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Assessment *The Post-Traumatic Embitterment Disorder Self-Rating Scale (PTED Scale)*

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The present study introduces the Post-Traumatic Embitterment Disorder Self-Rating Scale (PTED Scale), which asks for prolonged and disabling embitterment reactions in the aftermath of negative life events. The PTED Scale was administered to four independent samples of patients and normals. Internal consistency and test-retest reliability were high. Factor analysis indicated a two-factor solution, accounting for 55.25% of the total variance. The PTED Scale discriminated significantly between patients who had been classified according to clinical judgement as suffering from pathological embitterment. Correlations with related instruments demonstrated good convergent validity. Data obtained from a non-clinical sample indicated a prevalence of clinically relevant embitterment in the general population of about 2.5%. The PTED Scale is a reliable and valid measure for embitterment as an emotional reaction to a negative life event. Furthermore, results demonstrate that reactive embitterment in connection to a negative life event is a prevalent phenomenon among clinical and non-clinical populations. Copyright © 2009 John Wiley & Sons, Ltd.

INTRODUCTION

Negative life events can result in very different psychological reactions, ranging from good coping to anxiety, depression or post-traumatic stress disorder (PTSD) (Bale, 2006; Boelen & Lensvelt-Mulders, 2005; Mancini & Bonanno, 2006; Mol et al., 2005; Viinameaki, Koskela, Niskanen, & Taehkae, 1994). One answer can be embitterment, a feeling known to most persons. Like anxiety, depression or other stress reactions, it can become pathological when it reaches greater intensity and is accompanied by feelings of helplessness, dysphoric mood, intrusive thoughts, aggression towards others and sui-

cidal ideation towards oneself, withdrawal from others, phobic avoidance of places and persons that can remind oneself of the critical event, or multiple somatoform complaints (Hauer, Wessel, & Merckelbach, 2006). In this case, patients must be considered as ill. Clinical experience even suggests that this can lead to a very disabling state of mind, become dangerous for the patient and even his surroundings, and is very difficult to treat. It is rather astonishing that there is almost no scientific research on this subject. Linden and coauthors (Linden, 2003; Linden, Baumann, Lieberei, & Rotter, 2008; Linden, Baumann, Rotter, & Schippan, 2007a; Linden, Rotter, Baumann, & Lieberei, 2007; Linden, Schippan, Baumann, & Spielberg, 2004;) have described and summarized this clinical syndrome as 'post-traumatic embitterment disorder (PTED)', which is seen as a subtype of adjustment disorder and understood as a

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reaction to exceptional, though normal negative life events, such as unemployment, divorce or death of a relative. The common pathogenetic feature of such events is that they are experienced as unjust and unfair and that they violate 'basic beliefs' (Beck, Rush, Shaw, & Emery, 1979, Janoff-Bulman, 1992) or 'valid overvalued schemas' (Dalglish & Power, 2004; Dalglish, 2004). The pathogenic mechanism in PTED is not an event-inherent property, but emerges from the match between the belief and value system of the patient on one side, and the violation of these beliefs by the event on the other. Thus, like PTSD, PTED is characterized not by a particular type of stressful events, but by a distinct psychological process (experiences of injustice and humiliation) and by a highly specific psychopathological profile (embitterment).

This paper describes for the first time the PTED Self-Rating Scale (PTED Scale; originally developed in German), which asks for embitterment and associated psychological symptoms in reaction to negative life events. The aim is to provide an instrument that allows screening for this type of psychological reaction to stressful life events in the hope to open new avenues for diagnosis and treatment. Data on a principal component analysis of the scale, internal consistency, test-retest reliability, and convergent and discriminant validity are presented. Additionally, frequency distributions in clinical and non-clinical samples are reported.

