysis (SCA).

##### **Reactions to Traumatic Stress (RATS)**

The original 22 items of the RATS were divided into three clusters, based on B,D and C PTSD criteria clusters defined in the DSM-IV (APA, 1994). In order to determine the extent to which the clusters can be found in the research material, a confirmatory factor analysis was conducted with help of the Multiple Group Method (MGM). The Simultaneous Components Analysis (SCA) computer program was used in this process. For more information about the MGM-procedure, one can read Kiers (1990).

A Principal Component Analysis (PCA) of the correlation matrix, of the original 22 items of the RATS, yielded a three-component model that explained 45% of the variance for the total group of 1102 respondents. A MGM analysis with orthogonal rotation revealed that the three multiple group components explained 42% of the variance (a loss of 3%).

In table 4.1.1 the means, standard deviations, and component weights of the 22 items on the multiple group components are listed, as well as the percentage of explained variance per component in the MGM. The items in bold font are the highest loading in the addressed clusters (table 4.1.1). Each cluster had a minimal component weight of .27. The factor structure of the DSM-IV diagnosis for a PTSD for the URM population seems to be validated.

Separate MGM analyses were conducted on the Portuguese and French versions of the instruments. Due to the limited number of completed questionnaires in Chinese, English, Badini, Servo-Croatian, Albanese, Turkish, Soerani, Dutch, Arabic, Dari, Farsi, Amharic, Somali, Mongols and Russian, no individual MGM's could be conducted for these languages. One MGM Analysis was conducted for the total of these languages (see appendix). The three-factor model is also confirmed in all the separate MGM analyses per language group and population group (see appendix).

**Table 4.1.1**

<b>RATS</b>					
<b>(SCA)</b>					
<b>Item</b>	<b>M</b>	<b>S.D.</b>	<b>Component weights</b>		
<b>N=828</b>			<b>1</b>	<b>2</b>	<b>3</b>
<b>Intrusion</b>					
1. unintentionally thinking about the event	2.66	.96	<b>.80</b>	.45	.48
2. nightmares	2.44	.94	<b>.82</b>	.45	.55
3. feeling the event is happening again	2.09	1.01	<b>.73</b>	.39	.40
4. sad/scared	2.79	.97	<b>.79</b>	.49	.49
5. acting in the same way	1.68	.68	<b>.60</b>	.31	.36
6. feelings in the body	2.55	.97	<b>.77</b>	.46	.53
<b>Numbing/Avoidance</b>					
7. avoiding thoughts	2.39	1.15	.33	<b>.56</b>	.24
8. hiding feelings	2.46	1.61	.33	<b>.62</b>	.32
9. avoiding places/people	2.62	1.27	.37	<b>.58</b>	.31
10. forgetfulness with regards to event	1.70	.77	-.04	<b>.27</b>	.02
11. feeling alone	2.78	1.19	.54	<b>.61</b>	.49
12. no contact	2.01	1.03	.41	<b>.62</b>	.47
13. difficulty expressing feelings	2.39	1.06	.47	<b>.63</b>	.49
14. no interests	1.77	1.07	.02	<b>.36</b>	.14
15. not positive about the future	2.18	1.20	.26	<b>.50</b>	.30
<b>Hyperarousal</b>					
16. problems falling asleep	2.44	1.13	.58	.48	<b>.73</b>
17. trouble staying asleep or waking early	2.50	1.04	.51	.41	<b>.72</b>
18. difficulty concentrating	2.08	.89	.38	.39	<b>.66</b>
19. alert	2.45	1.07	.33	.38	<b>.52</b>
20. easily startled	2.40	1.07	.50	.43	<b>.65</b>
21. often arguing	1.41	.50	.18	.21	<b>.52</b>
22. outbursts of anger	1.55	.71	.26	.26	<b>.58</b>
Explained variance per component			5.71	4.74	5.20

**Inter-correlations**

Table 4.1.2 shows the inter-correlations. In table 4.1.2, all three correlations have a mean “effect size” of at least .50 and all three correlations are large (effect size > .50, Cohen, 1988). It can be concluded that the clusters are not independent of one another.

**Table 4.1.2**

	<b>Intrusion</b>	<b>Numbing/Avoidance</b>
<b>Numbing/Avoidance</b>	.57**	
	N=852	
<b>Hyper-arousal</b>	.65**	.61**
	N=875	N=864

Note : \*\* p < .001

## 4.2 Reliability

Reliability involves the extent to which some attribute is measured in a systematic and therefore repeatable way. Cronbach's alpha coefficient and the stability coefficient have been used to determine the reliability of the instruments described in this manual.

### Internal consistency reliability

The internal consistency reliability (Cronbach's alpha) of the RATS supports distinct clusters. Results can vary from 0 (no underlying correlation) to 1 (maximal correlation). An alpha between .6 and .8 is considered reasonable and an alpha of .8 or higher is considered good.

The reliability of all the items (total questionnaire) of the RATS is .88; this is a reasonably high alpha, despite the high degree of heterogeneity of the respondents. The alpha for the intrusion cluster is .85, for the numbing/avoidance cluster .69 and for the hyperarousal cluster .75 (see tables 4.2.1, 4.2.1a and 4.2.1b).

**Table 4.2.1**

<b>Alpha coefficients Unaccompanied refugee minors research</b>	<b>Alpha coeff.</b>	<b>M Inter-item r</b>	<b>Range item total r</b>
RATS total score	(N=828) .88	.25	.01-.66
RATS intrusion	(N=915) .85	.48	.45-.71
RATS numbing/avoidance	(N=895) .69	.19	.05-.48
RATS hyperarousal	(N=935) .75	.30	.35-.61

**Table 4.2.1a**

<b>Alpha coefficients Other researches</b>	<b>Belgium newcomers research</b>	<b>Belgium indigenous research</b>	<b>Dutch indigenous research</b>
RATS total score	(n=755) .88	(n=573) .90	(n=916) .89
RATS intrusion	(n=870) .81	(n=573) .82	(n=924) .81
RATS numbing/avoidance	(n=842) .74	(n=573) .76	(n=920) .77
RATS hyperarousal	(n=876) .73	(n=573) .76	(n=919) .77

**Table 4.2.1b**

<b>Unaccompanied Refugee Minors Alpha coefficients for each language version</b>			<b>Belgium newcomers Alpha coefficients for each language version</b>		
Language	N	RATS	Language	N	RATS
Portuguese	379	.87	Portuguese	33	.90
French	135	.85	French	56	.88
English	86	.86	English	156	.85
Chinese	74	.91	Chinese	28	.90
Arabic	17	.91	Arabic	31	.91
Dari	16	.87	Dari	*	*
Farsi	13	.90	Farsi	32	.84
Amhaars	16	.93	Amhaars	*	*
Somali	14	.93	Somali	*	*
Mongols	*	*	Mongols	*	*
Russian	23	.87	Russian	106	.86
Dutch	25	.81	Dutch	67	.88
Soerani	*	*	Soerani	*	*
Turkish	*	*	Turkish	115	.90
Albans	*	*	Albans	23	.90
German	*	*	German	17	.92
Spanish	*	*	Spanish	46	.81
Servo-Croatian	*	*	Servo-Croatian	16	.90

\* N. A. due to a shortage of completed questionnaires

## Stability

### Unaccompanied refugee minors research

The test-retest reliability of the RATS was determined in a sub-group of the unaccompanied refugee minor's population. 495 adolescents completed the RATS twice. The time interval between the first and second assessment was twelve months. The stability coefficients ( $r_2$ ) are all higher than .45 and show the RATS clusters to be reliable (see table 4.2.2).

Comparisons between the cluster means of the first and second assessment show no significant changes in the mean cluster scores for the second administration (see table 4.2.2a).

**Table 4.2.2**

Unaccompanied refugee minors research	Stability coefficients
RATS total score	(n=417) .64**
RATS intrusion	(n=438) .65**
RATS numbing/avoidance	(n=426) .46**
RATS hyperarousal	(n=447) .59**

Note : \*\* p < .001

**Table 4.2.2a**

Unaccompanied refugee minors research	N	Mean I	S.D. 1	Mean II	S.D. 11	T value	Sig	Effect size
RATS total score	417	49.29	11.45	49.09	11.55	.425	.67	.00
RATS intrusion	438	14.27	4.25	13.95	4.33	1.839	.07	.02
RATS numbing/avoidance	426	20.20	4.85	20.33	5.00	.516	.61	.01
RATS hyperarousal	447	14.73	4.28	14.80	4.01	.383	.70	.01

### **4.3 Validity**

The validity of an instrument or of a procedure is the degree to which an instrument measures that which it claims to measure. The validity of an instrument can be divided into three forms: 1.) content validity, 2.) construct and 3.) criterion-based validity. The validity of the RATS will be discussed in this section of the manual.

#### **Content validity**

Content validity is a measure of the relevance of the items with regard to that behavior which it aims to measure. The RATS measures the construct intrusion, numbing/avoidance and hyperarousal. There are two different ways in which we know that the content validity of the RATS is good. First, the choice of items to measure traumatic stress-related complaints is based on the expertise of clinicians and researchers with experience with traumatized individuals. Second, all items have been based on the three scales of the DSM-IV B, C, and D criteria for a PTSD. The DSM-IV is used internationally for the diagnosis of psychiatric patients.

