

Emotional ambivalence and post-traumatic stress disorder (PTSD) in soldiers during military operations

Emotionale Ambivalenz und posttraumatische Belastungsstörung (PTBS) bei Soldaten in Kriseneinsätzen

Abstract

Objective: This pilot study examined the extent to which a specific mechanism of emotion regulation – namely, ambivalence concerning the expressiveness of German soldiers' emotions – affects the severity of PTSD symptoms after a military operation.

Methodology: A survey was conducted at three points in time among 66 soldiers deployed on military crisis operations. The Harvard Trauma Questionnaire (HTQ), the Ambivalence over Emotional Expressiveness Questionnaire (AEQ-G18), and a questionnaire on the particular stress of German soldiers during military operations were used.

Results: The study showed a significant correlation between emotional ambivalence and traumatization. Furthermore, it was shown that the subjective stress of soldiers leading up to deployment is more pronounced when emotional ambivalence is stronger in the context of military operations. This particular stress is greater before and during the military operation than after. Compared to a male control sample, the average AEQ-G18 scores of the soldier sample examined here are considerably lower.

Conclusion: This pilot study clearly indicates that the AEQ-G18 could be a suitable predictor of the psychological burden on soldiers. The correlations between emotional ambivalence on the one hand and the particular and post-traumatic stressors on the other hand are not only statistically significant in the present pilot study, but may also be relevant as risk factors. It is, therefore, necessary to conduct more extensive studies on soldiers participating in military operations to verify the results of this pilot study.

Keywords: soldiers, military operations, emotion regulation, trauma, AEQ-G18

Zusammenfassung

Zielsetzung: In dieser Pilotstudie wurde untersucht, inwiefern sich ein spezifischer Mechanismus der Emotionsregulation, nämlich die Ambivalenz gegenüber der Expressivität eigener Emotionen bei deutschen Soldaten auf die Ausprägung der Symptome einer PTBS nach dem Einsatz auswirkt.

Methodik: Es wurde eine Befragung mit 66 Soldaten im Kriseneinsatz an drei Zeitpunkten durchgeführt. Dabei kamen neben dem Harvard Trauma Questionnaire (HTQ), der Ambivalence over Emotional Expressiveness Questionnaire (AEQ-G18) sowie ein Fragebogen zur speziellen Belastung von Bundeswehrangehörigen in Kriseneinsätzen zum Einsatz.

Ergebnisse: In der Studie zeigte sich ein signifikanter Zusammenhang zwischen emotionaler Ambivalenz und Traumatisierung. Des Weiteren konnte gezeigt werden, dass bei stärkerem Auftreten emotionaler Ambivalenz im Kontext von militärischen Einsätzen die subjektiven Belastungen von Soldaten zum militärischen Einsatz hin ausgeprägter sind. Diese speziellen Belastungen sind vor und während des Kriseneinsatzes

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höher als nach dem Kriseneinsatz, Im Vergleich zu einer männlichen Vergleichsstichprobe liegen die Mittelwerte bei dem AEQ-G18 der vorliegenden Soldatenstichprobe erheblich niedriger.

Fazit: Die Pilotstudie weist deutlich darauf hin, dass die Diagnostik mit dem AEQ-G18 geeignet sein könnte, die psychischen Belastungen bei Soldaten vorherzusagen. Die Zusammenhänge zwischen emotionaler Ambivalenz einerseits und den speziellen sowie posttraumatischen Belastungen andererseits sind in der vorgelegten Pilotstudie nicht nur statistisch signifikant, sondern können als Risikofaktoren relevant sein. Daher ist es erforderlich weitere umfangreiche Studien bei Soldaten in Kriseneinsätzen durchzuführen, um die Ergebnisse der Pilotstudie zu überprüfen.

