Self-efficacy in acutely traumatized patients and the risk of developing a posttraumatic stress syndrome

Selbstwirksamkeit als Prädiktor eines posttraumatischen Stresssyndroms bei akut traumatisierten Patienten

Abstract

Post traumatic stress disorder (PTSD) occurs across 15-20% of victims suffering physical injury. The occurrence of PTSD has been attributed to both the trauma and the victim’s individual resources, such as resilience, coping strategies, and social support systems. In the present study, we explored the role of self-efficacy for cognitive self-regulation in the posttraumatic adaptation process of sixty-five patients immediately following trauma (T1) and approximately four months later (T2) assessing posttraumatic stress syndrome according to DSM-IV criteria. We hypothesized perceived self-efficacy as a predictor for an increased risk of developing posttraumatic stress symptoms. Self-efficacy measured immediately following trauma correlated significantly with the development of posttraumatic stress syndromes. This finding suggests that the evaluation of cognitive adaptation to trauma is a helpful marker for clinical outcome assessment and can therefore be used for the identification of patients needing psychotherapeutic intervention.

Keywords: PTSD, acute traumatization, cognitive self-regulation, self-efficacy, posttraumatic adaptation

Introduction

Acute stress disorder and PTSD following acute physical trauma have been observed in an average of 15-20% of all trauma victims, some studies reporting prevalence rates as high as 39% [7], [9], [10], [11], [23], [27], [28], [31]. Severe specific traumatization, notably burn injuries, may lead to chronic PTSD in as many as 45% [30], [41]. These PTSD prevalence rates among accident victims suggest the need for comprehensive, adequate and ap-
between cognitions, emotions, and symptoms in patients project on posttraumatic stress reactions and interactions in a acute trauma in order to predict the later development of PTSD. It might be useful to identify dysfunctional coping during the early course of adaptation following acute trauma in order to predict the later development of PTSD. Lacking sufficiently trained medical staff, however, hampers incorporating specific interviews as part of the clinical routine examination. Psychometric screening instruments were suggested to be highly beneficial for the identification of patients urgently needing supportive psychotherapy [17].

The occurrence of psychological sequelae has been associated with several factors, including the nature of the trauma, trauma severity, but also with individual psychological vulnerability [5], [32], [36], [40]. Factors protecting from the development of severe stress-related reactions were positive social support and a high sense of coherence (SOC) [2]. In a study from Frommberger et al. [22] on severely injured traffic accident victims, the SOC was found to negatively correlate with the development of posttraumatic psychopathology, psychological disorders (i.e. posttraumatic stress disorder following the accident), and anxiety-related cognitions. Dysfunctional cognitions were among the characteristic long-term psychological changes following trauma [19], [20]. Posttraumatic coping can therefore be described as a multidimensional process. As a consequence, successful posttraumatic adaptation may be disturbed or completely abolished by prominent and dominating individual risk factors, such as previous trauma or poor social support [12], [24], [29]. Effective strategies for PTSD therapy often integrate elements of cognitive therapy. Utilizing positive as well as correcting cognitions has been demonstrated to be a useful element of specific trauma-processing methods, such as behavioral techniques [19] and EMDR [25], [37]. Hence, cognitive variables are considered a cornerstone in both functional and dysfunctional reactions to stress in Kanfer’s self-regulation model [26]. Antonovsky [2] described the SOC as an indicator of the individual’s ability to mobilize resources in the wake of adverse events. He proposed the SOC’s three constituents, meaningfulness, comprehensibility, and manageability, to be analogous to Bandura’s concept of self-efficacy [3]. Bandura ([3], p. 3) described self-efficacy as the “belief in one’s capabilities to organize and execute the courses of action required to produce given attainments”.

In view of the considerable number of physically traumatized patients developing psychological problems in the aftermath of trauma, it might be useful to identify dysfunctional coping during the early course of adaptation following acute trauma in order to predict the later development of PTSD. The current study was part of a comprehensive research project on posttraumatic stress reactions and interactions between cognitions, emotions, and symptoms in patients at the department of plastic, hand and burn surgery of the RWTH Aachen University Hospital. It was the aim of this study to compare the association between perceived self-efficacy in patients shortly after undergoing emergency surgery (T1) and approximately four months later (T2) and the development of posttraumatic stress symptoms or a posttraumatic stress syndrome. Based on the assumption of an autonomous, self-regulating mental system, we hypothesized that low perceived self-efficacy is a predictor for an increased risk of developing posttraumatic stress symptoms and a posttraumatic stress syndrome following physical injury.