#### **Construct validity**

Construct validity is a measure of the relationship between the instrument and variables that on the basis of theory are presumed to correlate with the measured variable. The RATS attempts to measure post-traumatic stress reactions. The factor analysis discussed earlier in this manual confirms the three-factor model of intrusion, numbing/avoidance and hyperarousal and indicates a good factorial validity. The research described in this manual is applicable for heterogeneous groups of adolescents. The constructs of intrusion, numbing/avoidance and hyperarousal have been confirmed for all groups. It can be concluded from the different research projects, described in this manual, that the constructs of intrusion, numbing/avoidance and hyperarousal are valid for many cultures.

Besides the RATS the following instruments were also administered to the different research groups:

1. Hopkins Symptom Checklist-37 for adolescents (HSCL-37A) (Bean et al., 2004a)
2. Stressful Life Events checklist (SLE) (Bean et al., 2004b)
3. Strengths and Difficulties Questionnaire (SDQ) (Goodman, 1997)

The relationships between the RATS clusters and other instruments can be found in Table 4.3.1

Based on theory the following relationships can be expected between the RATS clusters and the other mentioned clusters:

- 1.) A positive relationship between the total score of the RATS and the HSCL-37A's internalizing and anxiety clusters, SDQ's emotional problems cluster
- 2.) A positive relationship between the intrusion scale and the total score of the SLE (number of stressful life events a person has witnessed/experienced).

Table 4.3.1 shows the correlations between the RATS clusters, the HSCL-37A clusters and the total scores of the Unaccompanied refugee minors research project and the correlations between the RATS clusters, the SDQ clusters, the HSCL-37A clusters and the total scores of the Belgium newcomers research. The SDQ's emotional problems cluster and the scales internalization and anxiety of the HSCL-37A show strong positive correlations with the total scores of the RATS, as expected on the basis of theory. The relationship between the intrusion cluster and the number of experienced stressful life events is positive and significant.

**Table 4.3.1**

**RATS correlation with other instruments – Unaccompanied refugee minors research**

	HSCL total	HSCL int.	HSCL ext.	HSCL anxiety	HSCL depression	SDQ total	SDQ emo.	SDQ behav.	SDQ hyper.	SDQ rel.	SDQ proso.	SLE total
RATS total score	(n=900) .77**	(n=897) .79**	(n=910) .35**	(n=908) .72**	(n=895) .77**	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	(n=939) .31**
RATS intrusion	(n=921) .67**	(n=917) .71**	(n=934) .208**	(n=936) .66**	(n=915) .69**	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	(n=978) .28**
RATS numbing/avoidance	(n=905) .60**	(n=903) .61**	(n=914) .282**	(n=915) .52**	(n=900) .61**	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	(n=948) .24**
RATS hyperarousal	(n=921) .75**	(n=916) .74**	(n=937) .41**	(n=936) .69**	(n=914) .71**	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	(n=973) .26**

Note : \*\* p <.001

**RATS correlation with other instruments – Belgium refugee minors research**

	HSCL total	HSCL int.	HSCL ext.	HSCL anxiety	HSCL Dep.	SDQ total	SDQ emo.	SDQ behav.	SDQ hyper.	SDQ rel.	SDQ proso.	SLE total
RATS total score	(n=870) .66**	(n=854) .68**	(n=886) .33**	(n=867) .60**	(n=1105) .65**	(n=860) .52**	(n=856) .58**	(n=863) .24**	(n=862) .26**	(n=864) .29**	(n=865) .06	(n=912) .52**
RATS intrusion	(n=883) .56**	(n=867) .58**	(n=901) .23**	(n=880) .52**	(n=864) .55**	(n=873) .39**	(n=878) .51**	(n=878) .15**	(n=876) .13**	(n=879) .20**	(n=880) .08*	(n=930) .54**
RATS numbing/avoidance	(n=872) .53**	(n=855) .55**	(n=889) .25**	(n=870) .47**	(n=851) .54**	(n=860) .43**	(n=866) .47**	(n=865) .17*	(n=864) .20**	(n=867) .29**	(n=868) .19	(n=915) .44**
RATS hyperarousal	(n=882) .64**	(n=865) .64**	(n=899) .39**	(n=880) .56**	(n=862) .62**	(n=872) .55**	(n=878) .53**	(n=875) .35**	(n=875) .34**	(n=877) .25**	(n=878) -.00	(n=927) .38**

Note : \* p<.01; \*\* p <.001



### **Demographic information**

The differences between the means of the total scores on the RATS, of the unaccompanied refugee minors, were calculated for sex, age, family in The Netherlands, residential permit status, years at school, living situation, and resided time in The Netherlands. Based on theory the following relationships may be expected between the mean scores on the RATS and important demographic details:

1. Girls generally tend to internalize and the prevalence of depression is approximately twice as high for women as for men in many cultures. The mean scores of girls can be expected to be significantly higher than that of boys
2. Unaccompanied refugee minors experience a lot of uncertainty in their lives when they turn 18 (become a 'legal' adult) because their residence permit (in the Netherlands) is usually coupled on their age. The minors should (will) be deported after during 18 years of age in accordance with the law in the Netherlands and all of their governmental benefits are discontinued. It can be expected that the older unaccompanied refugee minors will have higher mean scores than the younger unaccompanied refugee minors.
3. Unaccompanied refugee minors living in the Netherlands with at least one relative will have lower mean scores than unaccompanied refugee minors without family in The Netherlands.
4. Unaccompanied refugee minors living in a residential children's home and receiving more personal supervision, will report lower mean scores than unaccompanied refugee minors living in large-scale reception centers and receiving little personal supervision.
5. The longer that unaccompanied refugee minors have resided in The Netherlands, the lower their mean scores on the RATS.
6. It can be expected that when unaccompanied refugee minors have certainty regarding their resident status, their mean scores will be lower than when they do not have certainty.
7. Unaccompanied refugee minors who have attended school for a longer period will have lower scores than unaccompanied refugee minors who have attended school for a shorter period.

In Table 4.3.2, the RATS is able to discriminate well between groups. Demographic characteristics clearly influence scores. Girls have reported significantly higher mean scores than boys. Adolescents with at least one relative living in The Netherlands (for example a brother or sister) have markedly lower mean scores than adolescents without any relatives in The Netherlands. Most of the unaccompanied refugee minors have a temporary residence permit or their asylum request is still being processed. The legal guardian of the minors provided this information. This research project has shown that there is no difference between adolescents in possession of a temporary resident permit and adolescents who do not yet have clarity over their status.

'Age' and 'living situation' are both important factors influencing the reporting of complaints. The older adolescents have reported significantly higher scores on the HSCL-37A than the younger unaccompanied refugee minors. Unaccompanied refugee minors who are guided and supervised on a daily basis, such as those living in foster care or residential children's home, report significantly less symptoms than unaccompanied refugee minors living in 'small living units' or in reception centers. The 'years at school' and 'resided time in The Netherlands' have a significant effect on the mean scores of the unaccompanied refugee minors population. Adolescents who have attended school for a period of more than nine years have reported significantly higher scores on the RATS than adolescents who have not yet attended school for a period of three years. Adolescents who have resided in the Netherlands for a short period of time (less than 1 year) have reported higher mean scores on the RATS than adolescents who have resided in the Netherlands for a period longer than two years.

In summary, the 'risk' profile of the unaccompanied refugee minors population consists of the following components: the female gender, older adolescents, residence in The Netherlands without a relative, residence in large-scale reception centers, short period of resided time in The Netherlands and more than 9 years at school. This 'risk' group reported the highest scores on the RATS. Tables showing the influence of the demographic characteristics, for the other research populations, on the total scores of the RATS can be found on pages 27, 28 and 29.

Table 4.3.2

Unaccompanied refugee minors research

<b>RATS Total scores</b>	<b>N</b>	<b>Groups</b>	<b>Mean</b>	<b>S.D.</b>	<b>T</b>	<b>Sig.</b>	<b>Effect size</b>	
<b>Sex</b>	244	Girls	51.06	11.09	3.42	p<.00	.52	
	693	Boys	48.10	11.81				
<b>Relatives in The Netherlands</b>	207	With relatives	46.57	11.84	3.92	p<.00	.31	
	565	Without relatives	50.16	11.26				
<b>Residential permit status</b>	186	No clarity	49.10	11.97	.885	p=.38	.10	
	144	Temporary residence permit	47.96	11.07				
<b>RATS Total scores</b>	<b>N</b>	<b>Groups</b>	<b>Mean</b>	<b>S.D.</b>	<b>F</b>	<b>Sig.</b>	<b>Contrast</b>	<b>Effect size</b>
<b>Age</b>	174	1. 14 years and younger	42.08	10.88	31.78	p<.00	4>3>2>1	1-2= .46
	196	2. 15 years	47.01	10.44				1-3= .91
	396	3. 16 years	50.27	11.37				1-4= .91
	336	4. 17 and older	52.32	11.42				2-4= .48
								3-4= .18
				2-3= .29				
<b>Living Situation</b>	41	1. Family/foster care	44.24	10.99	23.79	P<.00	1,2<3<4	
	124	2. Residential children's home	43.00	10.38				1-3= .44
	445	3. Small living unit	49.15	11.29				1-4= .55
	458	4. Reception center	50.83	11.98				2-4= .67
								3-4= .14
				2-3= .44				
<b>Years at school</b>	369	1. 1 - 5 years	47.66	11.29	4.23	P<.05	1<3	1-3= .26
	297	2. 6 - 8 years	49.59	11.60				
	172	3. 9 - 13 years	50.70	11.92				
<b>Residence in The Netherlands</b>	69	1. up to 6 months	52.49	10.25	3.90	P<.01	1<2<5	1-2= .28
	314	2. 7-12 months	49.42	11.29				1-5= .55
	396	3. 13-18 months	48.94	11.60				2-5= .30
	184	4. 19-24 months	48.94	11.79				
	140	5. longer than 2 years	45.95	12.71				

**Criterion-Related Validity**

Criterion-based validity is the relationship between the test score and other important external indicators of the same attribute, such as utilization of mental health care. Criterion-based validity also shows whether the test score can be used to predict future behavior or to diagnose symptoms. Usually a standardized diagnostic interview is used in combination with questionnaires as a criterion to determine the presence and severity of psychopathology in adolescents. In this research project, it was not possible to administer a standardized interview with the unaccompanied refugee minors. In this manual, six indicators have been used as criteria; 1.) number of self-reported stressful events, 2.) self-reported need for psycho-social help, 3.) need for professional mental health care for the unaccompanied refugee minor; evaluated by the legal guardian, 4.) need for professional mental health care for the unaccompanied refugee minor; evaluated by the teacher, 5.) self-reported utilization of professional care for psychosocial symptoms and 6.) referral to mental health care services by a legal guardian.