Schlüsselwörter: Soldaten, Kriseneinsätze, Emotionsregulation, Trauma, AEQ-G18

Introduction

Since the mid-1990s, German Federal Armed Forces troops have been deployed abroad in peacekeeping missions on behalf of NATO and UNO. During these military crisis operations, soldiers are increasingly confronted with situations which, in addition to the physical stress, also cause considerable psychological stress. In particular, the discrepancy between the military interventions planned as peacekeeping missions and the actual, often war-like circumstances in the respective countries [1], witnessing of and exposure to conflictual, aggressive, and sometimes war-like situations associated with a risk to life and limb put considerable strain on soldiers [2]. Zimmermann et al. have spoken of the significant increase in stress-induced and psychoreactive disorders since 2006 [3] and, in 2010, also noted that post-traumatic stress disorder (PTSD) is the principal psychiatric diagnosis in ISAF-related cases of disorders in the psychiatric field [1]. The authors also compared 1,488 ISAF soldiers and 882 soldiers not participating in foreign missions using standardized interviews conducted between 2009 and 2010, in which a significant difference between the groups was found: 2% of all ISAF soldiers showed signs of PTSD compared with only 0.3% of the control group [1]. One of the main reasons for this, according to Zimmermann et al. (2007), is the deployment of troops to Kosovo and Afghanistan, which are often associated with stressful and traumatic events [4].

According to a U.S. study, every eighth soldier returning from Iraq suffers from various considerable psychological problems. In 2003, a total of over 6,000 U.S. soldiers who participated in crisis missions in Iraq or Afghanistan were interviewed before and after their deployments [5]. According to these surveys, 12% of Iraq returnees and 6% of Afghanistan returnees exhibited symptoms of PTSD. Hoge et al. estimate that, overall, every third returnee suffers from depression, anxiety, or PTSD [5].

In a German study, which deals with psychological stresses other than PTSD, Hauffa et al. [6] examined the psychological stress of 118 German soldiers serving in ISAF VII after their deployment to Afghanistan and found that 19.5% of the soldiers showed clinically relevant de-

pressive symptoms and that the incidence of PTSD was between 0.8 and 2.5%, depending on the various survey instruments used.

In a longitudinal study, Dunker [7] researched the extent and progression of PTSD in 650 German soldiers after deployment to Afghanistan and found that the prevalence of PTSD six months after their return was 1.9–7.5% for the overall sample and 3.7–12.1% for traumatized soldiers. Wittchen et al. [8] speak of a considerable estimated number of undiagnosed cases: Almost every other actual PTSD case remains untreated. The authors further point out that a focus on PTSD overlooks the fact that other deployment-related mental disorders could play an even greater role than PTSD itself. An increasing number of studies are being conducted on the prevalence of and predisposing factors for the development of PTSD among German soldiers after military missions. In addition, individual longitudinal studies are being carried out. However, to our knowledge, there are no studies associating PTSD with emotion regulation; in particular, no empirical evidence exists with regard to PTSD and emotional ambivalence.

Emotional ambivalence and health disorders

In recent decades, health psychology has concentrated on cognitive structures and styles that can have a negative impact on mental health and its underlying processes. In his theory of inhibited emotional expressiveness as a health risk, Traue combined several cognitive mechanisms of emotional dysregulation in a path model between stress and health disorders [9]. These include, for example, the concept of emotional suppression, which can be operationalized experimentally by asking subjects to consciously suppress their facial expressions during negative emotional stimulation. This leads to increased and prolonged autonomic arousal compared to control conditions [10]. When experimentally inducing thought suppression, even without an emotional connotation, a seemingly paradoxical intensification or “post-suppressional rebound” occurs during and after suppression [11].

The increased emergence of aversive thoughts can lead to cognitive capacity overload, especially in stressful situations, because the processing of stress and emotions binds cognitive resources. This might trigger a vicious circle-like increase in stress levels. Additional stress is created and an excessive demand on cognitive capacity can take up the cognitive resources needed for coping with the stress experienced. This has already been demonstrated for obsessive-compulsive disorder [12]. A similar mechanism can be assumed for PTSD and other mental disorders as well.