METHOD

The PTED Self-Rating Scale

The PTED Self-Rating Scale (PTED Scale) is a 19-item questionnaire designed to assess features of embitterment reactions to negative life events. The characteristic features of reactive embitterment as outlined by Linden (2003) were summarized and translated into self-rating questions by an expert team of researchers experienced with pathological reactive embitterment. The questionnaire starts with the instruction 'please read the following statements and indicate to what degree they apply to you'. The questionnaire starts with the line 'During the last years there was a severe and negative life event . . . ' and is then followed by individual statements such as ' . . . that hurt my feelings and caused considerable embitterment'. The participants are asked to indicate for each item on a five-point scale to what degree the statement applies to them. The scale ranges from (0) 'not true at all', (1) 'hardly true', (2) 'partially true', (3) 'very much true' to

(4) 'extremely true'. Items of the PTED Scale¹ are shown in Figure 1.

Participants

The PTED Scale was administered to four samples.

Patients with severe embitterment reactions (PTED sample) and matched control patients: During a recruiting period of 20 months, all physicians of the Department of Behavioural and Psychosomatic Medicine at the Seehof Rehabilitation Centre were asked to name patients who might suffer from reactive embitterment. On the basis of an extensive clinical interview, 49 (29 women, 20 men) of 88 reported inpatients were diagnosed by a clinician (B.S.) as suffering from prolonged and disabling embitterment and fulfilling the diagnostic criteria for PTED (Linden, 2003). The age of patients ranged from 30 to 61 (mean = 49.6; standard deviation [SD] = 7.02). The control group consisted of 48 patients who were treated as inpatients because of other mental disorders. According to the Mini International Neuropsychiatric Interview (Sheehan et al., 1998), both groups fulfilled the criteria for many disorders with a significantly higher occurrence of major depression ($\chi^2 = 18.71$, $p < 0.001$) and chronic adjustment disorder ($\chi^2 = 21.54$, $p < 0.001$), but less generalized anxiety disorder lifetime ($\chi^2 = 8.52$, $p = 0.004$) in PTED patients. Whenever a PTED patient was admitted, the next incoming patient with the same gender and age was selected for the control group (no patient refused).

Unselected inpatients (UI): From the Psychosomatic Rehabilitation Hospital Heinrich Heine, Potsdam, 100 consecutive and unselected inpatients (73 women, 27 men) were recruited, who suffered from all kinds of chronic mental disorders (no patient refused). The age of patients ranged from 27 to 63 (mean = 46.9; SD = 8.76). In this opportunity sample, the scale was administered twice, with a time interval of 6–8 days.

Patients in general practice (GP): An opportunity sample of 221 patients (158 women, 63 men) who were seeing a general physician was investigated. The age of patients ranged from 15 to 81 years (mean = 42.5; SD = 13.8).

Train sample (TS): One hundred fifty-eight persons (85 women, 73 men) who were traveling in a public train from Berlin to Frankfurt/Oder from 7:00 a.m. to 8:00 p.m. were asked to fill in the

¹The original German version of the PTED Scale was, for the presentation in the presented paper, translated into English by the authors and subsequently reviewed and edited by an American English native speaker.

Please read the following statements and indicate to what degree they apply to you.
Please do not miss a line:

I agree with this statement

During the last years there was a severe and negative life event

1. that hurt my feelings and caused considerable embitterment
2. that led to a noticeable and persistent negative change in my mental well-being
3. that I see as very unjust and unfair
4. about which I have to think over and over again
5. that causes me to be extremely upset when I am reminded of it
6. that triggers me to harbour thoughts of revenge
7. for which I blame and am angry with myself
8. that led to the feeling that there is no sense to strive or to make an effort
9. that makes me to frequently feel sullen and unhappy
10. that impaired my overall physical well-being
11. that causes me to avoid certain places or persons so as to not be reminded of them
12. that makes me feel helpless and disempowered
13. that triggers feelings of satisfaction when I think that the responsible party having to experience a similar situation
14. that led to a considerable decrease in my strength and drive
15. that made that I am more easily irritated than before
16. that makes that I must distract myself in order to experience a normal mood
17. that made me unable to pursue occupational and/or family activities as before
18. that caused me to draw back from friends and social activities
19. which frequently evokes painful memories

not true at all	hardly true	partially true	very much true	extremely true
0	1	2	3	4
0	1	2	3	4
0	1	2	3	4
0	1	2	3	4
0	1	2	3	4
0	1	2	3	4
0	1	2	3	4
0	1	2	3	4
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0	1	2	3	4
0	1	2	3	4
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0	1	2	3	4
0	1	2	3	4
0	1	2	3	4
0	1	2	3	4
0	1	2	3	4

Figure 1. The Post-Traumatic Embitterment Disorder Self-Rating Scale

questionnaire. In order to enhance representativity of the sample, pre-selection of participants took place. It was aimed for an equal distribution on 2 (sex) $\times$ 5 (age group)-factor levels. The age of participants ranged from 20 to 65.