Methods

Participants

All patients (n=139) hospitalized in the department of plastic, hand and burn surgery at the University Hospital, RWTH Aachen University between April 1997 and October 1998 with an acute physical trauma were asked to participate in this study. Exclusion criteria were: age <14, co-morbid psychotic disorder, organic mental disorder, closed-head injury, physical inability to participate, and physical injuries due to attempted suicide. Patients were also excluded if age or co-morbidity made it difficult to identify organic or psychological factors as a source of symptoms under study. The reason for excluding psychotic patients and patients treated for attempted suicide from the study was the risk of aggravating their psychological condition.

Twenty-one of the 139 acutely traumatized patients refused to participate from the outset. Reasons for refusal were: advanced age (n=5), language problems (n=3), psychotic or serious neurological disorder (n=2), poor physical condition (n=2), participation considered too personal or bothersome (n=3), lack of justification for the study (n=2), “no reason” or discharged early (n=4). The study was conducted according to the ethical standards of the institution effective at the time of the study. This included obtaining informed consent from all patients invited to participate in the study. In comparison to refusers, the 108 responding patients were on average more than 20 years younger (33.8 vs. 54.2 years) with almost twice as many men (82.4% vs. 47.8%).

Data collection

Patients were examined (a) at the earliest opportunity following admission, either immediately or after being released from the intensive care unit approximately six days post-trauma (T1) and (b) four months following T1 (T2). This interval was chosen in accordance with the DSM-IV criteria for posttraumatic stress disorder demanding posttraumatic stress syndrome persist for at least three months in order to be considered chronic. At T2, 65 patients of the initial study group of 108 patients were...
examined. Forty-three patients had dropped out since they could either not be contacted or failed to complete and return the questionnaires, despite attempts to establish telephone contacts and letters reminding them of their participation. In general, responders at T2 were comparable to drop-outs as for their family status, nationality, mental comorbiditiy and physical/psychosomatic complaints. They differed, however, in the following aspects:

- responders were on average five years older (36.5 vs. 31.1 years; p<.05),
- the male/female ratio (responders: 75.4% men, 24.6% women vs. drop-outs: 93% men, 7% women),
- the percentage of burn injuries was higher in the group of responders (43.1% vs. 32.6%),
- posttraumatic stress syndrome at T1 (43.0%) was more frequent among responders than among drop-outs (23.6%),
- compared to responders, drop-outs were more likely to live with their parents, to attend school, and to never have been employed,
- in the group of responders there were significantly more German high school graduates and professionals than in the group of drop-outs who had a higher portion of lower level education diplomas ("Hauptschulabschluss" or "Realschulabschluss") and unskilled laborers.

In summary, as compared to the initial sample, the final sample was slightly older, contained relatively more women, tended to be better educated, suffered from more serious trauma, and exhibited more posttraumatic stress syndromes. Of the 65 patients available for follow up, 49 were men (75%) with an average age of 36.5±13.7 years. About half of the patients were married (50.8%), 41.5% were single, 7.6% were divorced. Nationalities of patients were: native Germans (81.5%), immigrants of German descent (1.6%), other nationalities (17.9%). Education levels of patients were: school-drop outs (26.2%), remedial school (10.8%), ninth or tenth grades required for admission to vocational colleges, German high school qualifying for college admission (23.1%). About one third of the patients (36.5%) were as of recently employed as unskilled laborers, 19% were employed as office employees and 17.4% were in positions as academic professional employees.

The following types of trauma were observed in the study sample: arm and leg injuries (n=24), face or forehead injuries, concussions (n=2), burn or scalding injuries (n=28), amputations (n=8), electric shock (n=1), and multiple traumata (n=2).

**Instruments**

Perceived self-efficacy was measured with the General Competence Expectancy Test (Generalisierte Kompetenz-erwartung [GKE]) [35] and the Aachen Self-Efficacy Questionnaire (Aachener Selbstwirksamkeitsfragebogen, [ASF]) [39]. The General Competence Expectancy Test (GKE) assesses general self-efficacy which is considered a stable personality characteristic reflecting a person's belief to be able to cope with challenging demands. General self-efficacy correlates positively with variables such as self-esteem and internal locus of control, and negatively with variables such as anxiety and depression [3], [35]. The GKE consists of ten statements concerning challenges and expected outcomes. An example of one of these items is: "I always succeed in solving difficult problems when I make an effort." (English translation, original wording: "Die Lösung schwieriger Probleme gelingt mir immer, wenn ich mich darum bemühe.") Candidates are asked to rate each item on a 4-point Likert scale (from "4 = completely disagree," to "1 = completely agree"). In five studies with a total of 1700 test persons, Schwarzer [35] demonstrated that the internal consistency (Cronbach’s α) of the GKE ranges from 0.74 to 0.93, and its test-retest reliability over a period of eight weeks was r<sub>T2-T1</sub> = 0.71.