The concept of emotional ambivalence describes manifest ambivalent cognitions that a person may exhibit in the context of positive and negative emotions when they are expressed in a social context. The *Ambivalence over Emotional Expressiveness Questionnaire* (AEQ) was developed by King and Emmons [13] for the psychometric detection of cognitive manifestations of this emotional ambivalence. The items in this questionnaire typically describe the desire to exhibit a certain emotion and a certain reservation against doing so. The reservation may be doubt about one's personal ability to adequately exhibit this emotion or fear of the negative consequences of an emotional expression. The major challenge for the concept of emotional ambivalence is the delineation from neuroticism, because neuroticism as a personality trait also describes an intrapsychological potential for conflict, negative feelings, and a tendency towards physical ailments. However, with regard to health beliefs and coping strategies, Asghari and Nicholas found a close correlation with neuroticism in a prospective study [14]. With the help of regression analyses, Lauterbach, Vora, and Rakov investigated whether neuroticism is more likely to cause health problems than post-traumatic stress disorder [15]. They found significant correlations between neuroticism, PTSD, and health information; but, even after controlling for neuroticism, the correlation with PTSD was significant. Unlike in other studies, neuroticism proved to be a protective factor for the overall mortality of Medicare patients in another recent study. An overlap between emotional ambivalence and neuroticism (negative affectivity) would also explain the correlation between current negative affectivity and the AEQ in King and Emmons [13]. The fact that emotional ambivalence correlates with reduced emotional expressiveness and control over aggressive impulses speaks for a stand-alone construct, however [13], [14], [15]. According to Lauterbach et al. [15], one can interpret a factor analysis across a wide range of scales, even if emotional ambivalence was assigned to one factor together with a tendency to brood (rumination) and compulsivity. However, as previously mentioned, no empirical findings exist regarding emotion regulation among soldiers or the relationship between emotional ambivalence and post-traumatic stress disorder.

The following hypothesis was developed concerning the relationship between the extent of emotional ambivalence and post-traumatic symptoms: It is assumed that people with higher scores on the AEQ-G18 also have higher

scores on the Harvard Trauma Questionnaire [16], i.e., exhibit more severe PTSD symptoms.

The dysfunctional regulation and in particular, the inhibition of emotional expressiveness in extremely stressful situations is a risk factor for trauma, for the development of post-traumatic stress disorder (PTSD), and possibly for somatization disorders. Since soldiers may handle their negative emotions in a specific way, it was hypothesized that, firstly, compared to the reference sample, specific strategies for emotion regulation can be found and, secondly, that the propensity for uninhibited emotional expressiveness is a factor that increases the risk of developing symptoms of PTSD in soldiers on military missions.

Methods

The data comes from a larger parent project on stress and health among German military personnel deployed on military operations [2]. This is a partly hypothesis-driven pilot study to gather initial descriptive data on mental health factors of soldiers deployed on military crisis operations at three different points in time: before, during, and after crisis operations in Afghanistan and Kosovo. The all-male sample included N=66 respondents at the time survey 1 was conducted and decreased to N=36 at the time of survey 2 and to N=27 at the time of survey 3. Of these, 34 soldiers were part of the aviation regiment 25 Laupheim and 22 soldiers belonged to the fighter bomber squadron Lechfeld. At the time of the survey, the fighter bomber squadron qualified as a *Krisenreaktionskraftverband* (Quick Reaction Alert Forces) with the weapon system ECR-Tornado (jet). The aviation regiment primarily uses CH-53 (helicopter).

On average, the soldiers were 31 years old and had completed 10.5 years of service in the German military. Although the sample is relatively small, it nevertheless reflects a normal response rate, given that the surveys for all three survey times were handed out at the time the first survey was conducted and were taken along on their missions by the soldiers. A larger initial sample could not be obtained because of the necessary comparability of soldierly duties and the necessary cooperation of senior armed forces members.