In each sample, instructions were given in a standardized manner, and each participant was informed about study procedures, data protection and the participant's right to terminate participation at any time. All participants signed an informed consent form in which they declared that they had been informed about the purposes of the study and were willing to participate.

The examinations of the PTED and GP sample were done with a 17-item version of the scale. Then, in order to remove some lack of clarity, two items of the 17-item version were split into two items, resulting in the final 19-item version (Figure 1), which was applied in the UI and the GP sample.

Procedure

To assess the reliability of the PTED Scale, the internal consistency was examined, and a test-retest was carried out, using the data of the UI sample. Furthermore, an explorative principal component analysis was conducted to analyse the factorial structure of the questionnaire.

In order to assess the discriminant capacities of the scale, a discriminant analysis was calculated, comparing the PTED sample with the matched control group. The convergent validity of the PTED Scale was tested by comparing PTED scores with scores from the 'Bern Embitterment Scale' (Znoj, 2009), the 'Impact of Event Scale' (IES-R) (Horowitz, Wilner, & Alvarez, 1979) in the modification by Maercker and Schützwohl (1998), and the 'Symptom Checklist-90' (SCL-90-R) (Derogatis, 1977; German version by Franke, 1995) using data of the PTED sample.

To explore the prevalence of embitterment, the PTED Scale was given to four independent subject samples. The frequency of occurrence and the intensity of embitterment were analysed.

RESULTS

Reliability of the PTED Scale

The ratings of the UI sample on all items are given in Figure 2 (first assessment) in descending order. The alpha coefficient was 0.93 ($n = 95$; five cases were excluded from the analyses because of

missing data) indicating a high internal consistency. The Spearman rho correlation was 0.71 for the sum score, with a range of 0.53–0.86 for individual items, speaking for a good test-retest reliability of the PTED Scale (Table 1).

Principal Component Analyses

A principal component analysis was done on all PTED Scale items using the UI sample. The number of factors to be extracted was determined according to the scree plot method (Cattell, 1966). Two factors emerged, accounting for 55.25% of the total variance. After orthogonal rotation using the Varimax technique, a simple structure was obtained (Table 1). All variables were well defined by this factor solution, as indicated by moderately high communality values (range = 0.33–0.79). Factor I was defined by items that ask for the psychological status and social functioning. Factor II was defined by items that ask for the emotional response to the event and for thoughts of revenge. This factor solution comprises the two core dimensions of reactive embitterment: the pathological emotional reaction following a negative life event and the resulting impairment of mental state and social functioning (Linden, Rotter et al., 2007). Therefore, it appears to be appropriate to use a total score of the PTED Scale in order to evaluate the severity of reactive embitterment and PTED symptomatology.

Validity of the PTED Scale

The validity of the PTED Scale was assessed by carrying out a discriminant analysis using the PTED sample and the matched control group. In this analysis, the 17-item version of the PTED Scale was utilized. A chi-square transformation of Wilks' lambda indicated that the computed discriminant function discriminated significantly ($\chi^2 = 76.94$, $p < 0.001$) between both groups. Forty-four of the 49 PTED patients were allocated as having PTED on the basis of the PTED Scale, thus, the sensitivity was 89.8%. Four patients of the 48 control group patients, who had been classified as non-PTED patients by a clinician were diagnosed as having PTED on the basis of the PTED Scale. Thus, the specificity was 91.7%. Overall, the predicted classification based on the PTED Scale was in 90.7% of the cases in accordance with the clinical diagnoses.