Several studies have shown the number of experienced stressful life events to be a good predictor of the degree of psychopathology (Bean 2000.) Adolescents who reported having experienced eight or more stressful life events scored significantly higher on the RATS than adolescents who reported having experienced less than eight stressful life events.

The criteria “referral” and “utilization of mental health care” are important in the evaluation of the predictive capacity of an instrument with regard to psychopathology. For this reason, unaccompanied refugee minors themselves, their guardians and their teachers have been asked to evaluate the unaccompanied refugee minors need for professional mental health care. The unaccompanied refugee minor was also asked if he/she had seen a professional mental health care giver and the legal guardian was asked if he/she had referred the unaccompanied refugee minor to mental health care services. Table 4.3.3 shows that the RATS can discriminate well, consistently, and significantly between unaccompanied refugee minors that do have a need for psychosocial help and unaccompanied refugee minors that do not have a need for psychosocial help.

**Table 4.3.3**

	N	Groups	Mean	S.D.	F	Sig.	Contrasts	
<b>Number of stressful life events</b>	14	1. 0 events	38.00	15.68	31.73	p<.00	4>3>2>	1-2= .40
	134	2. 1-3 events	43.10	12.35				1-3= .97
	480	3. 4-7 events	48.44	10.60				1-4= 1.33
	315	4. 8-13 events	53.31	11.31				2-4= .88
								3-4= .45
							2-3= .49	
<b>Unaccompanied refugee minors need for help: self evaluated</b>	531	1. Psychosocial need for help	52.11	11.02	52.49	p<.00	1<3<2	1-2= .90
	166	2. No need for help	42.18	11.21				1-3= .33
	155	3. Uncertain	48.55	10.51				2-3= .59
<b>Unaccompanied refugee minors need for help: guardian evaluated</b>	89	1. Need for psychosocial help	55.02	10.84	5.51	p<.00		.65
	389	2. No need for psychosocial help	47.90	11.03				
<b>Unaccompanied refugee minors need for help: teacher evaluated</b>	109	1. Need for psychosocial help	52.40	11.76	3.77	p<.00		.43
	281	2. No need for psychosocial help	47.47	11.56				
<b>Use of care as indicated by the Unaccompanied refugee minor</b>	112	1. Use of psychosocial care	51.80	15.87	2.09	p<.05		.17
	668	2. No use of psychosocial care	49.33	14.60				
<b>Referral by legal guardian</b>	56	1. Referral	56.84	11.71	5.42	p<.00		.77
	427	2. Non referral	48.33	10.96				

## **5. Assessment procedure**

The administer(s) of the questionnaire should always be present during the testing of an adolescent. The questionnaire can be administered individually or in a group situation (there should always be at least two administrators present when there are more than two adolescents). An optimal testing area is one where no interruptions or disturbances will occur. An adolescent should not be set under time-pressure to finish the questionnaire. If the questionnaire is completed too quickly, the results could be unreliable. During the administration of the questionnaire, the privacy of an adolescent should be a top priority. Adolescents in a group/classroom situation should be seated in a way that they will not be able to help each other complete the questionnaires or see each other's response to the questions. The adolescents should be told that this is neither a test that they will receive a grade on, nor a collection of information for the police or IND. In these situations the privacy of the refugee adolescents is not always respected. Written permission is desired because it gives the adolescents rights as to what happens with their personal information.

The time needed for an individual administration varies between thirty and forty minutes. In a classical (research setting) administration the time needed for an administration is one class-hour (generally 15 minutes). The time needed to complete the questionnaire largely depends on the reading and language abilities of an adolescent. The questionnaire can be filled in with a pencil or pen.

Always ask an adolescent to first read the instructions. Then give an explanation over the rating scale. A short verbal explanation is necessary because adolescents often do not read the instructions or do not read the instructions well. Filling in questionnaires can be foreign to an adolescent that comes from a non-western country. The difference between 'a little', 'much', and 'very much' is not always a clear concept in another culture. The colored balls which increase in size can be used when explaining how to fill in the RATS. Here is an example of how one can explain the rating system on the RATS; " You see four balls in the right corner of the questionnaire. The green ball means that you have **"not"** been bothered by what the question is talking about during the last few weeks, the slightly larger yellow ball means that you **have been bothered "a little"**, the orange ball means then you have been bothered **"much"** and the big red ball means that you have been bothered **"very much"**. Now take a look at question number 16. You see that the sentence says 'I have trouble falling asleep'. If you do not have trouble falling asleep then fill-in the circle under the small green ball, if you have are bothered 2 or 3 times in a week fill-in the circle under the slightly bigger yellow ball. If you are bothered 4 or 5 times in the week, fill-in the circle under the orange ball. If you are bothered everyday or almost everyday, then you should fill-in the circle under the big red ball." Always point to the ball you are talking about and demonstrate how the adolescent should 'fill-in' the circles. This seems very logical and would be very common to western adolescents, however for foreign and non-western adolescents thinking of your feelings in a quantitative way can be very new. Use several questions if needed to explain the rating system. It is crucial that the adolescents understand what they are expected to do and how it should be done to make a good assessment.

The SLE (Bean et al., 2004b) has a dichotomous rating scale (yes/no). This makes the explanation for this questionnaire simpler. For example, "This is a questionnaire about different things that can happen to a young person in life that are not pleasant to experience. If you have experienced an event on this list, you can fill-in the circle under the 'yes'. If you did not experience the event, then you can fill-in the circle under the 'no'. If you have experienced an event that does not appear on the list, you can write it down in the space next to number 13."

It is important to explain the relationship between the SLE and the RATS. For example: "In this questionnaire (SLE) you answered 'yes' to one or more questions. When answering this questionnaire (RATS) you should think about those things (events). These are questions about the way you think and feel about those things (events) that have happened to you."

Sometimes questions will need to be explained several times. Previous research has shown that numerous explanations do not need to have an adverse effect on the assessment. Short explanations for several items, which posed to be difficult during the research, can be found on page 21. Do not use any language or wording that could lead the adolescent to the answer that you think is best for him/her. Explanations should be kept short, neutral, and carefully phrased so that you do not misinform the adolescent.

### 5.1 Explanations for items that are difficult to understand for non-native speakers

Centrum '45

RATS

**Instruction:** Sometimes young people have certain problems after experiencing stressful life events. The following questions are about these problems. Please read the questions carefully. Read every sentence and think if you have been bothered during **the past four weeks** by this problem. Then fill-in the circle that applies to you.

● = not      ● = a little      ● = much      ● = very much

**A good example to explain the questions is that of someone bitten by a dog**

●      ●      ●      ●

Explanation	not	a little	much	Very much
1 I think often of the event(s) even if I don't want to. (for example: pictures of the event(s) pop into your head)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2 I have bad dreams or nightmares about the event(s)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3 I have the feeling that the event(s) is happening all over again.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
4 I feel afraid or sad (upset) if I think about the event(s).	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
5 The person runs away from those things he/she is scared of (like when the dog tried to bite him/her). I find myself sometimes acting like I did at the time of the event(s).	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
6 When I think about the event(s), I have strong feelings in my body (head aches, stomach aches, heart beating fast).	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
7 I try not to think or talk about the event(s).	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
8 I try to push away my feelings about the event(s).	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
9 Such as dogs, for some people such as the police and soldiers, places such as a woods I try to stay away from people, places or things that remind me of the event(s).	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
10 I have forgotten important things about the event(s)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
11 I feel all alone.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
12 No good friends, no people with whom you can talk, tell everything I don't feel close to the people around me.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
13 I have trouble expressing my feelings.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
14 I am not interested in things like sports, friends, school and family.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
15 I don't think positively about my future (that I will find a partner, get a good job).	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
16 I have trouble falling asleep	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
17 I have trouble staying asleep or I wake up too early.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
18 Not being able to listen to the teacher, always thinking about other things during class I have trouble concentrating or paying attention (at school or at home).	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
19 I am alert (always watching out or on guard for things that I am afraid of).	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
20 Make a loud noise such as hitting the table I startle easily when I hear a loud sound or when something surprises me.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
21 I often have arguments with others (family, friends, teachers).	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
22 I have angry outbursts (so angry that I throw things, hit, kick, scream).	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

## **6. Scoring**

This checklist can be used in order to diagnose the presence of the DSM-IV B,C, and D criteria of a PTSD in adolescents. These criteria are used internationally. The checklist is suited for gaining and comparing information about the traumatic stress reactions of adolescents. Some items in this questionnaire contain a brief and simple explanation. This explanation is placed in parentheses. The explanation has also been translated in all language versions. All questions pertaining to a certain DSM-IV cluster are grouped together in the questionnaire.