A sample of N=18, which included only respondents who had completed the surveys at all three points in time, was created for comparative calculations concerning individual questions that show the development across the three surveys. Unfortunately, the data collected do not provide information about whether the missing values are informative, for example, in terms of increased sensitivity or more marked fear or shame. The aggregate population shows similar characteristics to that of the underlying sample. This points to the representativeness of the data.

Ambivalence over Emotional Expressiveness Questionnaire (AEQ-G18)

The AEQ-G18 [13], a questionnaire that reliably captures the previously described construct of “Ambivalence over Emotional Expressiveness,” was used as a tool for identifying the tendency towards inhibited emotional expressiveness. The questionnaire consists of 18 items, in each of which inclinations and aspirations with an emotional content were ambivalently formulated, resulting in each statement containing several aspects. An example may illustrate this: “I would like to show my feelings honestly, but I am afraid of being embarrassed or hurt.” For each of the statements, the respondent had to specify how often the described behavior applies to him. The response scheme included a 5-point rating scale between “never” and “always” listed after each statement. Factor and item analysis revealed two factors (which explained 20% and 10% of the variance) that describe the different facets of ambivalence over emotional expressiveness. These two factors can be sufficiently mapped by a total of 18 items, which are available in a short version. This short version was used in the present study; factor 1: dislike/performance (*effect ambivalence*), factor 2: affection (*competence ambivalence*). A point value from 1 (“never”) to 5 (“always”) was assigned for each item to calculate the test results. The total value as the sum of all individual values (from 18 to 90) denotes the level of ambivalence. The higher the value, the more pronounced the ambivalence. In addition to the total value, the points are calculated for each of the two factors, resulting in separate scores for effect ambivalence and competence ambivalence.

Post-traumatic stress – PTSD questionnaire according to DSM-IV

The German version of the Harvard Trauma Questionnaire (HTQ) developed by Mollica was used for detecting possible post-traumatic stress disorder [16]. The questionnaire (which comprises a total of 30 items) first includes 16 items analogous to the DSM-IV criteria, which survey the dimensions of *re-experiencing*, *exposure to a traumatic event*, *numbing and hypervigilance*. These initial 16 items that were used in the present study describe the individual symptom perception regarding daily behavior and functioning.

The surveyed trauma symptoms can be described by means of a four-point scale. The PTSD score is calculated based on the average of the 16 items.

Questionnaire about the particular stress of German soldiers during military operations in crisis areas

A questionnaire on the particular stress caused by being a soldier deployed on military crisis missions was de-

signed in collaboration with experts, officers, and NCOs who had already participated in crisis operations. Once developed, the questionnaire was pretested, and was evaluated for its content validity and practical relevance before being administered in a broader sample. The overall questionnaire is divided into the following sections: a) questions related to the job situation, b) questions related to professional training, c) questions related to pay and security, d) questions about stress resulting from the organization of work and the workplace itself, e) questions about stress resulting from relationships, f) questions about stress resulting from living arrangements or problems caused by the deployment to crisis areas, and g) questions about health and leisure. The section introduced here primarily identifies aspects of the particular stress of being a soldier specific to deployment to crisis areas.

The questionnaire also takes into account the burdens on partnerships and families, given that these social networks are of paramount importance for coping with difficult tasks in conflict zones.

Some of the questions regarding the particular stress were asked at all three survey times and calculated into an overall coefficient from the following 13 items:

Exposure to:

1. risk of injury, death (German: Gefahr Verletzung, Tod);
2. too little contact with family (German: zu wenig Kontakt zur Familie);
3. crisis of confidence with partner (German: Vertrauenskrisen in der Partnerschaft);
4. anxiety in children and relatives (German: Ängste bei Kindern und Angehörigen);
5. countries in ruin and hardship among the populations (German: zerstörtes Land und Elend der Bevölkerung);
6. mine fields (German: Minenfelder);
7. espionage (German: Spionage);
8. health risks (German: Gesundheitliche Risiken);
9. NBC threat (German: ABC-Bedrohung);
10. obscure political situation (German: undurchschaubare politische Verhältnisse);
11. obsolete and faulty equipment (German: veraltete mangelhafte Ausrüstung);
12. lack of privacy (German: Mangel an Privatsphäre); and
13. lack of hygienic conditions (German: mangelnde hygienische Verhältnisse).