The discriminant function indicated a mean total score of 1.6 as the critical discriminant value between the two groups, suggesting that subjects

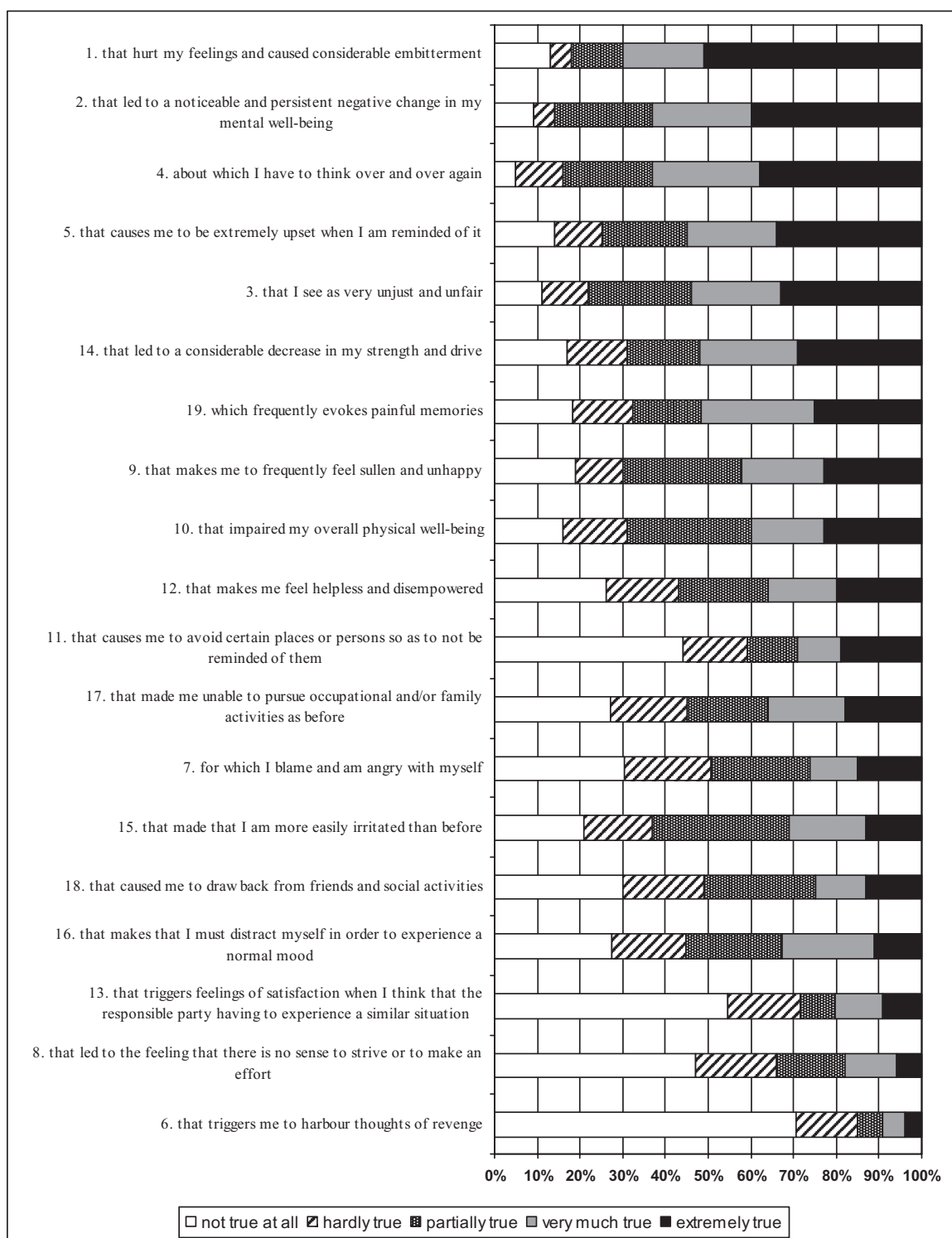


Figure 2. Frequency distribution for each item of the unselected inpatients sample ($n = 100$)

Table 1. Spearman rho coefficients (time interval of 6–8 days), rotated factor solution and within-group correlations with the discriminant function