The adolescent can indicate the degree of distress caused by a certain symptom on a four-point Likert rating scale: not=1, a little=2, much=3, very much=4. The intrusion cluster consists of six questions (items 1-6), the numbing/avoidance cluster consists of 9 questions (items 7-15) and the hyperarousal cluster consists of 8 questions (items 16-22). A cluster score can be calculated by adding the scores of each item in the cluster. This means that a minimal score of 6 points, and a maximum score of 24 can be attained on the intrusion cluster. For the numbing/avoidance cluster a minimal score of 9, and a maximum score of 36 can be attained, and for the hyperarousal cluster a minimal score of 8 and a maximal score of 32 can be attained. A total score can be calculated by adding the scores of all the items or by adding the cluster scores. A minimal score of 22 and a maximal score of 88 can be attained.

### **Missing data**

Especially by this population (refugee adolescents), items are often not completed or overlooked. For example, an adolescent may not understand all the questions and leave them unanswered. Ten percent of the items of a cluster can be missing in order to still be able to calculate the cluster score (see table 6.1). The best manner in which to make an estimation of the missing value is by means of extrapolation; first calculating the mean of the completed items and then multiplying the mean by the total number of items in the cluster. Extrapolation is a statistical standard method used to predict a value outside the range of known values.

**Table 6.1**

	<b>Allowed number of missing answers</b>
<b>RATS</b>	
<b>RATS</b> total score	2
<b>RATS</b> intrusion	1
<b>RATS</b> numbing/avoidance	1
<b>RATS</b> hyperarousal	1

## 7. Norms

## 7.1 Norms

During the unaccompanied minors research project, no clinical diagnosis or standardized diagnostic interview was used as “golden standard” to determine the optimal screening possibilities of the RATS that. It is desirable to do this in the future, so that the sensitivity and specificity of the norms can be determined. Until then the percentile scores can be used as an indication of the severity of the reported traumatic stress reactions.

### Percentile scores

Percentile scores are often used to come to a standardization of certain test scores or criterion such as IQ quotients, or growth- and weight- charts for children. A percentile score is usually used to determine the place a score of an individual has in relation to the rest of the population. This is done by determining which proportion of the population scores the same as the individual or which proportion scores higher than the individual. For example: if a child scores on the 80<sup>th</sup> percentile of an intelligence test score, this means that 80 percent of all children in the population have a lower score than this child on the test. The use of percentiles is a statistical model that is based on a dimensional approach. This means that there are no clear boundaries between normal and abnormal scores, as is the case with a cut-of-point in psychopathology (categorical approach). The percentile scores for all scales of the RATS, for the different population groups, can be found on the pages 25 and 26.

### Categorical intervals in general

A **general guide** that can be used when classifying total scores and cluster scores of both questionnaires is as follows:

Very high	- a score equal to or higher than the 90 <sup>th</sup> percentile
High	- a score equal to or higher than the 80 <sup>th</sup> percentile and to the 90 <sup>th</sup> percentile
Average	- a score equal to or higher than the 30 <sup>th</sup> percentile and to the 80 <sup>th</sup> percentile
Low	- a score equal to or higher than the 20 <sup>th</sup> percentile and to the 30 <sup>th</sup> percentile
Very low	- a score equal to or up to the 20 <sup>th</sup> percentile

### Categorical intervals for unaccompanied refugee minors for the RATS

It is necessary to place the traumatic stress reactions of the unaccompanied refugee minors in the right context, in order to give a specific meaning to the scores of the unaccompanied refugee minors. A large group of unaccompanied refugee minors (61%) have indicated a need for psychosocial help for their psychosocial problems. In the Dutch indigenous group this was 8%. The mean total score on the RATS of the unaccompanied refugee minors with a need for help falls between the 60<sup>th</sup> and 70<sup>th</sup> percentile of the unaccompanied refugee minors population. The mean total score of the Dutch adolescents with a need for help falls above the 95<sup>th</sup> percentile.

**Table 7.1**

Psychosocial need for help		N	Mean.	S.D.	S.E.	T	Sig.	E.S.
RATS Total score	Unaccompanied refugee minors	531	52.11	11.02	.48	7.63	.00	.92
	Dutch indigenous population	87	41.88	11.68	1.25			

The difference between the percentile scores of the unaccompanied refugee minors and the other researched adolescent populations is even larger for the RATS than for the HSCL-37A (Bean et al., 2004a). This can most likely be explained by the high number of reported witnessed events by the unaccompanied refugee minors (Bean et al., 2004b). The total mean score of adolescents from the Dutch indigenous research project who indicated a need for psychosocial help, is also significantly lower (with a large effect size of .92) than the mean RATS total scores of unaccompanied refugee minors that indicated a need for help (see table 7.1). The mean total score on the RATS of unaccompanied refugee minors that indicated a need for psychosocial help does correspond roughly correspond with the). This means that the unaccompanied refugee minors' population report posttraumatic stress reactions that are extremely high in severity. It is advisable to keep this in mind during the diagnostic process. Therefore, it was necessary to modify the general division in categorical intervals for the judgment of the total scores and cluster scores of unaccompanied refugee minors on the RATS.

### Modified categorical intervals for URM for the RATS total scores and cluster scores

Very high	- a score equal to or higher than the 60 <sup>th</sup> percentile
High	- a score equal to or higher than the 50 <sup>th</sup> percentile and to the 60 <sup>th</sup> percentile
Average	- a score equal to or higher than the 20 <sup>th</sup> percentile and to the 50 <sup>th</sup> percentile
Low	- a score higher than the 0 percentile and to the 20 <sup>th</sup> percentile



## 7.1 Percentile scores

### RATS total score percentile scores

	<b>Unaccompanied refugee minors research</b>	<b>Belgium newcomers research</b>	<b>Belgium indigenous research</b>	<b>Dutch indigenous research</b>
N	939	924	616	1026
Mean	49.20	39.34	33.86	32.11
Median	50.00	37.16	32.00	30.00
S.D.	11.70	11.49	9.66	9.05
Min.	22.00	22.00	22.00	22.00
Max.	82.76	80.00	80.00	79.00
S.E. of Mean	.38	.38	.40	.28
Percentile scores				
10	34.00	26.00	23.00	23.00
20	39.00	29.00	26.00	25.00
30	43.00	32.00	28.00	26.00
40	47.00	34.00	29.40	28.00
50	50.00	37.16	32.00	30.00
60	52.00	40.20	35.00	32.80
70	55.00	44.29	37.00	34.96
80	59.00	49.00	41.00	38.00
90	64.00	56.00	48.00	45.00
95	68.10	60.95	53.00	50.00

### RATS intrusion score percentile scores

	<b>Unaccompanied refugee minors research</b>	<b>Belgium newcomers research</b>	<b>Belgium indigenous research</b>	<b>Dutch indigenous research</b>
N	979	936	601	1026
Mean	14.27	10.53	8.90	8.36
Median	14.00	9.00	8.00	7.00
S.D.	4.37	4.00	3.11	2.90
Min.	6.00	6.00	6.00	7.00
Max.	24.00	24.00	22.00	24.00
S.E. of Mean	.14	.13	.13	.09
Percentile scores				
10	8.00	6.00	6.00	6.00
20	10.00	7.00	6.00	6.00
30	12.00	8.00	7.00	6.00
40	13.00	9.00	7.00	7.00
50	14.00	9.00	8.00	7.00
60	15.60	10.80	9.00	8.00
70	17.00	12.00	10.00	9.00
80	18.00	14.00	11.00	10.00
90	20.00	16.80	13.00	12.00
95	22.00	19.00	15.90	14.00

**RATS numbing/avoidance scores percentile scores**

	<b>Unaccompanied refugee minors research</b>	<b>Belgium newcomers research</b>	<b>Belgium indigenous research</b>	<b>Dutch indigenous research</b>
N	948	926	600	1026
Mean	20.19	16.69	13.30	12.46
Median	20.00	16.00	12.00	11.00
S.D.	5.02	5.34	4.22	3.90
Min.	9.00	9.00	9.00	9.00
Max.	36.00	36.00	32.00	30.00
S.E. of Mean	.16	.18	.13	.12
Percentile scores				
10	13.50	10.00	9.00	9.00
20	16.00	12.00	10.00	9.00
30	17.00	13.00	10.00	10.00
40	19.00	14.63	11.00	10.00
50	20.00	16.00	12.00	11.00
60	21.38	18.00	13.00	12.00
70	23.00	19.00	15.00	13.45
80	24.75	21.33	16.00	15.00
90	27.00	24.00	19.00	18.00
95	28.00	26.00	22.00	21.00