Based on the concept of test theory that any single instrument will only measure part of a construct, we decided to use a second questionnaire to enhance the validity of our study. Therefore, patients were also asked to rate the Aachen Self-Efficacy Questionnaire (ASF) [39] which consists of 20 items to be rated on a 5-point Likert scale. The ASF assesses generalized self-efficacy as well as specific factors such as achievement, social interaction and body-related self esteem. Its internal consistency (Cronbach’s α) is 0.90 for the general scale, and 0.74-0.84 for its subscales. The test-retest reliability for the ASF is r<sub>T2-T1</sub> = 0.66 over a period of eight weeks.

The presence and severity of posttraumatic stress symptoms were assessed using the Aachen Trauma Processing Questionnaire (Aachener Fragebogen zur Traumaverarbeitung, AFT) [16]. The AFT contains 29 items (5-point Likert scale) derived from the DSM-IV criteria for Posttraumatic Stress Disorder (PTSD), supplemented with items concerning peritraumatic dissociation according to the B-Criterion for Acute Stress Disorder (ASD) [1]. The dimensional applicability of the AFT was tested by Principal Component Analysis (PCA). The results of the PCA showed that the AFT contains six dimensions represented by 28 of the 29 items; the remaining item was included because of its clinical relevance ("I experience memories or reminders of the event as severe physical stress.", original wording: "Ich erinnere mich immer, wenn ich mich darum bemühe.") Cronbach’s α of the total score was 0.93. The dimensions were: startle reaction (Cronbach’s α=0.79), peritraumatic dissociation (Cronbach’s α=0.82), intrusion (Cronbach’s α=0.85), avoidance (Cronbach’s α=0.80), hyperarousal (Cronbach’s α=0.84), and impairment of psychosocial functioning (Cronbach’s α=0.84).

The test-retest reliability of the questionnaire was examined on a sample of surgical patients (n=314) and a control group of medical students (n=54). The test-retest reliability of the total AFT score for the patient sample after a period of four months was 0.61 and ranged
between 0.40 and 0.58 for its subscales. These rather low results can be explained on the grounds that the AFT was designed as an instrument to measure a momentary state able to change drastically over time. The results are not expected to remain stable over several months. This is supported by the fact that \( R_{tt} \) for the control group of medical students after a period of two weeks was 0.85.

In order to identify patients with a posttraumatic stress syndrome, responses to the AFT were classified according to criteria specified by the SKID-PTSD manual [42]. In order for the A-criterion of the DSM IV for the posttraumatic stress syndrome to be met, patients were required to report a traumatic experience during which they exhibited reactions characterized by fear, helplessness, or horror (score \( \geq 3 \) on a 5-point scale).

Further criteria for the posttraumatic stress syndrome were:

- a mean score of \( \geq 3 \) on the six items describing peritraumatic dissociation (B-Criterion for ASD),
- a mean score of \( \geq 3 \) on the five items describing re-experiencing or intrusions (B-Criterion for PTSD),
- a mean score of \( \geq 3 \) on the seven items describing avoidance (C-Criterion for PTSD),
- a mean score of \( \geq 3 \) on the five items describing hyperarousal (D-Criterion for PTSD).

Symptoms had to persist for at least three months to be considered a posttraumatic stress syndrome (measured at T2).

**Results**

Results of the AFT at T2 identified two subsets of patients: those exhibiting posttraumatic stress syndrome (\( n=20 \)), and those exhibiting no posttraumatic stress syndrome (\( n=45 \)).

In order to identify the relationship between self-efficacy scores at T1 and posttraumatic stress symptoms at T2, product-moment correlations were computed.

Table 1 shows the relationship between self-efficacy (GKE and ASF) at T1 and posttraumatic stress symptoms at T2. Correlations for the GKE, total ASF score, and values for the three ASF subscales, achievement, social interaction, and body-related self-efficacy, are presented.

