A BRIEF INVENTORY TO INVESTIGATE STRESS REACTIONS:

POSTTRAUMATIC SYMPTOM SCALE , 10 ITEMS (PTSS-10)

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Summary

The purpose of this paper is to describe some psychometric properties of a short 10-item scale assessing posttraumatic symptomatology (the Posttraumatic Symptom Scale, PTSS-10 by Raphael, Lundin & Weisaeth, 1989; German version by Schüffel & Schade, 1992). This scale was part of an extensive questionnaire sent to staff of the German Armed Forces who took part in the UNTAC-Mission (United Transitional Authority in Cambodia) from May 1992 to November 1993.

There were 238 respondents (52.9% of 450 persons; 5.9% females). The average age was 33 years old.

The reliability of the PTSS-10 is good (Cronbach's α= 0.85), and the corrected item-total-correlations are satisfactory for all items.

The mean score on the PTSS-10 for the mission sample was 5.4 points. Females exhibited significantly more symptoms than males ($p < 0.01$). The most frequently reported symptoms were "need to withdraw", "irritability" and "mood swings".

Factor analysis resulted in two main factors. Preliminary indications concerning the validity of the PTSS-10 are also presented. Correlations between the discovered factors and the subscales of the Giessen Complaint Questionnaire are highly significant. The number of life events significantly correlates with the number of stress reactions ($r = 0.32$). A significant negative correlation was found between the number of stress reactions and the quality of coping strategies, especially for the mechanisms "search for contact vs. withdrawal" and "activity vs. resignation".

1. Introduction

Traumatic events can lead to drastic changes in the lives of those affected, and may eventually result in psychosomatic or physical illness. Such effects follow exposure to a wide variety of traumatic experiences: man-made and environmental disasters, technological accidents (see for example WEISAETH, 1985; SCHÜFFEL, 1989, 1990, 1991, 1993), accidents in general, violence and crime, as well as high-risk occupational activities as members of the police, the fire, emergency and medical services, disaster workers and the military.

The service in UN peace-keeping missions is also associated with risks and typical stressful situations that can lead to temporary or even chronic health damage. These types of situations should be regarded as situations of war or ones similar to it, in which the stressors are commonly of a psychosocial form which can then assume traumatic proportions (see also RAEVSKY, 1996; BARTONE et al., 1966, EGGE et al., 1996). In the face of often extreme cases of human suffering and unspeakable atrocities, UN-soldiers often find themselves in the passive role of having to stand by and helplessly watch as events occur: "Peacekeeping is not a job for soldiers, but no one else can do it" (HAMMARSKJOLD in MOSKOS, 1975).

A n y person participating in such dangerous missions can respond to situations of extreme stress with a typical symptomatology that can last for a short period of time, but can also develop into a chronic health disorder.

Posttraumatic Stress Disorder (PTSD) involves ubiquitously occurring stress reactions of a physical as well as psychosocial nature, and results in major health restrictions - even to the point of acquiring major clinical significance - for the person affected. Approximately 1% of the average population suffers from PTSD.

PTSD develops as a reaction to a **traumatic event** or a situation of extraordinarily threatening or disasterous proportions, which can then produce *in almost everyone* the following typical symptoms.

General characteristics include **constantly reexperiencing** the trauma by way of involuntary memories (flashbacks) or nightmares, apathy towards fellow human beings due to a lasting feeling of numbness and emotional listlessness, indifference towards one's surroundings, and **avoidance of activities and situations** that could reactivate memories of the trauma. It is common for a person to fall into a state of **vegetative irritability** combined with an increasing sense of vigilance, excessive jumpiness and sleep problems. Anxiety and depression are often associated with these symptoms and characteristics, and thoughts of suicide are not uncommon. Drug and excessive alcohol consumption may also appear as complicating factors. The disorder ensues after the trauma with a latency that can last from weeks to months (see ICD-10: WHO, 1991, DSM III-R, DSM IV: APA, 1989, 1994).

As serious as this symtomatology may appear, so simple can often its prevention be. MITCHELL & BRAY (1990) describe a carefully structured form of group discussion under the guidance of

trained specialists, which is conceptionalized as a very effective prevention method for so-called critical incidents: the Critical Incident Stress Debriefing (CISD).
Today there are also effective treatment measures available (see for example SHAPIRO, 1995).