**RATS hyperarousal scores percentile scores**

	<b>Unaccompanied refugee minors research</b>	<b>Belgium newcomers research</b>	<b>Belgium indigenous research</b>	<b>Dutch indigenous research</b>
N	974	932	600	1026
Mean	14.73	12.13	11.63	11.28
Median	15.00	11.67	11.00	10.00
S.D.	4.26	3.99	3.74	3.79
Min.	7.00	7.00	7.00	7.00
Max.	28.00	28.00	28.00	27.00
S.E. of Mean	.14	.13	.15	.12
Percentile scores				
10	9.00	7.00	7.00	7.00
20	11.00	9.00	8.00	8.00
30	12.00	10.00	9.00	9.00
40	13.00	10.50	10.00	10.00
50	15.00	11.67	11.00	10.00
60	16.00	12.83	12.00	11.00
70	17.00	14.00	13.00	12.00
80	18.00	15.00	14.00	14.00
90	20.00	18.00	17.00	16.00
95	22.00	20.00	19.00	19.00

### 7.2.1. Belgium newcomers research project

#### RATS total score

	N	Groups	Mean	S.D.	F	Sig.	Contrasts	Effect size
<b>Age</b>	278	1. 14 years and younger	37.19	10.52	11.53	.00	1<3<4	1-3= .31
	153	2. 15 years	37.21	10.86				1-4= .43
	151	3. 16 years	40.61	11.80				3-4= .13
	293	4. 17 and older	42.12	12.22				
<b>Sort of guidance</b>	469	1. Both parents	37.07	10.22	48.08	.00	4>3>2>1	1-2= .28
	85	2. Father	39.92	10.96				1-3= .13
	217	3. Mother	38.46	11.49				1-4= 1.37
	99	4. Alone	51.21	11.02				2-4= 1.03
							3-4= 1.13	
							2-3= .13	
<b>Resided time in The Netherlands</b>	297	1. Up to 6months	39.82	11.63	1.15	.33		
	327	2. 6-12 months	39.63	11.07				
	104	3. 12-18 months	40.42	12.32				
	31	4. 18-24 months	38.25	8.32				
	68	5. longer than 2 years	36.99	12.04				
<b>Number of stressful life events</b>	52	1. 0 events	30.31	7.77	101.16	.00	1<2<3<4	1-2= .52
	412	2. 1-3 events	34.77	8.78				1-3= 1.19
	335	3. 4-7 events	42.60	10.65				1-4= 1.78
	113	4. 8-13 events	50.42	12.66				2-4= 1.61
							3-4= .70	
							2-3= .81	
<b>RATS total</b>	<b>N</b>	<b>Groups</b>	<b>Mean</b>	<b>S.D.</b>	<b>T</b>	<b>Sig.</b>	<b>Effect size</b>	
<b>Sex</b>	416	Girls	40.11	11.43	1.91	.06	.13	
	480	Boys	38.64	11.61				
<b>Type of status</b>	477	Immigrants	38.50	10.91	2.30	.02	.15	
	439	Refugees	40.24	12.08				

### 7.2.2. Belgium indigenous research

#### HSCL-37A total score

	N	Groups	Mean	S.D.	F	Sig.	Contrasts	Effect size
<b>Age</b>	109	1. 14 years and younger	58.18	10.69	9.21	.00	1<2<4	1-2= .04
	79	2. 15 years	57.78	10.53				1-4= .48
	86	3. 16 years	61.50	11.28				2-4= .52
	315	4. 17 and older	63.10	10.27				
<b>Sort of guidance</b>	469	1. Both parents	60.54	10.58	6.97	.00	1<2<3	1-2= .27
	103	2. Mother	63.39	10.26				1-3= .55
	33	3. Other	66.27	9.77				2-3= .29
<b>Education choice</b>	187	1. General SE	59.57	9.90			1<2	1-2= .23
	306	2. Technical SE	62.03	10.84				
	122	3. Trade SE	61.82	10.78				
<b>Number of stressful life events</b>	84	1. 0 events	53.61	8.33	29.10	.00	1<2<3,4	1-2= .76
	334	2. 1-3 events	60.65	9.57				1-3= 1.18
	186	3. 4-7 events	65.50	11.01				1-4= 1.35
	11	4. 8-13 events	65.48	12.49				2-4= .50
								3-4= .00
								2-3= .48

HSCL-37A total	N	Groups	Mean	S.D.	T	Sig.	Effect size
<b>Sex</b>	279	Girls	64.83	10.79	8.06	.00	.65
	334	Boys	58.24	9.47			

#### RATS total score

	N	Groups	Mean	S.D.	F	Sig.	Contrasts	Effect size
<b>Age</b>	107	1. 14 years and younger	33.48	10.55	1.47	.22		
	75	2. 15 years	32.00	8.22				
	82	3. 16 years	33.15	10.21				
	310	4. 17 and older	34.43	9.30				
<b>Sort of guidance</b>	455	1. Both parents	33.07	9.33	10.4	.00	1<2<3	1-2= .28
	100	2. Mother	35.69	9.57				1-3= .74
	33	3. Other	40.09	12.08				2-3= .43
<b>Education choice</b>	178	1. General SE	32.57	8.79	2.30	.10		
	303	2. Technical SE	34.31	9.82				
	117	3. Trade SE	34.62	10.36				
<b>Number of stressful life events</b>	73	1. 0 events	27.63	5.76	34.9	.00	1<2<3<4	1-2= .60
	327	2. 1-3 events	32.30	8.22				1-3= 1.16
	187	3. 4-7 events	38.58	10.58				1-4= 1.52
	11	4.8-13 events	41.00	14.65				2-4= 1.03
								3-4= .22
								2-3= .69

RATS total	N	Groups	Mean	S.D.	T	Sig.	Effect size
<b>Sex</b>	271	Girls	36.28	10.42	5.61	.00	.47
	325	Boys	31.85	8.52			

### 7.2.3. Dutch indigenous research

#### RATS total score

	N	Groups	Mean	S.D.	F	Sig.	Contrasts	Effect size
<b>Age</b>	235	1. 14 years and younger	32.52	8.50	.791	.50		
	303	2. 15 years	32.45	9.04				
	247	3. 16 years	31.96	9.29				
	239	4. 17 and older	31.41	8.83				
<b>Living situation</b>	772	1. Both parents	31.49	8.59	7.17	.00	5>3>2,1	1-3= .49
	88	2. Sometimes mother/sometimes father	31.27	9.06				1-5= .57
	103	3. Mother	35.77	10.37				2-5= .57
	36	4. Father	33.75	11.15				3-5= .06
	25	5. Other	36.40	9.42				2-3= .46
<b>Need for psychosocial help</b>	87	1. Need for psychosocial help	41.88	11.68	184.04	.00	2<1,3	1-2= 1.68
	811	2. No need for psychosocial help	29.79	6.56				1-3= .07
	120	3. Uncertain	41.05	11.16				2-3= 1.54
<b>Number of stressful life events</b>	104	1. 0 events	26.60	5.14	83.89	.00	1<2<3<4	1-2= .47
	519	2. 1-3 events	29.74	7.02				1-3= 1.04
	370	3. 4-7 events	35.72	9.57				1-4= 2.71
	33	4. 8-13 events	46.21	11.82				2-4= 2.23
								3-4= 1.08
								2-3= .73
<b>RATS total</b>	<b>N</b>	<b>Groups</b>	<b>Mean</b>	<b>S.D.</b>	<b>T</b>	<b>Sig</b>	<b>Effect size</b>	
<b>Sex</b>	442	1. Girls	34.67	10.49	7.44	.00	.49	
	583	2. Boys	30.16	7.22				
<b>Use of help</b>	153	1. Made use of psychosocial care/help	38.29	11.43	7.27	.00	.24	
	757	2. Did not make use of psychosocial	31.23	8.15				