PTED Scale items	Spearman rho coefficients	Factor I	Factor II	Pooled within-group correlations with the discriminant function
1. That hurt my feelings and caused considerable embitterment	0.640**		0.55	0.639
2. That lead to a noticeable and persistent negative change in my mental well-being	0.706**	0.74		0.594
3. That I see as very unjust and unfair	0.716**		0.70	0.652
4. About which I have to think over and over again	0.742**	0.60		0.693*
5. That causes me to be extremely upset when I am reminded of it	0.713**	0.58		0.739
6. That triggers me to harbour thoughts of revenge	0.540**		0.70	0.432*
7. For which I blame and am angry with myself	0.620**		0.62	0.385
8. That led to the feeling that there is no sense to strive or to make an effort	0.663**	0.52		0.693
9. That makes me to frequently feel sullen and unhappy	0.819**	0.84		0.697
10. That impaired my overall physical well being	0.753**	0.80		0.631
11. That causes me to avoid certain places or persons so as to not be reminded of them	0.796**	0.49		0.508
12. That makes me feel helpless and disempowered	0.726**	0.67		0.700
13. That triggers feelings of satisfaction when I think that the responsible party having to experience a similar situation	0.537**		0.57	0.432*
14. That lead to a considerable decrease in my strength and drive	0.783**	0.89		0.601
15. That made that I am more easily irritated than before	0.681**	0.75		0.680
16. That makes that I must distract myself in order to experience a normal mood	0.775**	0.84		0.663
17. That made me unable to pursue occupational and/or family activities as before	0.742**	0.81		0.588
18. That caused me to draw back from friends and social activities	0.722**	0.62		0.356
19. Which frequently evokes painful memories	0.867**	0.79		0.693 ¹
Mean total	0.713**	Variance explained: 39.19%	16.06%	

**Significance level ≤ 0.01 .

¹The within-group correlations with the discriminant function are obtained from a 17-item version of the PTED Scale. In this version, items 6 and 13 and 19 and 4 had been summed up in one item. The coefficients marked with an asterisk are obtained by these summed up versions of the respective items.

PTED = post-traumatic embitterment disorder.

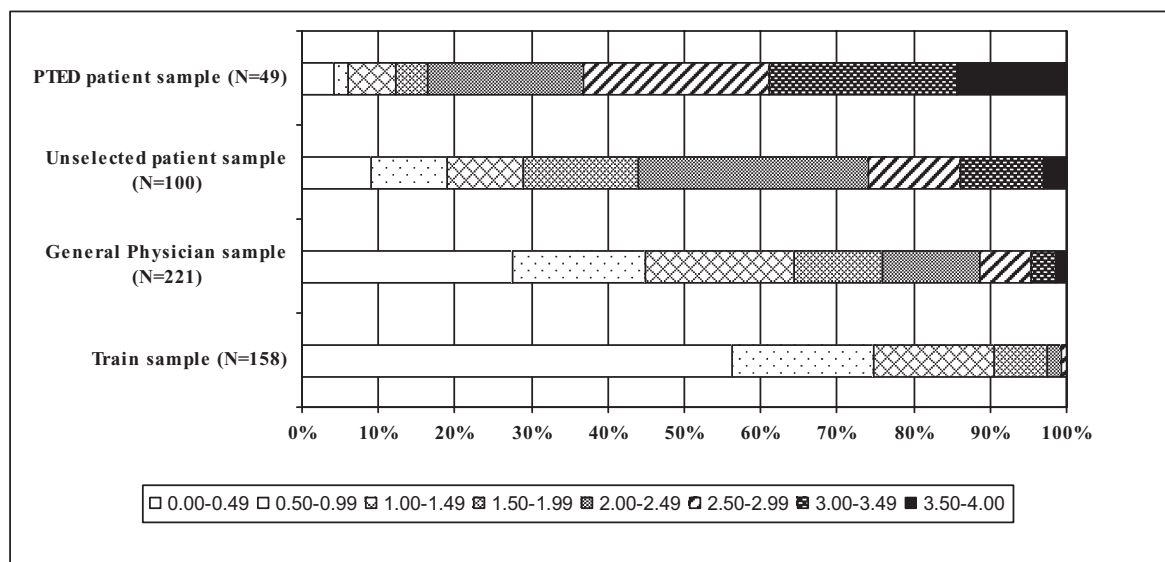


Figure 3. Frequency distributions of four different samples on the Post-Traumatic Embitterment Disorder (PTED) Scale (mean total scores)

who score an average of 1.6 or more on the PTED Scale are suspect to suffer from prolonged embitterment in an intensity of clinical relevance. In regard to clinical practicability, and in order to increase the specificity, a mean total score of 2.5 on the PTED Scale is recommended as a cut-off score, i.e., a score ≥ 2.5 is indicating a clinically significant intensity of reactive embitterment.