The scales are all highly correlated; $r=.88$ and $r=.94$. This suggests the hypothesis that, the more points listed in the scale that are present, the higher the stress. The calculated value could thus be understood as an indicator of stress. The calculated total score is referred to as the “questionnaire of particular stress” in the following discussion [17].

Study design

The soldiers received the AEQ-G18 prior to deployment and the Harvard Trauma Questionnaire (HTQ) after deployment. The questionnaire of particular stress was used at time 1 (prior to deployment), time 2 (during deployment), and time 3 (after deployment).

Statistical analyses

A Spearman's rank correlation was calculated for the AEQ-G18, HTQ, and the questionnaire of particular stress caused by the soldier's profession. Furthermore, a Fisher's exact test was calculated dichotomously (high vs. low severity) for the variable AEQ-G18 and Harvard Trauma Questionnaire to check for independence. The dichotomization was carried out using the median.

Results

At the three survey times, the following average values were found for the questionnaire of particular stress: M1=2.34 (SD=0.57); M2=2.15 (SD=0.67); and M3=1.91 (SD=0.73). A subsequently performed Friedman's test (for nonparametric samples) showed a significant difference between the three survey times ($\chi^2=7.370$; $p=0.025$). Calculations carried out using Wilcoxon's test showed that the significance is due to a difference between survey times 1 and 3 ($p=0.001$).

At survey time 3, the average value for the HTQ was 8.45 (standard deviation 9.58) [18]. The AEQ had an average of 13.04 (standard deviation = 6.18) for the scale of effect ambivalence and an average of 10.89 (with a standard deviation of 5.65) for the scale of competence ambivalence.

There were no formal exclusion criteria for participation in the study (for example, PTSD diagnosis or other mental disorders). This is partly due to the fact that, so far, no standardized cut-off in terms of a diagnosis has been defined for the HTQ [18]. While Smith Fawzi et al. (1997) used a cut-off of 1.7, Mollica et al. (1998) defined the cut-off at 2.0. The clinical cut-off is defined at 2.5, however [18]. If one applies the cut-off of 2.0 to the data collected in this study, 24% of soldiers exceeded this value for the item "restless sleep" and 17% for the items "recurrent thoughts" and "feeling that people do not understand what has happened to you." Internally, however, German soldiers are checked for suitability before being deployed on crisis operations.

Hypothesis testing

The following correlations were calculated for the sample: HTQ and AEQ-G18 ($r=.64$, $p=.001$), HTQ and effect ambivalence ($r=.63$, $p=.0015$), and HTQ and competence ambivalence ($r=.57$, $p=.0035$).

Table 1 shows the absolute values and percentages of the dichotomous comparison for AEQ-G18 (high vs. low)

and trauma (high vs. low). Fisher's exact test is significant for the sample ($p<.015$, $N=18$); this means that the number of soldiers with relatively higher scores on the Harvard Trauma Questionnaire exhibit significantly greater emotional ambivalence.

Table 1: Two-by-two table with frequencies and percentages for soldiers: AEQ-G18 (high vs. low) and trauma (high vs. low); N=18

	AEQ high N (%)	AEQ low N (%)
Trauma high	7 (77.78)	2 (22.22)
Trauma low	2 (22.22)	7 (77.78)

$p<.015$

Emotional ambivalence and particular stress

The following correlations can be found between the AEQ-G18 total score and the questionnaire on the particular stress caused by the soldier's profession for the survey times before (1), during (2), and after (3) the military crisis operation: particular stress (1) and AEQ-18G ($r=.55$, $p=.016$), particular stress (2) and AEQ-G18 ($r=.57$, $p=.009$), and particular stress (3) and AEQ ($r=.57$, $p=.008$) (Table 2).