What follows is a description of a relatively short screening instrument, the Posttraumatic Symptom Scale, 10 Items (PTSS-10, by RAPHAEL, LUNDIN & WEISAETH, 1989; German version: SCHÜFFEL & SCHADE, 1992), which assesses the symptoms of PTSD and which, according to the results presented, seems to be able to reliably and validly diagnose both preclinical stages of PTSD as well as general acute and chronic stress reactions.

2. Method

For the first time since the end of WWII, medical personnel from the German Armed Forces participated in a foreign UN mission from May 1992 to November 1993. They ran a field hospital at Phnom Penh which was part of the UNTAC-Mission (United transitional Authority in Cambodia). An extensive questionnaire was sent to the staff after they had returned to Germany.
Stress factors, stress reactions, life events, motivation, social support and coping were among the variables assessed.
The **purpose** of the study was to determine and investigate the causes and the scale of the mission participants' stress reactions and to establish the degree to which these reactions can be traced back to repeatedly observed events during the course of duty, i.e. the identification of typical stressors. Of further importance was the identification of specific factors which may have had an influence on their reactions to stress by either strengthening or easing them - so-called mediating variables.
Comparable data was collected from two control groups also from the military field (see below).

The investigation was based on a **model of stress** which takes three main factors into consideration:
1. the **environment**
2. the **individual**
3. the **stress reactions**.

Certain individual and environmental factors may be said to operate as **mediating variables** that have an impact on the actual, more objective stressors involved with the mission and the reactions to such stressors.
Essentially, this model is based first of all on an idea taken from LAZARUS and coworkers (1978, 1984) which states that a stress reaction is determined **multidirectionally**, and secondly on a concept according to which stress and coping with stress are regarded as a specific form of a **transactional process** (see figure 1).

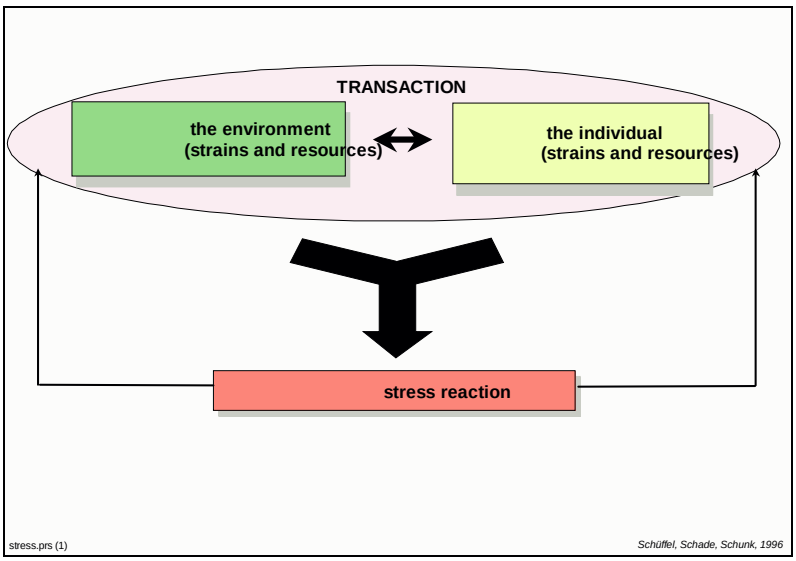

Figure 1: The Stress Modell

We measured the stress reactions first of all by means of the Giessen Complaint Questionnaire (GCQ, in German GBB) developed by BRÄHLER & SCHEER (1983), which is a list of complaints able to measure the subjective extent of single complaints while at the same time offering the possibility of assessing different complaint complexes in the form of a scale.
Secondly, we employed the Posttraumatic Symptom Scale, 10 Items (PTSS-10) by RAPHAEL, LUNDIN & WEISÆTH (1989), a scale which was introduced by the authors as a screening instrument to determine PTSD cases in the aftermath of a disaster (see figure 2).

Originally, the scale structure per item was dichotomous, meaning that the subjects were asked whether the symptom was present or not and the answers were either "yes" or "no".
According to WEISÆTH (1993, personal information), the inventory criteria were

0 - 3 times	"yes"	insignificant
4 - 5 times	"yes"	requires more detailed investigation
6 and more	"yes"	suspected PTSD case

This scale was extended to incorporate a seven-point scaled answer form ranging from "never" = 0 to "always" = 6 points.
Since the literature on the PTSS-10 has so far produced little evidence for the reliability and validity of this obviously very useful scale, we would like to do so here by presenting the following test results.