Table 1 shows the pooled within-group correlations with the discriminant function for each item. Moderate to high correlations are found for each item, indicating that all items are of discriminant value. Particularly high correlations are found for items asking for intrusive memories (items 5, 19 and 4), for feelings of disempowerment, helplessness and injustice (items 12, 8, 3 and 1), and for items concerning deterioration of mood and numbness (items 9, 15 and 16). These findings reflect three characteristic features of PTED symptomatology: (a) the central role of a negative life event, which frequently triggers painful and intrusive memories; (b) the feeling of helplessness and injustice caused by the event; c) and the resulting deterioration of psychological well-being.

The PTED Scale was significantly ($p < 0.001$) correlated with the IES scale ($r = 0.76$), with the Bern Embitterment Scale ($r = 0.67$), with the SCL-global severity index (GST) ($r = 0.57$), with the SCL-positive symptom total (PST) ($r = 0.53$) and the

SCL Depression Scale ($r = 0.52$), speaking for a good convergent validity. Correlations were calculated using data from the PTED sample and matched control patients.

PTED in Clinical and Non-Clinical Samples

The distributions of the mean total scores of the four different samples are shown in Figure 3. There are clear differences in the mean ($F[3; 523] = 98.46$; $p < 0.001$) and distribution of scores between the four samples. PTED patients show a mean of 2.64 (SD = 0.92; range = 0–3.88), the UI group of 1.95 (SD = 0.92; range = 0–3.89), the GP group of 1.22 (SD = 0.94; range = 0–3.68) and the TS of 0.58 (SD = 0.60; range = 0–2.76). If one takes the TS group as an approximation of the true prevalence of embitterment in the general population, 34.8% say that they remember a recent event that caused feelings of embitterment, and 2.5% have a score of 2 and greater.

DISCUSSION

Embitterment is an emotion that is probably known to everybody. Our data suggest that one-third of the general population remember feelings of embitterment and one-quarter do so in a more intense way (mean total score ≥ 1). However, only

2–3% are suffering from reactive embitterment of clinically relevant intensity. In this respect, embitterment must be understood as a dimensional phenomenon similar to anxiety or depressed mood. Increasing intensity leads to a change in quality.

The PTED Scale is an instrument that can be used to screen for reactive embitterment and also measure severity, similar to anxiety scales for anxiety disorders and depression scales for depressive disorders. Based on the results from the UI and the GP sample, one can assume that some cases that are presently diagnosed as depression or phobia are in fact cases of PTED (Power & Tarsia, 2007). The PTED Scale can, in such populations, alert physicians to this special aspect of the present disorder, which in any case should have consequences for the treatment (Linden, Baumann, & Schippan, 2006; Linden, Rotter et al., 2007; Schippan, Baumann, & Linden, 2004).

Our data suggest, that a mean total score ≥ 2.5 on the PTED Scale indicates a clinically significant intensity of reactive embitterment. The internal consistency and the retest reliability were high. The construct validity of the PTED Scale was demonstrated by the level of concordance (90.7%) with clinical judgments. Convergent validity could be shown, as there were significant correlations with the Bern Embitterment Scale, the IES and the SCL-90-R.

When interpreting the data, several limitations of the present study must be taken into consideration. Data were obtained using the original German version of the PTED Scale. Further investigations in English-speaking populations are needed in order to assess the psychometric properties of the English version of the PTED Scale. Another shortcoming of the present results is that they were obtained with two differing versions of the PTED Scale (17 and 19-item version). Even though it is not likely, one cannot out rule that the alteration of the scale had an influence on the results.

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