As shown in Table 1, there were several significant relationships between the self-efficacy scores at T1 and dimensions of posttraumatic stress symptoms at T2. The GKE score correlated negatively with the total AFT score (\( r=-.30, p<.05 \)) and correlated also negatively with three of the six AFT subscales, namely peritraumatic dissociation (\( r=-.32, p<.05 \)), intrusions (\( r=-.38, p<.01 \)), and avoidance behavior (\( r=-.45, p<.001 \)).

Although the total score on the ASF did not correlate significantly with the total score on the AFT, it did show a significant negative correlation with the AFT subscale, “avoidance behavior” (\( r=-.37, p<.01 \)). Other significant correlations were found between several of the ASF subscales and the AFT: the value for the ASF subscale “achievement” was correlated significantly with the total AFT score (\( r=-.27, p<.05 \)), with the AFT subscales “intrusions” (\( r=-.32, p<.05 \)), and “avoidance behavior” (\( r=-.35, p<.01 \)). Subscale 2 of the ASF “social interactions” also showed a significant relationship with the AFT subscale “avoidance behavior” (\( r=-.37, p<.01 \)). No significant relationship was found between the third and last subscale of the ASF “body-related self-efficacy” and the presence of posttraumatic stress symptoms at T2.

We then computed a discriminant analysis with posttraumatic stress syndrome according to the AFT as dependent variable and the total score of GKE (GKE), as well as ASF subscales for achievement, social interaction, and body-related self-efficacy as predictors.
Table 2: Classification after discriminant analysis (n=65)

| Estimated development based on self-efficacy score at T1*** | Actual Development T2 |
|------------------------------------------------------------|-----------------------|
| No posttraumatic stress syndrome                            | No posttraumatic stress syndrome | Posttraumatic stress syndrome | Total |
|                                                            | 35 (78%) **            | 10 (22%) **              | 45 (100%) |
|                                                            | 41 (91%) *             | 04 (09%) *               |         |
| Posttraumatic stress syndrome                              | 16 (80%) **            | 04 (20%) **              | 20 (100%) |
|                                                            | 10 (50%) *             | 10 (50%) *               |         |
| Total                                                      | 51 (78%)               | 14 (22%)                 | 65 (100%) |

* = Observed frequencies
** = Expected frequencies
*** = Included all the aspects of self-efficacy (see Table 1)

The results of the discriminant analysis are given in Table 2. As shown in Table 2, based on the prevalence rate at T2 of 22% (14/65) posttraumatic stress syndrome in our sample, the use of the self-efficacy questionnaires increased the correct identification of the target patients from an unconditional probability of 60% (= (35+4)/65) to a conditional probability of 78% (= (41+10)/65).

In order to identify factors of self-efficacy contributing most to the differentiation of sub-groups, we computed a multiple regression analysis following the “stepwise” algorithm in SAS. To this end, the total score of the AFT was used as a criterion with both specific and general aspects of self-efficacy as independent variables. The stepwise regression analysis exhibited a significant relation between ASF_1= self-efficacy on the achievement subscale and the total AFT score ($R^2=13\%$, $F=9.66$, $p<0.01$). No further aspects of self-efficacy were included in the regression analysis.

Discussion

Applying concepts derived from Kanfer’s self-regulation model [26] and Bandura’s concept of self-efficacy [4], [3], the relationship between self-efficacy and the occurrence of psychological stress syndrome following physical traumatization was examined in the present study. As for all studies, there are general as well as specific limitations. Due to limitations of the representativeness of our study sample, all conclusions concerning other patients’ populations are comparably limited. Compared to patient populations of general surgery departments, our study sample is likely to contain rather severely injured patients. As for the size of our study sample, it was determined by the highly specialized qualification of the surgical department and was not due to any other selection bias. Importantly, the surgical injury severity score (ISS) of these patients had no relevance for our prediction model and was not included in this communication.

In this regard, it was the foremost aim to test whether self-perceived self-efficacy of patients is a useful predictor for the early detection of their being at risk to be later afflicted by posttraumatic stress syndrome. Our results suggest the correctness of this notion since self-efficacy measures were shown to constitute a significant factor for the identification of physically traumatized accident victims at risk of developing posttraumatic stress syndrome. In view of our finding that a high level of self-efficacy correlated negatively with posttraumatic stress symptoms, we assume a high level of self-efficacy to also be protective when coping with trauma. In our study, subscales of self-efficacy showed different correlations with the subscales of the AFT. For example, we found that low perceived self-efficacy correlated most strongly with avoidance tendencies in processing the traumatic event.