## 8. References

- Almqvist, K. & Brandell-Forsberg, M. (1997). Refugee children in Sweden: Post-Traumatic Stress Disorder in Iranian Preschool Children Exposed to Organized Violence. *Child Abuse & Neglect*, 21, 351-366.
- American Psychiatry Association (APA) (1994). *Diagnostic and Statistical Manual of Mental Disorders* (4th ed.). Washington, D.C.: American Psychiatry Association
- Bean, T. (2000). *Measuring the effects of traumatic stress on immigrant and refugee adolescents*. Doctoral scriptie Clinical Child and Youth Psychology, Leiden University.
- Bean, T., Eurelings-Bontekoe, E.H.M., Derluyn, I. & Spinhoven, Ph. (2004a). HSCL-37A Manual Oegstgeest. <http://www.centrum45.nl>
- Bean, T., Eurelings-Bontekoe, E.H.M., Derluyn, I. & Spinhoven, Ph. (2004b). SLE Manual Oegstgeest. <http://www.centrum45.nl>
- Becker, D., Weine, S., Vojvoda, D. & McGlashan, T. (1999). Case Series: PTSD Symptoms in Adolescent survivors of "Ethnic Cleansing." Results From a 1-Year Follow-up Study. *Journal of American Child and Adolescent Psychiatry*, 38, 775-781.
- Berthold, S.M., (1999). The Effects of Exposure to Community Violence on Khmer Refugee Adolescents. *Journal of Traumatic Stress*, 12, 455-471.
- Boothby N., (1988). Unaccompanied children from a psychological perspective. In E. Ressler, N. Boothby & D. Steinbock, *Unaccompanied children* (133-180). Oxford: Oxford University Press.
- Briggs, L. & Joyce, P.R. (1997). What determines Post-traumatic stress disorder symptomatology for survivors of childhood sexual abuse. *Child Abuse & Neglect*, 21(6), 575-582.
- Burstein, A. (1985). Posttraumatic stress disorder. *Journal of Clinical Psychology*, 46, 554
- Cohen, J. (1988). *Statistical power analysis for the behavioral sciences*. L. Erlbaum Associates, Hillsdale N.J.
- Felsman, J., Leong, F., Johnson, M., & Felsman, I. (1990). Estimates of psychological distress among Vietnamese refugees: Adolescents, unaccompanied minors, and young adults. *Social Science and Medicine*, 31, 1251-1256.
- Goodman, R. (1997). The Strengths and Difficulties Questionnaire: A Research Note. *Journal of Child Psychology and Psychiatry*, 38, 581-586.
- Green, B., Korol, M., Grace, M., Vary, M., Leonard, A., Glaser, G. & Smitsøn, C. (1991). Children and Disaster: Age, Gender and Parental Effect on PTSD Symptoms. *Journal of the American Academy of Child & Adolescents Psychiatry*, 30, 945-951.
- Helzer, J.E., Robins, L.N. & McEnvoy, L. (1987). Post-traumatic stress disorder in the general population. Findings of the Epidemiologic Catchment Area Survey. *New England Journal of Medicine*, 317, 1630-1634.
- Hovens, J., Bramsen, I. & Ploeg, H. van der. (2000). *Handleiding Zelfinventarisatielijst*. Swets Test Publishers, Lisse.
- Husain, S., Nair, J., Holcomb, W., Reid, J., Varga, V. & Nair, S. (1998). Stress Reactions of Children and Adolescents in War and Siege Conditions. *American Journal of Psychiatry*, 155(12), 1718-1719.
- Kiers, H.A.L. (1990) User's manual SCA: a program for simultaneous components analysis of variables measured in two or more populations. Groningen: ProGAMMA.
- Kleijn, W.C., Hovens, J.E., Rodenburg, J.J. (2001). Posttraumatic stress symptoms in refugees: assessments with the Harvard Trauma Questionnaire and the Hopkins symptom Checklist-25 in different languages. *Psychology report*, 88, 527-32.
- Kouratovsky, V. (2002). *Wat is era an de hand met Jamila?; Transculturele disgnostiek in de Jeugdzorg*. Forum; Instituut voor Multiculturele Ontwikkeling, Utrecht. 12.
- Kuterovac, G., Dyregrov, A. & Stuvland, R. (1994). Children in war; A silent majority under stress. *British Journal of Medical Psychology*, 67, 363-375.
- Macksoud, M. & Aber, L. (1996). The War Experiences and Psychosocial Development of Children in Lebanon. *Child Development*, 67, 70-88.
- Masser, D. (1992). Psychosocial functioning of Central American refugee children. *Child Welfare*, 71, 439-456.
- Mollica, R., Poole, C., Son, L., & Murray, C. (1997). Effects of War Trauma on Cambodian Refugee Adolescents' Functional Health and Mental Health Status, *Journal of the American Academy of Child & Adolescents Psychiatry*, 36,

1099-1107.

Miller, K. (1996). The effects of State Terrorism and Exile on Indigenous Guatemalan Refugee Children: a Mental Health assessment and Analysis of Children's Narratives. *Child Development*, 67, 86-106.

Newman, C.J. (1976). Children of disaster: Clinical observations at Buffalo Creek. *American Journal of Psychiatry*, 133, 306-312.

Papageorgiou, V. , Frangou-Garunovic, A. Ioranidou, R., Yule, W., Smith, P., & Vostanis, P. (2000). War trauma and psychopathology in Bosnian refugee children. *European Child & Adolescent Psychiatry*, 9, 84-90.

Pynoos, R.S. & Nader, K. (1993). Issues in the Treatment of Posttraumatic Stress in Children and Adolescents. In J. O. Wilson & B. Raphael (eds.) *International handbook of traumatic stress syndrome*. New York: Plenum. 535-549.

Pynoos, R.S., Goenjian, A., Tashjian, M., Karakashian, M., Manjikian, R., Manoukian, G., Steinberg, A.M. & Fairbanks, L.A. (1993). Post-traumatic Stress Reactions in Children after the 1998 Armenian Earthquake. *British Journal of Psychiatry*, 163, 239-247.

Pynoos, R.S., Rodriguez, N., Steinberg, A. Stuber, M. & Frederick, C. (1998). UCLA PTSD Index for DSM IV. Los Angeles: UCLA Trauma Psychiatry Service.

Roth, S., Newman, E., Pelcovitz, D., van der Kolk, B. & Mandel, F. (1997). Complex PTSD in victims exposed to sexual and physical abuse: results from the DSM-IV field trial for Posttraumatic stress disorder. *Journal of Traumatic Stress*, 10(4) 539-555.

Sack, W., Clarke, G., Him, C., Dickason, D., Goff, B., Lanham, K. & Kinzie, J. (1993). A 6-year Follow-Up Study of Cambodian Refugee Adolescents Traumatized as Children. *Journal of the American Academy of Child & Adolescents Psychiatry*, 32, 431 -437.

Sack, W. & Clarke, G. (1996). Multiple Forms of Stress in Cambodian Adolescent Refugees. *Child Development*, 67, 107-116.

Solomon, S.D. & Canino, G.J. (1990). Appropriateness of DSM-III-R criteria for posttraumatic stress disorder. *Comprehensive Psychiatry*, 31, 227-237.

Sourander, A. (1998). Behavior Problems and Traumatic Events of Unaccompanied Refugee Minors. *Child Abuse and Neglect*, 22, 719-727.

Terr, L.C., (1983). Chowchilla revisited: The effects of Psychic Trauma Four Years After a School-bus Kidnapping. *American Journal of Psychiatry*, 140 (12), 1543-1550.

Thabet, A.A. M. & Vostanis , P. (1999). Post-traumatic stress reactions in children of war. *Journal of Child psychology and Psychiatry*, 40(3), 385-391.

Van der Veer, G. (1998). *Gevluchte adolescenten, ontwikkeling begeleiding en hulpverlening*. Utrecht: Stichting Pharos.

Vervuurt, C. & Kleijn, W. (1997). *Vluchtelingen in het voorgezet onderwijs*. Den Haag: Project Neveninstromers.

Weiss, D.S. & Mamer , C. R. (1997). The Impact of Event Scale-Revised. In J.P. Wilson & T.M. Keane (Eds.), *Assessing psychological trauma and PTSD* (pp. 399-411). New York: Guilford Press.



**9. Appendix**

## Appendix I

### Diagnostic criteria (A,B,C,D,E) for Posttraumatic Stress Disorder (DSM-IV;APA 1994)

**A. The person has been exposed to a traumatic event in which both of the following were present:**

1. The person experienced, witnessed, or was confronted with an event or events that involved actual or threatened death or serious injury, or a threat to the physical integrity of self or others.
2. The person's response involved intense fear, helplessness, or horror.

**Note: In children, this may be expressed instead by disorganized or agitated behavior.**

**B. The traumatic event is persistently reexperienced in one (or more) of the following ways:**

1. Recurrent and intrusive distressing recollections of the event, including images, thoughts, or perceptions.  
**Note: In young children, repetitive play may occur in which themes or aspects of the trauma are expressed.**
2. Recurrent distressing dreams of the event.  
**Note: In children, there may be frightening dreams without recognizable content.**
3. Acting or feeling as if the traumatic event were recurring (includes a sense of reliving the experience, illusions, hallucinations, and dissociative flashback episodes, including those that occur on awakening or when intoxicated).  
**Note: In young children, trauma-specific re-enactment may occur**

4. Intense psychological distress at exposure to internal or external cues that symbolize or resemble an aspect of the traumatic event.
5. Psychological reactivity on exposure to internal or external cues that symbolize or resemble an aspect of the traumatic event.

**C. Persistent avoidance of stimuli associated with the trauma or numbing of general responsiveness (not present before the trauma) as indicated by three (or more) of the following:**

1. Efforts to avoid thoughts, feelings, or conversations associated with the trauma.
2. Efforts to avoid activities, places, or people that arouse recollections of the trauma.
3. Inability to recall an important aspect of the trauma.
4. Markedly diminished interest or participation in significant activities.
5. Feeling of detachment or estrangement from others.
6. Restricted range of affect.
7. Sense of a foreshortened future (e.g., does not expect to have a career, marriage, children, or a normal life span).

**D. Persistent symptoms of increased arousal (not present before the trauma) as indicated by two (or more) of the following:**

1. Difficulty falling or staying asleep.
2. Irritability or outbursts of anger.
3. Difficulty concentrating.
4. Hypervigilance.
5. Exaggerated startle response.