POSTTRAUMATIC SYMPTOM SCALE (PTSS-10)

This section deals with your present well-being and asks about typical reactions that occur as a result of strain or stress.
Please mark the number that expresses what best applies for you. Please mark „0" if the condition has not occurred, „1" if allusively, until „6" if you are always confronted with the problem and if this is very burdensome for you.

Presently (*this means in the past few days*) I suffer from:

1. **sleep problems**						
never						*always*
0	*1*	*2*	*3*	*4*	*5*	*6*
2. **nightmares about duty in Cambodia**						
never						*always*
0	*1*	*2*	*3*	*4*	*5*	*6*
3. **depression**, I feel dejected/down-trodden						
never						*always*
0	*1*	*2*	*3*	*4*	*5*	*6*
4. **jumpiness,** I am easily frightened by sudden sounds I hear or sudden movements I see						
never						*always*
0	*1*	*2*	*3*	*4*	*5*	*6*
5. the **need to withdraw** from others						
never						*always*
0	*1*	*2*	*3*	*4*	*5*	*6*
6. **irritability**, that is, I am easily agitated / annoyed and angry						
never						*always*
0	*1*	*2*	*3*	*4*	*5*	*6*
7. frequent **mood swings**						
never						*always*
0	*1*	*2*	*3*	*4*	*5*	*6*
8. a **bad conscience**, blame myself, have guilt feelings						
never						*always*
0	*1*	*2*	*3*	*4*	*5*	*6*
9. **fear** of places and situations, which remind me of my service in Cambodia						
never						*always*
0	*1*	*2*	*3*	*4*	*5*	*6*
10. **muscular tension**						
never						*always*
0	*1*	*2*	*3*	*4*	*5*	*6*

RAPHAEL, R., T. LUNDIN, L. WEISÆTH: "A research method for the study of psychological and psychiatric aspects of disaster" In: Acta Psychiatrica Scandinavia; Suppl. No.353, Vol. 88, 1989, German version: W. Schüffel, B. Schade, Department of Psychosomatic Medicine, Centre for Internal Medicine, Philipps University Clinic, Baldingerstrasse, D-35033 Marburg/Lahn, Tel. 0049 - 6421 - 284012

Figure 2: Posttraumatic Symptom Scale, 10 Items (PTSS-10)

3. Subjects

The collective of German medical teams participating in the UN peace-keeping mission in Cambodia to be investigated consisted of 450 persons assigned to three contingents, each made up of 150 persons who were in duty in Cambodia for approx. six months. All persons were addressed by post. 52.9% replied to our request and sent back the questionnaires for evaluation (mission group: MG). The average age was 32.7 years old. Of those who replied, 5.9% were women. The average length of time between their return home and when they sent back the questionnaires was 12 weeks.

Each of these mission participants were written to again. In this way we acquired a second set of data from 105 persons who, on the average, responded approx. 1.5 years later (follow-up group: FG).

We recruited the control groups (CG, N = 103) from the participants of a stress seminar run by the German Academy of Medical Service in the German Armed Forces in Munich (N = 78), as well as from soldiers in an army medical service unit (N = 25).

Table 1a: Dempgraphic characteristics of the sample

sample	Return quota	male	female	Mean Age	S.D.	total number
1. contingent	49.6%	61 (95.3%)	3 (4.7%)	30.63	7.82	64
2. contingent	67.6%	98 (94.2%)	6 (5.8%)	32.78	10.36	104
3. contingent	51.2%	65 (92.5%)	5 (7.5%)	34.60	8.91	70
total	52.9%	224 (94.1%)	14 (5.9%)	32.74	9.38	238
FG	44%*	99 (94.2%)	6 (5.8%)	32.28	9.70	105
CG	41%	79 (75.5%)	24 (24.5%)	22.71	5.63	103
total		402	44	29.74	9.59	446

note: *FG:* follow-up group; *CG:* control group; **:* 44% of 238 Subj., 23% of original 450 Subj.; *S.D.:* standard-deviation