As might have been expected, avoidance showed a significant negative correlation with the social interaction dimension of the ASF. Surprisingly, though, one of the related dimensions of the AFT, impairment of psychosocial functioning, failed to exhibit a significant correlation with self-efficacy. It can be assumed that at the time of responding to the AFT, the patients in our study were either still suffering from physical injuries caused by the accident and might thus not have returned to work or school, or they had not been expected to take on their previous social roles at that time. Therefore, our study cannot supply any evidence on the relevance of self-efficacy for the vocational rehabilitation. The relationship between perceived self-efficacy and impaired psychosocial functioning might thus set in significantly later when recovering or facing increased social demands. Another unexpected finding is the absence of a significant relationship between body-related self-efficacy and posttraumatic stress syndrome. This may be due to the possibility that assessing the patients’ recovery from physical injuries depended more on surgical treatment than on their own behavior. Also, it might be related to psychological defense reactions, such as denial tendencies as part of their reactions to their serious physical trauma. The relationship between body-related self-efficacy and trauma reactions is interesting in light of another finding in the above mentioned study by Blanchard and Hickling [6], namely that the relative degree of recovery from physical injuries...
four months post-trauma also predicted recovery from PTSD.

The GKE correlated only significantly with the AFT subscales for intrusion and peritraumatic dissociation. These subscales were suggested by Ehlers, Mayou & Bryant [14] to be predictors for the development of PTSD. Our findings allow us to conclude that during early recovery from physical trauma, subscales of the ASF, such as social interaction or body related self-efficacy, appear rather insensitive for the impairments observed under this condition since hospitalization supplies patients with a highly protective environment. The GKE, however, appears to be more appropriate for the assessment of such early sequelae of physical trauma since it assesses self-efficacy on rather general dimensions.

To the best of our knowledge, the specific relationship between self-efficacy and posttraumatic stress reactions has not been examined previously. However, our study can be viewed in the context of other recent investigations which evaluated the influence of self-regulation processes and self-esteem on the posttraumatic adaptation process [21]. For example, Schnyder ([34], p. 117) found that patients showing marked symptoms of posttraumatic stress following accidental injury (the ”highly symptomatic group”) also had a low “sense of coherence.” Further, Frommberger [22] demonstrated that the Sense of Coherence Self-Rating Scale correlated negatively with the development of posttraumatic psychopathology and psychological disorders. Heinrichs et al. [24] found in their study among a sample of firefighters that a high level of hostility and a low level of self-efficacy at baseline accounted for 42% of the variance in posttraumatic stress symptoms after a work period of 2 years.

A matter of debate remains the fact that the self-efficacy measurement at T1 did not reflect whether low self-efficacy shown by some patients was a response to the acute trauma or whether it represented a pre-traumatic pattern. Also, it remains unclear whether an increase in self-efficacy might be due to a euphoric reaction due to having survived an accident. Regehr et al. [33] examined self-efficacy and trauma in new recruits and experienced firefighters. Their study revealed that experienced firefighters had lower levels of social support and lower self-efficacy than the new recruits. As these variables were associated with traumatic stress and depressive symptoms, it is somewhat disturbing that these protective factors appear to diminish over time.

While it was not possible to obtain standardized data on the accident victim’s psychological state prior to the accident, we are able to underscore that early posttraumatic self-efficacy can indeed be taken as a valid risk indicator predicting an increase in posttraumatic stress symptoms or a posttraumatic stress syndrome. It appears relevant to pursue these questions in further studies by assessing self-efficacy in a non-traumatized population comparable to our study sample.

The results of our study may be limited for other methodological reasons, too. One of these limitations is that our study group was rather heterogeneous with regard to demographic characteristics and to the type and severity of their traumata. The study sample examined at T1 and T2 differed significantly from the patient group not reexamined (dropouts) and from those who had refused to participate in the study as of the start (refusers) with respect to age, gender, education level, and employment. Any conclusions drawn from this study are therefore limited to the group of patients studied in the final sample. Hence, further studies are needed before any comparable relationship between self-efficacy levels and posttraumatic stress symptoms can be generalized to apply to other patient groups. Yet, owing to the respectable size of our study sample and all efforts within reason made to avoid sample biases, there is reason to be positive that results presented do contribute to the understanding and study of PTSD. This point still holds when taking into account that any of these methodological drawbacks relate to circumstances curtailing most studies of this kind performed in a clinical setting.