**E. Duration of the disturbance (symptoms in criteria B, C, and D) is more than 1 month and cause significant impairment in daily functioning.**

## Appendix II

### SCA's for the different language versions of the RATS for the unaccompanied refugee minors research project

#### Portuguese Language version

<b>RATS (SCA)</b>					
Item	Mean	S.D.	Component weights		
N=380			1	2	3
<b>Intrusion</b>					
1. unintentionally thinking about the event	2.58	.93	<b>.81</b>	.46	.44
2. nightmares	2.38	.83	<b>.81</b>	.43	.55
3. feeling the event is happening again	2.11	.98	<b>.77</b>	.42	.44
4. sad/scared	2.69	.92	<b>.78</b>	.49	.44
5. acting in the same way	1.60	.57	<b>.55</b>	.29	.39
6. feelings in the body	2.50	1.00	<b>.80</b>	.45	.51
<b>Numbing/Avoidance</b>					
7. avoiding thoughts	2.22	1.10	.24	<b>.47</b>	.15
8. hiding feelings	2.41	1.34	.30	<b>.61</b>	.27
9. avoiding places/people	2.65	1.15	.34	<b>.56</b>	.26
10. forgetfulness with regards to event	1.76	.81	.00	<b>.35</b>	.10
11. feeling alone	2.76	1.18	.60	<b>.59</b>	.44
12. no contact	2.03	.99	.43	<b>.59</b>	.46
13. difficulty expressing feelings	2.32	1.02	.45	<b>.62</b>	.47
14. no interests	1.91	1.29	.02	<b>.35</b>	.13
15. not positive about the future	2.21	1.21	.20	<b>.46</b>	.26
<b>Hyperarousal</b>					
16. problems falling asleep	2.34	1.09	.57	.50	<b>.75</b>
17. trouble staying asleep or waking early	2.43	1.01	.50	.42	<b>.72</b>
18. difficulty concentrating	2.01	.83	.35	.35	<b>.64</b>
19. alert	2.45	1.02	.28	.36	<b>.49</b>
20. easily startled	2.35	1.86	.51	.37	<b>.67</b>
21. often arguing	1.41	.50	.21	.20	<b>.55</b>
22. outbursts of anger	1.45	.63	.27	.23	<b>.57</b>
Explained variance per component			5.66	4.44	4.98

Total Variance Accounted for by MGM is : 9.13 (41.49%)

Total Variance Accounted for by PCA is : 9.85 (44.75%)

#### French Language version

<b>RATS (SCA)</b>					
Item	Mean	S.D.	Component weights		
N=135			1	2	3
<b>Intrusion</b>					
1. unintentionally thinking about the event	3.02	.64	<b>.81</b>	.35	.48
2. nightmares	2.70	.97	<b>.81</b>	.40	.48
3. feeling the event is happening again	2.09	1.03	<b>.61</b>	.19	.19
4. sad/scared	3.04	.89	<b>.73</b>	.41	.45
5. acting in the same way	1.64	.61	<b>.55</b>	.13	.23
6. feelings in the body	2.82	.80	<b>.70</b>	.49	.57
<b>Numbing/Avoidance</b>					
7. avoiding thoughts	2.47	.95	.22	<b>.57</b>	.31
8. hiding feelings	2.46	1.03	.21	<b>.61</b>	.36
9. avoiding places/people	2.73	1.25	.32	<b>.49</b>	.41
10. forgetfulness with regards to event	1.50	.56	.05	<b>.37</b>	.02
11. feeling alone	2.97	1.05	.41	<b>.50</b>	.41
12. no contact	2.04	1.15	.33	<b>.62</b>	.40
13. difficulty expressing feelings	2.56	1.11	.45	<b>.61</b>	.42
14. no interests	1.67	.77	.01	<b>.37</b>	.03
15. not positive about the future	2.08	1.14	.12	<b>.39</b>	.06
<b>Hyperarousal</b>					
16. problems falling asleep	2.67	1.05	.59	.32	<b>.61</b>
17. trouble staying asleep or waking early	2.78	.94	.51	.43	<b>.71</b>
18. difficulty concentrating	2.33	.93	.32	.28	<b>.58</b>
19. alert	2.84	.82	.25	.36	<b>.48</b>
20. easily startled	2.63	.94	.42	.41	<b>.61</b>
21. often arguing	1.25	.32	.03	.09	<b>.43</b>
22. outbursts of anger	1.60	.80	.17	.25	<b>.59</b>
Explained variance per component			4.68	3.86	4.33

Total Variance Accounted for by MGM is : 8.42 (38.27%)

Total Variance Accounted for by PCA is : 9.19 (41.78%)

**Other languages**

<b>RATS (SCA)</b>					
Item	Mean	S.D.	Component weights		
N=313			1	2	3
<b>Intrusion</b>					
1. unintentionally thinking about the event	2.59	1.05	.78	.48	.50
2. nightmares	2.40	1.03	.82	.48	.57
3. feeling the event is happening again	2.07	1.02	.76	.42	.44
4. sad/scared	2.79	1.03	.81	.52	.53
5. acting in the same way	1.78	.81	.68	.39	.38
6. feelings in the body	2.49	.97	.75	.46	.51
<b>Numbing/Avoidance</b>					
7. avoiding thoughts	2.56	1.23	.46	.65	.61
8. hiding feelings	2.52	1.24	.39	.64	.37
9. avoiding places/people	2.56	1.42	.42	.64	.34
10. forgetfulness with regards to event	1.73	.79	-.08	.16	-.04
11. feeling alone	2.73	1.24	.49	.68	.55
12. no contact	1.98	1.04	.43	.66	.53
13. difficulty expressing feelings	2.39	1.06	.49	.66	.52
14. no interests	1.66	.91	.05	.39	.22
15. not positive about the future	2.21	1.22	.38	.59	.46
<b>Hyperarousal</b>					
16. problems falling asleep	2.46	1.18	.57	.51	.73
17. trouble staying asleep or waking early	2.46	1.08	.51	.40	.71
18. difficulty concentrating	2.07	.91	.40	.48	.69
19. alert	2.29	1.14	.37	.42	.56
20. easily startled	2.36	1.09	.49	.50	.65
21. often arguing	1.47	.57	.22	.26	.57
22. outbursts of anger	1.63	.75	.28	.30	.59
Explained variance per component			6.44	6.02	6.48

Total Variance Accounted for by MGM is : 9.91 (45.05%)

Total Variance Accounted for by PCA is : 10.67 (48.50%)

### Appendix III

#### SCA's for the different language versions of the RATS for the Belgium newcomers research

##### All languages

<b>RATS (SCA)</b>					
Item	Mean	S.D.	Component weights		
N=755			1	2	3
<b>Intrusion</b>					
1. unintentionally thinking about the event	2.06	.99	<b>.73</b>	.46	.38
2. nightmares	1.65	.71	<b>.76</b>	.46	.43
3. feeling the event is happening again	1.58	.75	<b>.73</b>	.44	.39
4. sad/scared	1.92	1.00	<b>.76</b>	.51	.45
5. acting in the same way	1.50	.63	<b>.57</b>	.40	.35
6. feelings in the body	1.68	.88	<b>.75</b>	.51	.44
<b>Numbing/Avoidance</b>					
7. avoiding thoughts	1.88	1.04	.45	<b>.59</b>	.36
8. hiding feelings	2.14	1.26	.46	<b>.64</b>	.30
9. avoiding places/people	1.99	1.30	.49	<b>.65</b>	.40
10. forgetfulness with regards to event	1.70	.79	.10	<b>.43</b>	.18
11. feeling alone	1.76	1.04	.54	<b>.65</b>	.45
12. no contact	1.55	.69	.37	<b>.62</b>	.38
13. difficulty expressing feelings	1.93	1.02	.47	<b>.64</b>	.47
14. no interests	1.70	1.18	.13	<b>.35</b>	.20
15. not positive about the future	1.81	1.19	.26	<b>.50</b>	.32
<b>Hyperarousal</b>					
16. problems falling asleep	1.65	.78	.38	.37	<b>.65</b>
17. trouble staying asleep or waking early	1.71	.85	.45	.42	<b>.68</b>
18. difficulty concentrating	1.73	.83	.34	.40	<b>.65</b>
19. alert	2.05	1.17	.36	.41	<b>.57</b>
20. easily startled	1.95	1.00	.45	.43	<b>.63</b>
21. often arguing	1.50	.62	.18	.27	<b>.53</b>
22. outbursts of anger	1.50	.74	.32	.32	<b>.63</b>
Explained variance per component			5.42	5.23	4.82

Total Variance Accounted for by MGM is : 8.99 (40.84%)

Total Variance Accounted for by PCA is : 9.48 (43.10%)

##### Turkish Language version

<b>RATS (SCA)</b>					
Item	Mean	S.D.	Component weights		
N=115			1	2	3
<b>Intrusion</b>					
1. unintentionally thinking about the event	2.29	1.07	<b>.80</b>	.65	.58
2. nightmares	1.82	.81	<b>.73</b>	.51	.56
3. feeling the event is happening again	1.59	.75	<b>.77</b>	.50	.46
4. sad/scared	2.10	1.04	<b>.80</b>	.53	.43
5. acting in the same way	1.61	.73	<b>.68</b>	.47	.40
6. feelings in the body	1.73	.98	<b>.81</b>	.61	.60
<b>Numbing/Avoidance</b>					
7. avoiding thoughts	1.78	.76	.40	<b>.56</b>	.35
8. hiding feelings	2.60	1.41	.53	<b>.64</b>	.34
9. avoiding places/people	2.13	1.35	.51	<b>.57</b>	.48
10. forgetfulness with regards to event	1.73	.89	.06	<b>.41</b>	.08
11. feeling alone	1.90	1.18	.53	<b>.61</b>	.53
12. no contact	1.57	.70	.51	<b>.62</b>	.55
13. difficulty expressing feelings	2.19	1.16	.58	<b>.66</b>	.52
14. no interests	1.72	1.21	.17	<b>.39</b>	.11
15. not positive about the future	1.99	1.37	.26	<b>.55</b>	.29
<b>Hyperarousal</b>					
16. problems falling asleep	1.61	.64	.37	.36	<b>.72</b>
17. trouble staying asleep or waking early	1.64	.93	.52	.52	<b>.70</b>
18. difficulty concentrating	2.04	1.00	.59	.56	<b>.74</b>
19. alert	1.87	1.16	.55	.55	<b>.62</b>
20. easily startled	1.98	1.01	.61	.44	<b>.66</b>
21. often arguing	1.22	.27	.24	.32	<b>.67</b>
22. outbursts of anger	1.46	.68	.30	.35	<b>.70</b>
Explained variance per component			6.78	6.09	6.29