Table 1b: Dempgraphic characteristics of the sample, education

sample	"Hauptschule" 9 years	"Realschule" 10 years	"Gymnasium" 13 years	missing data	total number
1. contingent	16 (25%)	18 (28.1%)	21 (32.8%)	9 (14%)	64
2. contingent	25 (24%)	35 (33.7%)	43 (41.3%)	1 (1%)	104
3. contingent	16 (22.9%)	18 (25.7%)	34 (48.6%)	2 (2.9%)	70
total	57 (23.)%)	71 (29.8%)	98 (41.2%)	12 (5.%)	238
FG	20 (18.9%)	25 (23.6%)	43 (40.6%)	17(16%)	105
CG	24 (23.3%)	34 (33%)	41 (39.8%)	4 (3.9%)	103
total	101 (22.6%)	130 (29.1%)	182 (40.8%)	33(7.4%)	446

note: *FG:* follow-up group; *CG:* control group

4. Test Statistics

4.1. Reliability

Reliability is a measure of the degree of exactness with which a test assesses what it sets out to assess.

The reliability of the PTSS-10 was tested in two ways: first by means of internal consistency, and secondly by employing the method of test-retest reliability.

The figures for the PTSS-10 based on the **internal consistency** method are presented in the following table.

Table 2: Reliability

	MG (N=236)	FG (N=102)	CG (N=102)
Reliability (internal consistency)	0.85	0.79	0.86

note: *MG: mission group*
FG: follow-up group
CG: control group

As shown, the coefficients exhibit a rating of satifactory to good. The lower value from the FG is most likely due to the fact that it is a highly selected sample.

The following table lists the so-called **item-total-correlations** for the items in the MG. The item-total-correlation is a measurement that determines how well an item is able to distinguish between persons having a high test sum score and those showing a lower test sum score.
Stated more clearly, an item receives a high rating on selectivity when it distinguishes between persons who have few stress symptoms and those who have many. The item-total-correlations are calculated by extracting the correlation between each single item and the test sum score.

Table 2a: Corrected Item-Total Correlations

Item	**item-total-correlations**
sleep problems	0.52
nightmares	0.54
depression	0.63
jumpiness	0.41
need to withdraw	0.62
irritability	0.67
mood swings	0.70
bad conscience	0.55
fear of recollections	0.34
muscular tensions	0.57

Here the scores are satisfactory. The item mood swings correlates to the highest degree with the total scale. The lowest value is represented by the coefficient for fear of recollections, yet it is still enough to contribute to the scale's total consistency.

The **test - retest reliability** score has a value of 0.66. In view of the fact that a lenghty period of time exisited between the first and the second testing (approx. 1.5 years), we may say that this test score is also satisfactory. Furthermore, this coefficient most likely also reflects the fact that a number of changes taking place in the lives of the mission participants during the said time period began to have an impact, as may be seen in the comparison of the mean values for the first and the second testing. The Wilcoxon-Rang-Test (a parameter-free process for independent sample testing) shows a highly significant rating of $p < 0.0001$, whereby the test subjects exhibited almost

twice as many symptoms during the first evaluation than in the second (see below). Since we also tested whether the subjects experienced significant life events within the framework of the follow-up study, the influence of the life events could be determined in detail. It is interesting to note that there was an increase in symptoms for both subgroups (those with and those without significant life events). For both subgroups the Wilcoxon-Rang-Test was highly significant with a rating of $p < 0.0001$.

4.2 Test Scores

The MG has a mean value of 5.4 points in the total scale. Compared with the control group, the mission team exhibits a very high level of health, which also holds true for the values of the sample tested by the GCQ: compared to the standard sample, the mission participants are, on the average, on the level of the "top" quarter.

The following table shows the scores calculated for the PTSS-10 for the MG, FG and the CG respectively.

Table 3a: Statistics of the PTSS-10

Statistics	MG (N=238)	FG (N=105)	CG (N=103)	total (N=341)
Mean	**5.44**	**9.7**	**9.49**	**6.66**
Standard deviation	6.34	6.74	8.06	7.14
Median	4	8	8	4
Minimum	0	0	0	0
Maximum	39	32	42	42

note: *MG: mission group*
FG: follow-up group
CG: control group

This next table shows the scores calculated in the follow-up study separately for the two subgroups "experienced significant events" and "experienced no significant events". Those who did experience important life changing events tend to exhibit more symptoms (U-Test with $p < 0.1$).

Table 3b: Scores of PTSS-10 in the follow-up study calculated separately for each of the sub-groups "experienced significant events vs. no events"

statistics	FG (experienced significant life events, N = 52)	FG (experienced no significant life events, N = 51)
mean	**11.08**	**8.41**
standard-deviation	7.42	5.84
minimum	2	0
maximum	32	24

note: *FG: follow-up group*

4.3. Test scores according to sociodemographic data

4.3.1. Test scores according to sex

The next table gives the scores calculated according to sex. Women exhibited significantly more symptoms than men in both the first evaluation ($p < 0.05$) as well as in the follow-up evaluation ($p < 0.05$). The differences are insignificant for the CG.