Table 2: Correlation between AEQ-G18 and particular stress at survey times 01, 02, and 03; N=18

	r	p
part. stress 01	.55	.016
part. stress 02	.57	.009
part. stress 03	.57	.008

Discussion

The pilot study presented here is the first to examine how ambivalence among soldiers with regard to the expression of their emotions affects the occurrence of PTSD after deployment to a crisis region. In this context, a significant positive correlation was identified between AEQ and HTQ. This means that the soldiers with relatively higher values on the Harvard Trauma Questionnaire also exhibited significantly greater emotional ambivalence. This result can lead to important implications for practice. It could be investigated, for example, to what extent the AEQ is suitable as a screening tool for soldiers. The abovementioned results suggest that potential traumatization during military crisis operations is more likely among soldiers with high AEQ scores. Specific measures could be developed based on the AEQ values, for example, for high- and low-risk groups. The implementation of preparatory classes to develop specific skills that facilitate coping with traumatic experiences is also conceivable [19]. The AEQ could also

be applied as a screening tool in the selection of candidates for crisis operations.

A significant difference between the three survey times was found for the results of the survey instrument *particular stress*. What is particularly interesting about this is that the particular stress of soldiers is significantly higher before the military crisis operation than after deployment. This could be due to the subjectively insufficient briefing of soldiers concerning the risks, dangers, and living conditions in the crisis region as well as to a lack of knowledge about the actual course of the deployment. One way to counter this would be for the employer to provide detailed briefings and preparatory seminars.

A significant correlation with emotional ambivalence was found also for the stress parameter of *particular stress*. It became obvious that, especially during and after deployment, the higher the AEQ values, the greater the symptoms of the particular stress. This result supports the proposal to investigate to what extent the AEQ is a suitable screening tool. If one compares the values measured in the AEQ with a group of 157 healthy control subjects, the averages of the soldiers (N=66) are considerably lower [19]. In the male comparison sample, the average for the effect ambivalence is 26.6, while, in the present study, it is 13.04. Competence ambivalence among the soldiers was also considerably lower (10.89). The abovementioned comparison sample exhibits an average of 20.6. The following discussion should be prefaced by saying that the absolute values, for those on the HTQ in particular, indicate that the studied soldiers are relatively unburdened. However, the correlations between emotional ambivalence on the one hand and the specific post-traumatic stress on the other are not only statistically significant but may be relevant as risk factors. Since the common variance is high and is approximately 38% for risk of trauma, the AEQ-G18 values could be considered predictors of the risk of developing symptoms of PTSD after a crisis mission (provided that the results can be replicated in a larger sample). Soldiers who are unable to express their feelings in a social context (competence ambivalence) or do not want to do so (effect ambivalence) thus have an increased risk of experiencing the deployment as stressful and burdensome and to experience symptoms of post-traumatic stress disorder. The very low values on the AEQ-G18, which are far below the comparable values for the general population for both competence ambivalence and effect ambivalence [13], [20], were discussed in detail with system-internal experts (flight physicians and military psychologists). These discussions resulted in several factors that could be causing these extreme values. It is conceivable that the selection procedure of the German military grants access to the occupation of a soldier only to persons with a personality structure that permits little insight into their own mental processes and low sensitivity to emotional stress. It could also be possible that, during the course of their professional socialization, soldiers have learned to deal with their feelings in the following manner: Emotions are un-called for in the soldier profession and professionals do

not show emotional ambivalence, especially before or during military crisis missions. Lastly, social desirability bias or fear of sanctions in the event that individual results become known after all could distort the data.