Total Variance Accounted for by MGM is : 10.42 (47.38%)

Total Variance Accounted for by PCA is : 11.32 (51.45%)

**English Language version**

<b>RATS(SCA)</b>					
Item	Mean	S.D.	Component weights		
N=156			1	2	3
<b>Intrusion</b>					
1. unintentionally thinking about the event	1.91	.86	<b>.60</b>	.30	.33
2. nightmares	1.66	.70	<b>.70</b>	.35	.44
3. feeling the event is happening again	1.64	.78	<b>.69</b>	.42	.42
4. sad/scared	2.01	1.01	<b>.69</b>	.44	.47
5. acting in the same way	1.61	.75	<b>.61</b>	.50	.48
6. feelings in the body	1.73	.93	<b>.66</b>	.43	.32
<b>Numbing/Avoidance</b>					
7. avoiding thoughts	2.06	1.24	.43	<b>.57</b>	.35
8. hiding feelings	2.34	1.31	.35	<b>.59</b>	.22
9. avoiding places/people	2.08	1.45	.42	<b>.61</b>	.31
10. forgetfulness with regards to event	1.87	.82	.16	<b>.46</b>	.21
11. feeling alone	1.77	.93	.49	<b>.60</b>	.29
12. no contact	1.59	.77	.32	<b>.55</b>	.26
13. difficulty expressing feelings	1.85	1.04	.53	<b>.64</b>	.48
14. no interests	1.73	1.22	.05	<b>.28</b>	.22
15. not positive about the future	1.82	1.32	.22	<b>.46</b>	.39
<b>Hyperarousal</b>					
16. problems falling asleep	1.69	.93	.33	.42	<b>.72</b>
17. trouble staying asleep or waking early	1.71	.83	.37	.30	<b>.67</b>
18. difficulty concentrating	1.74	.79	.40	.33	<b>.69</b>
19. alert	2.03	1.10	.42	.37	<b>.59</b>
20. easily startled	2.23	.95	.34	.32	<b>.50</b>
21. often arguing	1.85	.86	.38	.34	<b>.48</b>
22. outbursts of anger	1.55	.77	.41	.37	<b>.60</b>
Explained variance per component			4.79	4.50	4.56

Total Variance Accounted for by MGM is : 12.71(34.36%)

Total Variance Accounted for by PCA is : 13.71(37.07%)

**Russian Language version**

<b>RATS (SCA)</b>					
Item	Mean	S.D.	Component weights		
N=106			1	2	3
<b>Intrusion</b>					
1. unintentionally thinking about the event	2.14	1.12	<b>.71</b>	.33	.27
2. nightmares	1.37	.46	<b>.71</b>	.23	.20
3. feeling the event is happening again	1.34	.45	<b>.70</b>	.25	.22
4. sad/scared	1.62	.78	<b>.66</b>	.45	.37
5. acting in the same way	1.40	.58	<b>.72</b>	.47	.38
6. feelings in the body	1.52	.78	<b>.75</b>	.52	.32
<b>Numbing/Avoidance</b>					
7. avoiding thoughts	1.80	.88	.42	<b>.51</b>	.20
8. hiding feelings	2.00	1.13	.53	<b>.56</b>	.14
9. avoiding places/people	1.88	1.24	.38	<b>.64</b>	.35
10. forgetfulness with regards to event	1.62	.63	-.01	<b>.41</b>	.21
11. feeling alone	1.47	.70	.41	<b>.69</b>	.47
12. no contact	1.39	.52	.14	<b>.65</b>	.31
13. difficulty expressing feelings	1.61	.65	.29	<b>.65</b>	.48
14. no interests	1.70	1.23	.26	<b>.54</b>	.29
15. not positive about the future	1.63	1.06	.29	<b>.43</b>	.34
<b>Hyperarousal</b>					
16. problems falling asleep	1.82	.96	.25	.33	<b>.58</b>
17. trouble staying asleep or waking early	1.62	.88	.32	.32	<b>.66</b>
18. difficulty concentrating	1.76	.92	.17	.53	<b>.68</b>
19. alert	1.56	.72	.33	.38	<b>.62</b>
20. easily startled	1.60	.92	.46	.45	<b>.65</b>
21. often arguing	1.33	.39	.08	.20	<b>.56</b>
22. outbursts of anger	1.53	.83	.23	.20	<b>.66</b>
Explained variance per component			4.59	4.77	4.31

Total Variance Accounted for by MGM is : 9.46 (43.00%)

Total Variance Accounted for by PCA is : 10.02 (45.57%)

## Appendix VI

### SCA for the Dutch version of the RATS for the Belgium indigenous research

<b>RATS</b>		<b>(SCA)</b>				
Item	Mean	S.D.	Component weights			
N=573			1	2	3	
<b>Intrusion</b>						
1. unintentionally thinking about the event	1.79	.66	<b>.76</b>	.51	.53	
2. nightmares	1.39	.44	<b>.75</b>	.51	.54	
3. feeling the event is happening again	1.40	.50	<b>.74</b>	.49	.45	
4. sad/scared	1.57	.58	<b>.77</b>	.50	.45	
5. acting in the same way	1.31	.43	<b>.59</b>	.33	.37	
6. feelings in the body	1.44	.54	<b>.72</b>	.49	.45	
<b>Numbing/Avoidance</b>						
7. avoiding thoughts	1.58	.74	.48	<b>.54</b>	.36	
8. hiding feelings	1.72	.97	.55	<b>.72</b>	.45	
9. avoiding places/people	1.58	.86	.56	<b>.62</b>	.36	
10. forgetfulness with regards to event	1.30	.41	.25	<b>.42</b>	.27	
11. feeling alone	1.41	.52	.48	<b>.72</b>	.51	
12. no contact	1.22	.31	.35	<b>.69</b>	.40	
13. difficulty expressing feelings	1.66	.70	.32	<b>.62</b>	.38	
14. no interests	1.29	.59	.14	<b>.39</b>	.20	
15. not positive about the future	1.52	.74	.35	<b>.58</b>	.41	
<b>Hyperarousal</b>						
16. problems falling asleep	1.69	.81	.43	.37	<b>.69</b>	
17. trouble staying asleep or waking early	1.69	.82	.49	.45	<b>.69</b>	
18. difficulty concentrating	1.85	.68	.40	.38	<b>.65</b>	
19. alert	1.87	.79	.38	.32	<b>.57</b>	
20. easily startled	1.66	.73	.46	.41	<b>.64</b>	
21. often arguing	1.48	.47	.38	.46	<b>.63</b>	
22. outbursts of anger	1.43	.57	.38	.46	<b>.64</b>	
Explained variance per component			5.87	5.78	5.54	

Total Variance Accounted for by MGM is : 9.56 (43.43%)

Total Variance Accounted for by PCA is : 10.05 (45.67%)

## Appendix V

### SCA for the Dutch version of the RATS for the Dutch indigenous research

<b>RATS (SCA)</b>					
Item	Mean	S.D.	Component weights		
N=			1	2	3
<b>Intrusion</b>					
1. unintentionally thinking about the event	1.63	.60	<b>.76</b>	.48	.46
2. nightmares	1.31	.35	<b>.72</b>	.39	.42
3. feeling the event is happening again	1.36	.45	<b>.72</b>	.39	.41
4. sad/scared	1.40	.48	<b>.78</b>	.52	.43
5. acting in the same way	1.26	.32	<b>.56</b>	.31	.27
6. feelings in the body	1.41	.54	<b>.74</b>	.52	.45
<b>Numbing/Avoidance</b>					
7. avoiding thoughts	1.51	.70	.53	<b>.66</b>	.41
8. hiding feelings	1.63	.88	.52	<b>.72</b>	.45
9. avoiding places/people	1.39	.60	.51	<b>.61</b>	.42
10. forgetfulness with regards to event	1.29	.42	.27	<b>.50</b>	.20
11. feeling alone	1.31	.39	.42	<b>.69</b>	.41
12. no contact	1.18	.23	.27	<b>.60</b>	.26
13. difficulty expressing feelings	1.58	.66	.36	<b>.62</b>	.42
14. no interests	1.24	.43	.13	<b>.41</b>	.17
15. not positive about the future	1.34	.45	.26	<b>.56</b>	.32
<b>Hyperarousal</b>					
16. problems falling asleep	1.62	.80	.38	.37	<b>.68</b>
17. trouble staying asleep or waking early	1.53	.71	.42	.37	<b>.70</b>
18. difficulty concentrating	1.81	.76	.36	.38	<b>.71</b>
19. alert	1.79	.81	.35	.40	<b>.60</b>
20. easily startled	1.59	.65	.44	.39	<b>.59</b>
21. often arguing	1.49	.52	.30	.34	<b>.64</b>
22. outbursts of anger	1.45	.62	.33	.34	<b>.61</b>
Explained variance per component			5.42	5.42	5.08

Total Variance Accounted for by MGM is : 9.50 (43.20%)

Total Variance Accounted for by PCA is : 9.82 (44.64%)