Table 4: Scores according to sex

sex		EG	FG	CG	total
female	sample	14	6	24	38
	mean	**10.64**	**15**	**13.58**	**12.50**
	S.D.	9.84	5.37	11.57	10.92
	minimum	0	8	0	0
	maximum	36	24	42	42
male	sample	223	83	74	298
	mean	**5.09**	**9.48**	**8.16**	**5.87**
	S.D.	5.95	6.83	5.85	6.05
	minimum	0	0	0	0
	maximum	39	32	30	39

note: *MG: mission group*
FG: follow-up group
CG: control group
S.D.: standard deviation

4.3.2. Test scores according to age

The mean value differences between the various age groups were insignificant for all samples (see table 5).

Table 5: Scores according to age

age		EG	FG	CG	total
to 30	sample	119	42	94	212
	mean (median)	**5.8**	**9.12**	**9.49**	**7.42 (5)**
	S.D.	6.88	6.73	7.97	7.61
	minimum	0	1	0	0
	maximum	39	29	42	42
31 - 40	sample	67	28	5	73
	mean (median)	**4.33**	**10.07**	**6.8**	**4.56 (4)**
	S.D.	4.08	6.52	7.66	4.36
	minimum	0	1	0	0
	maximum	17	29	17	17
41 - 50	sample	40	13	1	41
	mean (median)	**5.15**	**12.69**	only one case	**5.32 (3)**
	S.D.	6.34	8.73		6.35
	minimum	0	0		0
	maximum	26	30		26
older than 50	sample	11	6	1	12
	mean (median)	**9**	**7.83**	only one case	**8.86 (6.5)**
	S.D.	10.16	3.76		9.70
	minimum	0	5		0
	maximum	36	15		36

note: *MG: mission group*
FG: follow-up group
CG: control group
S.D. : standard deviation

The responses to the items of the PTSS-10 were not affected by the subjects' educational background.

4.4. Item scores

The following is a presentation of the test results with regard to the items.
The item mean values for the two subgroups as well as for the total collective are shown in table 6. Here we may clearly see that the group of mission participants have the lowest ratings.

Table 6: Means and standard deviations of PTSS-10-Items

	MG		FG		CG		total	
PTSS-10: Item	mean	S.D.	mean	S.D.	mean	S.D.	mean	S.D.
sleep problems	0.70	1.17	0.93	1.13	0.80	1.09	0.73	1.14
nightmares	0.21	0.64	0.24	0.69	0.36	0.86	0.26	0.72
depression	0.49	0.99	0.97	1.17	0.83	1.23	0.58	1.06
jumpiness	0.36	0.80	0.72	1.06	0.84	1.21	0.50	0.97
need to withdraw	0.96	1.35	1.44	1.36	1.17	1.43	1.03	1.38
irritability	0.93	1.25	1.54	1.25	1.66	1.40	1.16	1.37
mood swings	0.80	1.04	1.45	1.14	1.34	1.33	0.96	1.17
bad conscience	0.47	0.91	0.79	1.13	1.04	1.18	0.63	1.02
fear of recollections	0.16	0.58	0.36	0.85	0.73	1.14	0.32	0.78
muscular tensions	0.35	0.74	1.22	1.32	0.75	1.03	0.45	0.84

note: *MG:* *mission group*
FG: *follow-up group*
CG: *control group*
S.D.: *standard deviation*

Here we see that some of the major symptoms of PTSD, namely nightmares and fear of recollections, are relatively insignificant. The main complaints of the collective are the need to withdraw, irritability and mood swings. In the MG, all symptoms show insignificant values (see chart 1).