Limitations of the study

This study has substantial limitations. Since this is a pilot study, only a small sample of initially N=66 was examined. This sample could not be maintained over time, as only 18 soldiers completed the necessary questionnaires at all three survey times. Another limitation concerns the influence of social desirability on the subjective data. This, however, is a better explanation for the overall low rates regarding stress than for the correlations, because social desirability can hardly affect such findings. Finally, this study exclusively collected subjective data and no "hard" facts such as sick days, which, in other studies, correlated well with emotional ambivalence [21]. Therefore, emotional ambivalence is here merely interpreted as a risk factor.

Conclusions for clinical practice

Despite the abovementioned limitations, the correlations found fit the psychosomatic theory of emotional inhibition and its assumptions regarding somatization and the psychophysiological etiology of physical symptoms [8]. The AEQ-G18 measuring emotional ambivalence is a scale that proved itself suitable as a screening tool due to its economical application and exhibited great predictive power in this pilot study [20]. The study results, thus, suggest that the AEQ-G18 could be suitable for the prediction of the modulation of psychological stress and could be applied as an indicator for the additional preparation of military crisis operations. In our view, it is, therefore, necessary to conduct further, more extensive studies on emotional ambivalence, and specifically in connection with the issue of the particular stress of soldiers during military crisis operations.

Notes

Competing interests

The authors declare that they have no competing interests.

References

- Zimmermann P, Jacobs H, Kowalski J. ISAF und die Seele – Zwischen Schädigung und Wachstum. In: Seiffert A, Langer P, Pietsch C, eds. Der Einsatz der Bundeswehr in Afghanistan. Wiesbaden: VS Verlag für Sozialwissenschaften; 2012. p. 143-52. (Schriftenreihe des Sozialwissenschaftlichen Instituts der Bundeswehr; 11). DOI: 10.1007/978-3-531-93400-6_9