In summary, the results of our study clearly support that measures of self-efficacy may serve as one promising general process marker useful for the evaluation of posttraumatic adaptation. Other process markers to be investigated might be attribution and the sense of control over the traumatic event and its aftermath. The difference in the correlations between the GKE and the ASF scores and the AFT suggests that the assessment of self-efficacy should be as specific as possible when used to predict maladaptive processes in the aftermath of a trauma. Psychometric instruments employed in our study possess several advantages over extensive interviews which on the one hand accident victims might experience as intrusive and stressful, and which on the other hand hospital staff is likely not to have the time or the training to conduct properly. Questionnaires as those utilized are quick and easy to administer requiring only little of the patients’ and staffs’ time and effort. Further, data obtained with their help meet general standards for reliability and validity and can be useful in promptly identifying patients who might benefit from psychotherapeutic support.

Notes

Conflicts of interest

None declared.

References

1. American Psychiatric Association. Diagnostic and statistical manual of mental disorders. 4th ed. Washington D.C.; 1994.

2. Antonovsky A. Salutogenesis: zur Entmystifizierung der Gesundheit. (Expanded German translation by A. Franke & N. Schulte). Tübingen: Gyt-Verlag; 1997. (Original title: Unraveling the mystery of health. How people manage stress and stay well. San Francisco: Jossey-Bass Publishers.)

3. Bandura A. Self-efficacy. The exercise of control. New York: Freeman and Company; 1997.
4. Bandura A. Self-efficacy. Toward a unifying theory of behavior change. Psychol Rev. 1977;84:191-215.

5. Benight C, Harper M L. Coping self-efficacy perceptions as a mediator between acute stress response and long-term distress following natural disasters. J Trauma Stress. 2002;15(3):177-86.

6. Blanchard E, Hickling E. Who develops PTSD from Motor Vehicle Accidents, and Who Subsequently Recovers? In: Hickling E, Blanchard E. Road Traffic Accidents & Psychological Trauma. Amsterdam: Elsevier Science; 1999.

7. Blanchard EB, Hickling EJ, Buckley TC, Taylor AE, Vollmer A, Loos WR. Psychophysiology of Posttraumatic Stress Disorder Related To Motor Vehicle Accidents: Replication And Extension. J Consult Clin Psychol. 1996;64:742-51.

8. Blanchard EB, Hickling EJ, Taylor AE, Vollmer A, Loos WR. Psychiatric morbidity associated with motor vehicle accidents. J Nerv Ment Dis. 1995;183(8):495-504.

9. Blanchard EB, Hickling EJ. After the Crash. Assessment and Treatment of Motor Vehicle Accident Survivors. Washington, D.C.: American Psychological Association; 1997.

10. Blanchard EB, Hickling JH, Taylor AE, Loos WR, Forneris CA, Jaccard J. Who develops PTSD from Motor Vehicle Accidents? Behav Res Ther. 1996;34:1-10.

11. Blanchard EB, Jones-Alexander J, Buckley TC, Forneris CA. Psychometric Properties of The PTSD Checklist (PCL). Behav Res Ther. 1996;34:669-73.

12. Boehmer S, Luszczynska A, Schwarzer R. Coping and quality of life after tumor surgery: Personal and social resources promote different domains of quality of life. Anxiety Stress Coping. 2007;20(1): 61-75.

13. Cohen J. A power primer. Psychol Bull. 1992;112:155-9.

14. Ehlers A, Mayou RA, Bryant B. Psychological predictors of chronic posttraumatic stress disorder after motor vehicle accidents. J Abn Psychol. 1998;107:508-19.

15. Flatt et al.: Self-efficacy in acutely ...
42. Wittchen HU, Wunderlich U, Gruschwitz S, Zaudig M. SKID-I: Strukturiertes Klinisches Interview für DSM-IV. Achse I: Psychische Störungen. Interviewheft. Göttingen: Hogrefe-Verlag für Psychologie; 1997.

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Please cite as
Flatten G, Wälte D, Perlitz V. Self-efficacy in acutely traumatized patients and the risk of developing a posttraumatic stress syndrome. GMS Psychosoc Med. 2008;5:Doc05.

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http://www.egms.de/en/journals/psm/2008-5/psm000050.shtml

Published: 2008-06-05

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