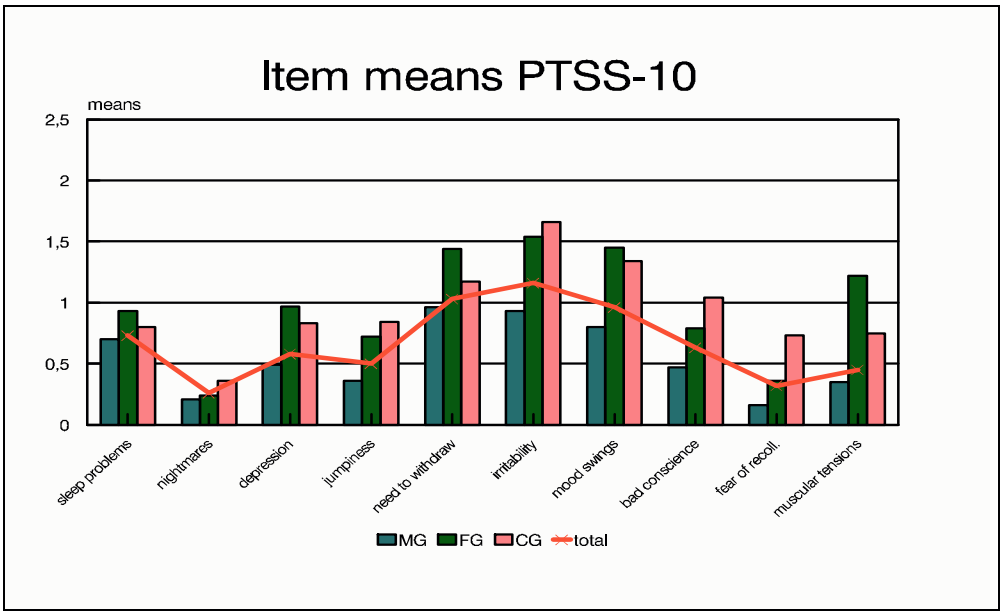

Chart 1: Item means of PTSS-10

4.5. Scores of suspected PTSD

Two percent (N = 5) of the persons from the mission sample (4 men and 1 woman) had a score over or equal 24. In chart 2 (see also table 7), the value distribution of the items is presented. The ratings for the symptoms depression, irritability and mood swings are clearly higher, which is more an indication of general stress reactions or mental instability. It is clear to see that the symptoms jumpiness, fear of recollections and nightmares show a relatively low rating compared with the other symptoms. If these symptoms had received higher values, we would have been able to interpret them as a clear indication of the presence of PTSD.

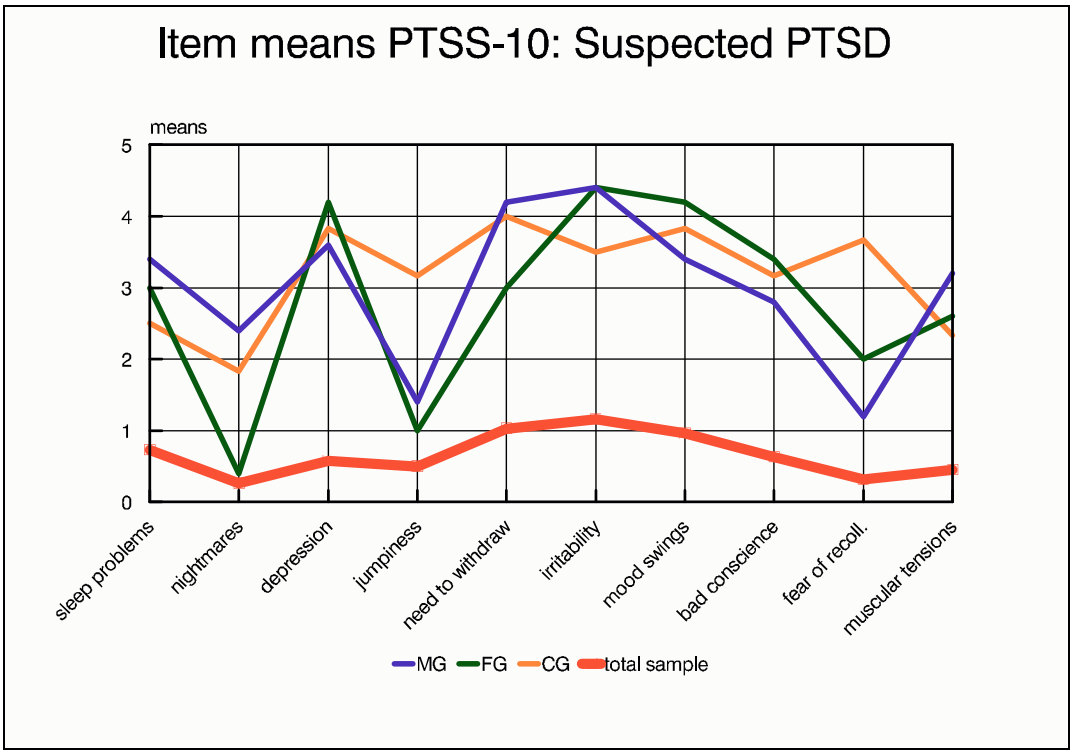

Chart 2: Item means for suspected PTSD

Table 7: Overview, Values of PTSS-10 for suspected PTSD (PTSS-10 ≥ 24)