2. Jerg-Bretzke L, Hrabal V, Walter S, Traue HC. Belastung durch traumatische Erfahrungen bei Soldaten in Kriseneinsätzen - Ergebnisse aus einer Längsschnittpilotstudie. *Trauma und Gewalt*. 2010;4:184-96.
3. Zimmermann P, Hahne H, Ströhle A. Psychiatrische Erkrankungen bei Bundeswehrosoldaten. *Trauma und Gewalt*. 2009;3(4):316-27.
4. Zimmermann P, Biesold KH, Barre K, Lanczik M. Long-term course of post-traumatic stress disorder (PTSD) in German soldiers: effects of inpatient eye movement desensitization and reprocessing therapy and specific trauma characteristics in patients with non-combat-related PTSD. *Mil Med*. 2007 May;172(5):456-60.
5. Hoge CW, Castro CA, Messer SC, McGurk D, Cotting DI, Koffman RL. Combat duty in Iraq and Afghanistan, mental health problems, and barriers to care. *N Engl J Med*. 2004 Jul;351(1):13-22. DOI: 10.1056/NEJMoa040603
6. Hauffa R, Brähler E, Biesold KH, Tagay S. Psychische Belastungen nach Auslandseinsätzen - Erste Ergebnisse einer Befragung von Soldaten des Einsatzkontingentes ISAF VII [Psychological strain following foreign assignment - results of an investigation among German soldiers serving in ISAF VII]. *Psychother Psychosom Med Psychol*. 2007 Sep-Oct;57(9-10):373-8. DOI: 10.1055/s-2007-970833
7. Dunker S. Prognose und Verlauf der Posttraumatischen Belastungsstörung bei Soldaten der Bundeswehr. Längsschnittstudie zur Neuvalidierung des Kölner Risikoindezes Bundeswehr (KRI-Bw) [Dissertation Thesis]. Köln: Universität zu Köln; 2009.
8. Wittchen HU, Schönfeld S, Kirschbaum C, Thurau C, Trautmann S, Steudte S, Klotsche J, Höfler M, Hauffa R, Zimmermann P. Traumatic experiences and posttraumatic stress disorder in soldiers following deployment abroad: how big is the hidden problem? *Dtsch Arztebl Int*. 2012 Sep;109(35-36):559-68. DOI: 10.3238/arztebl.2012.0559
9. Traue, HC. Emotional Inhibition and Health. In: Smelser NJ, Baltes PB, eds. *The international encyclopedia of the social and behavioral sciences*. Vol. 7. Oxford: Elsevier; 2001. p. 4449-54. DOI: 10.1016/B0-08-043076-7/03925-5
10. Gross JJ. Emotion regulation: affective, cognitive, and social consequences. *Psychophysiology*. 2002 May;39(3):281-91. DOI: 10.1017/S0048577201393198
11. Wenzlaff RM, Wegner DM. Thought suppression. *Annu Rev Psychol*. 2000;51:59-91. DOI: 10.1146/annurev.psych.51.1.59
12. Rachman S. A cognitive theory of obsessions. *Behav Res Ther*. 1997 Sep;35(9):793-802. Zitiert nach Deighton RM, Traue HC. Emotionale Ambivalenz, Körperbeschwerden, Depressivität und soziale Interaktion: Untersuchungen zur deutschen Version des Ambivalence over Emotional Expressiveness Questionnaire (AEQ-G18), *Zeitschrift für Gesundheitspsychologie* 2006;14(4):158-70.
13. King LA, Emmons RA. Conflict over emotional expression: psychological and physical correlates. *J Pers Soc Psychol*. 1990 May;58(5):864-77. DOI: 10.1037/0022-3514.58.5.864
14. Asghari A, Nicholas MK. Personality and pain-related beliefs/coping strategies: a prospective study. *Clin J Pain*. 2006 Jan;22(1):10-8. DOI: 10.1097/01.ajp.0000146218.31780.0b
15. Lauterbach D, Vora R, Rakow M. The relationship between posttraumatic stress disorder and self-reported health problems. *Psychosom Med*. 2005 Nov-Dec;67(6):939-47. DOI: 10.1097/01.psy.0000188572.91553.a5
16. Mollica RF, Caspi-Yavin Y, Bollini P, Truong T, Tor S, Lavelle J. The Harvard Trauma Questionnaire. Validating a cross-cultural instrument for measuring torture, trauma, and posttraumatic stress disorder in Indochinese refugees. *J Nerv Ment Dis*. 1992 Feb;180(2):111-6. DOI: 10.1097/00005053-199202000-00008
17. Jerg-Bretzke L, Traue HC. Burnout, Belastung und Gesundheit bei Bundeswehrangehörigen im Einsatz. Ergebnisbericht für das Bundesministerium für Verteidigung. Berlin; 2005.
18. Jerg-Bretzke L, Hrabal V, Walter S, Traue HC. Belastung durch traumatische Erfahrungen bei Soldaten in Kriseneinsätzen. *Trauma & Gewalt*. 2010;4(3):184-96.
19. Hahne HH, Biesold KH. Präventions- und Behandlungskonzept zur Bewältigung einsatzbedingter psychischer Belastungen bei Soldaten der Bundeswehr. In: Okon E, Meermann R, eds. *Prävention und Behandlung posttraumatischer Störungsbilder im Rahmen militärischer und polizeilicher Aufgabenerfüllung*. Bad Pyrmont: Psychosomatische Fachklinik; 2002. p. 35-40. (Schriftenreihe der Psychosomatischen Fachklinik Bad Pyrmont; 11).
20. Albani C, Blaser G, Völker J, Geyer M, Schmutzter G, Bailer H, Grulke N, Brähler E, Traue HC. Ambivalence over Emotional Expressiveness: psychometric evaluation of the AEQ-G18 in a representative German survey. *GMS Psychosoc Med*. 2007;4:Doc10. Available from: <http://www.egms.de/en/journals/psm/2007-4/psm000042.shtml>
21. Felsten G, Wilcox K. Influences of stress and situation-specific mastery beliefs and satisfaction with social support on well-being and academic performance. *Psychol Rep*. 1992 Feb;70(1):291-303. DOI: 10.2466/pr0.1992.70.1.291

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