PTSS-10	**MG** mean (N=5)	S.D.	**FG** mean (N=5)	S.D.	**CG** mean (N=6)	S.D.	**total (MG+CG)** mean (N=11)	S.D.
sleep problems	3.4	2.30	3.0	1.87	2.50	1.38	2.91	1.81
nightmares	2.4	1.52	0.4	0.55	1.83	2.32	2.09	1.92
depression	3.6	1.52	4.2	1.10	3.83	1.47	3.73	1.42
jumpiness	1.4	1.52	1.0	0.70	3.17	1.33	2.36	1.63
need to withdraw	4.2	1.30	3.0	2.12	4.00	1.55	4.09	1.38
irritability	4.4	1.14	4.4	1.52	3.50	1.64	3.91	1.45
mood swings	3.4	1.52	4.2	1.10	3.83	1.33	3.64	1.36
bad conscience	2.8	1.92	3.4	0.89	3.17	1.72	3.00	1.73
fear of recollections	1.2	1.64	2.0	2.55	3.67	1.75	2.55	2.10
muscular tensions	3.2	1.30	2.6	1.14	2.33	1.75	2.73	1.56

note: *MG: mission group*
FG: follow-up group
CG: control group
S.D.: standard deviation

4.6. Factor analysis

The items of the PTSS-10 for the total sample underwent factor analysis. We received a two-factor solution explaining 56.4% of the variance. Table 8 presents the structure of the factors. The two relevant items are marked accordingly. Factor 1 seems to reflect a more general state of mental instability, while Factor 2 represents more the specific symptoms of PTSD.
This factor structure could be confirmed for the subgroups, and can thus be considered as evidence for the factor validity of the PTSS-10.

Table 8: Factor loadings of the items

Item	FAKTOR 1	FAKTOR 2
need to withdraw	**0.794**	
mood swings	0.789	
irritability	0.736	
depression	0.730	
jumpiness	0.546	
fear of recollections		**0.759**
nightmares		0.747
muscular tensions		0.705
bad conscience		0.605
sleep problems		0.553

It should be noted that the main symptoms of the sample in the PTSS-10 described above are all distributed under Factor 1 (general mental instability).

4.7. Correlations with external criteria

4.7.1. Correlations of the factors with the Giessen Complaint Questionnaire

The correlations with the Giessener Complaint Questionnaire (GCQ) may also be taken as evidence of the validity of the PTSS-10 scale. Table 9 gives an overview.
The items of the two factors respectively were compiled together in a sum score. All correlations are highly significant (see table 9). However, the two-factor structure is not reflected in the correlation pattern.

Table 9: Correlations between GCQ and PTSS-10-Factors respectively PTSS-10 Sum score

GCQ-Scale	FACTOR 1	FACTOR 2	Sum score
fatigue	0.48**	0.44**	0.51**
abdominal complaints	0.33**	0.28**	0.41**
muscular pain	0.39**	0.38**	0.41**
chest pain	0.34**	0.34**	0.36**
sum of complaints	0.52**	0.49**	0.55**

*note: **: $p < 0.01$*

4.7.2. Correlations with environmental variables

Working conditions regarded as stress factors were, among others, 1. the physical stress experienced during the mission (infections, illnesses, injuries); 2. perceived bodily threats (such as the involvement in armed conflicts); 3. the emotional impact of witnessing the death of an individual; and 4. the extent to which the person experienced an impairment of their ability to act.
The PTSS-10 is correlated with the sum score of all these variables: $r = 0.28$ ($p<0.0001$).

The previously existing life stress was measured in accordance with the items of the UNIFIL (see also HOLMES & RAHE, 1967). The subjects were questioned about life events during the last two years prior to serving in the mission. Nowadays it is an indisputable fact that not only does the presence of life events have an influence on the person's state of well-being, but that the much higher relevance the impact of such events have on the subjectively meaningful sphere of the person's well-being must also be acknowledged. We found that the number of life events was correlated with the PTSS-10: $r = 0.32$ ($p<0.0001$).

This value corresponds very well to the coefficients that can be found in literature on the connections between life events and a person's state of well-being (see for example DAVISON & NEALE, 1988). This fact can be taken as evidence for the validity of the PTSS-10 as well.

One must be careful about drawing causal conclusions in this context. There is, however, a clear relationship between the number of past life events and the actual state of well-being.

A further indication of the validity of the PTSS-10 is that it shows a highly significant negative correlation with the variables for "social integration" ($r=-0.37$, $p<0.01$). We also received this variable from the control sample. It was assessed by means of the questionnaire on social support (F-SOZU) by SOMMER & FYDRICH (1989). It is a well-known fact that social support can act as a buffer against strong stress reactions - thus the negative correlation.

4.7.3. Correlations with the indiviual variables

The way a person copes with stress, generally designated as **COPING**, was identified as a significant **indivdual variable**. Negative consequences of stress could be reduced, when not fully prevented, through effective coping mechanisms. Conversely, maladaptive coping strategies did not only not absorb stress but could even intensify the negative consequences.
Clear correlations are found between the PTSS-10 and the coping mechanisms "search for contact vs. withdrawal" ($r=0.23$, $p<0.001$) and "activity vs. resignation" ($r=0.27$, $p<0.0001$). This means that strategies such as active attempts to control the situation or actively seeking out social support corresponded to a significantly reduced symptomatology, while the practice of avoiding social contact or resignative tendencies such as "giving up since you can't change the situation anyway" related to significantly higher numbers of symptoms (see SCHÜFFEL, SCHADE, SCHUNK, in preparation, 1996).
These results, as well, are in accordance with the general information on the subject and thus testify to the validity of the PTSS-10.

5. Summary and Perspectives

In summary we may say that the reliability may be interpreted as good. This also holds true for both internal consistency and test-retest reliability, whereby the long period of time between the first and second PTSS-10 evaluation must be taken into account when viewing the results of the latter test.
Here it is important to note that the investigated collective represents a carefully selected sample. It refers to a group of young people mainly consisting of men.
The mission sample must also be distinguished from the average population in that they are members of the German Armed Forces and are thus specially trained to handle such mission situations.

These facts are reflected in the results. The average markedness of the symptoms is minimal. While this is true for all groups investigated, the symptoms are more prominent in the control group and in the follow-up sample.
The special feature of this sample is the low rate of cases with suspected stress disorders (2%). This value must be seen against the background that the persons questioned, except for the control groups, all had a mission involving a number of very strong stress factors behind them.

For these reasons, further research on the PTSS-10 should include other groups. Here we would like to suggest representative groups from the average population as well as clinical samples suffering from identified disorders (see STOLL et al., 1995).

What may undoubtably be characterized as an extremely interesting result is the factor structure found for PTSS-10. Should this structure be confirmed in future investigations, it would provide interesting implications for the differential diagnostic use of this scale (see below).

The relations with external criteria demonstrated in this study can be regarded as an indication of the validity of the PTSS-10.
Its correlation with life stress should be particularly emphasized, since the coefficient found fits unproblematically in with the results of other studies on connections between life stress and negative states of well-being.
More detailed investigation is needed in particular in the testing of the scale's validity. A great source of help in this area would be comparisons of PTSS-10 values and PTSD diagnoses by experienced psychiatrists or clinical psychologists.

Although one should not place high expectations on such a screening instrument as the PTSS-10, it is still worthy of notice that this scale is able to single out with reliability suspected cases of PTSD and does not provide incorrect diagnoses.
The question here is whether the PTSS-10 can distinguish between PTSD, "non-PTSD" and other disorders, in other words the scale’s sensitivity and specifity have to be assessed. This problem is certainly related to the validity and reliability of the syndrome of PTSD as it is provided by the DSM's diagnostic criteria.
Possible access to further research may be seen in the factor structure of this scale as it has been confirmed in this study. It seems plausible that the items assessing general mental instability (Factor 1), such as the need to withdraw, depression or mood swings, are also more prominent when associated with other health disorders. By comparison, specific symptoms such as nightmares or fear of recollections (Factor 2) should be seen primarily in connection with suspected PTSD.
It is therefore justified to maintain that reliable and valid diagnoses may be made on the basis of factor profiles.

Further research is in any case necessary before all questions raised in this investigation are answered.

6. Literature

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