Stress Training and the New Military Environment

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ABSTRACT

The new environment in which current military operations take place is often characterized by unpredictable and ambiguous situations. This places new demands on military personnel. In combination with high levels of violence and threat, these situations will elicit acute stress reactions, which can impair performance and the ability to operate effectively. It may be questioned whether the current practices to train military personnel to cope with stress are still appropriate. The topic of this study is to examine whether the current training practices are appropriate to prepare military personnel for the new demands of these challenging situations. To answer this question a research program was set up. This program focuses on the current stress training practices and their effectiveness in acute stress situations in the military environment. The study consists of a review and analysis of literature on current military stress training practices and research. Also, interviews were held with military personnel to get a deeper understanding of the demands that acute, unpredictable and ambiguous threatening situations place on military personnel. Interviews with instructors of the Dutch army in the field of stress training were conducted to help asses the successful factors and constraints of the current training methods. Supported by knowledge about acute stress reactions, this will provide criteria for structural factors that have to be present in the stress training. The results of the review and interviews will be presented and discussed.

1. INTRODUCTION

The context in which the army operates has changed. Missions are characterized by specific demands and threats, complex goals, invisible enemies and political sensitivities. These changes have consequences for selection and training, and the design of missions [1]. One aspect of this is improving stress tolerance. Like the concept of stress, stress tolerance is not always clearly defined. It is important to make a distinction between the causes (stressors) and outcomes of stress. The causes of stress can be enduring or acute. Enduring stressors in military missions may be for example, fatigue and boredom. A typical acute stressor is threat. The outcomes of stress can be either long-term or short-term. Another distinction can be made between health and performance outcomes. For example, an acute stressor like threat can have a long term effect like Post Traumatic Stress Disorder (PTSD). Stress tolerance can be defined as the capability to 'stay cool, not let emotional and physiological reactions interfere with cognitive processing' [2]. Stress tolerance can refer to good performance under threat or the absence of PTSD symptoms in the long term.

This paper focuses on how to train military personnel for performance during acute crisis situations, and not on enduring stress and health outcomes. Acute crisis situations can be defined as situations in which there is a sudden change in the situation with a threat of loss of resources for the individual. In a military

context acute crisis is often a life-threatening situation. Acute crisis situations can degrade performance. Preparing military personnel to cope with acute crisis and threatening situations is not new, but these situations nowadays occur in a more complex and dynamic context. Besides the traditional fighting role, military personnel fulfil roles as peacekeepers on the one hand and humanitarian aid worker on the other. These roles will have to be fulfilled in complex environments with increasingly complex mandates. Cammeart and Clappe [3] have defined this as multidimensional peacekeeping. They underline that peacekeeping puts an extra cognitive strain on the soldier in the field and that training is necessary to adequately prepare soldiers for this. An important part of training of military personnel is not only preparing them for these different roles, but also training them to effectively manage transitions between these roles. For example, a social patrol in an urban area can in a minute change radically into a situation in which soldiers have to take on their role as fighters to protect their own safety. On the other hand, soldiers have to be able to restrain themselves in the presence of threat and provocation. To prepare military personnel for this kind of acute crisis new training methods will have to be developed.

2.   ACUTE CRISIS

How do people cope with acute, life-threatening crisis situations? According to the theory of appraisal and stress [4], the reaction in a threatening situation will be the result of an interaction between the interpretation of the situation (primary appraisal) and the interpretation of coping possibilities (secondary appraisal), in which the possibilities for coping with the threat and the outcome expectancies are assessed. It depends on these processes, which constantly interact, how much threat or fear is experienced. Events can be appraised as either threatening or challenging. When the event is appraised as posing demands that exceed the person's coping possibilities, people experience a lack of control over the situation and the situation will be appraised as threatening. This will elicit negative emotional reactions like fear. If the event is not appraised as exceeding one's coping possibilities it will be perceived as challenging and evoke positive emotions, like eagerness. The appraisal of a situation is also an important mediator for physiological reactions. People who appraise a situation as threatening show more inadequate affective and physiological reactions, like negative emotions and physical overreactivity, than people who appraise a situation as challenging [2,5]. Besides the intensity of threat, certain characteristics of threat can influence the appraisal of a situation, because they influence the level of control one perceives. Temporal uncertainty (not knowing when an event is going to happen) can decrease feelings of control especially when the event is imminent. Ambiguity (lack of situational clarity) can disconfirm expectancies or present conflicting information, and undermine perceived control. When an event is unpredictable, this can also lower the level of perceived control [6]. Other factors that can influence the appraisal of a situation are personality and social support. People react differently to stress. Personal characteristics like sense of coherence [7], emotional intelligence [8], trait-anxiety and hardiness [3] can effect the influence stress has on performance. Social support can also mitigate the negative effects stress can have on performance [3]. Thus, situational and personal characteristics determine in part how a situation is appraised and thus the severity of the stress-reactions.

2.1   Lack of control in the new military environment

The new military environment is increasingly characterized by insecurities. Operations in urban areas are for example characterized by uncertainty about the presence of enemy threat. This in itself can elicit stress reactions, which negatively effects perceived control over the situation. Wallenius, Johansson and Larsson [9] reported that incidents characterized by an unpredictable enemy and a diffuse threat that was difficult to control evoked more resignation and feelings of powerlessness and perceived lack of control. Research into the experience of WW 2 airmen reported that situations were rated more fear provoking when the airmen were fired upon without a possibility to shoot back or when they were confronted with an enemy aircraft which they could not see [10, p.53]. Also, experiments in which the controllability of a threat was manipulated have shown that participants who thought they were able to control a threat experienced less

stress and showed more problem-focused coping (in which the problem is actively engaged) to change the situation and less emotion focused coping (in which people try to change the emotion) [11].

So, both situational and personality characteristic influence the way an acute threatening situation is perceived. In general, people who feel in control during such a situation will have less aversive stress reactions and a more active coping style. The context in which current military operations take place is characterized by an increasing lack of situational control. This will increase the occurrence of stress reactions. In the next section the ways in which stress reactions can impair performance are discussed.

2.2   Reactions in acute crisis

If a situation is appraised as being threatening, stress reactions are triggered which can impair performance. First of all, physiological reactions, like increased heart-rate, breathing and muscle tension occur. In threatening situations these reactions can lead to overreactivity (for example hyper-ventilation or shaking). This interferes with the mobilization of energy for the task and impairs performance. Secondly, intense negative emotions, like fear and frustration, and psycho-somatic symptoms are evoked during high threat situations. Both can be very distractive. They demand attention and disrupt information processing and performance [12]. In military situations, research has shown that especially commanders can suffer from blackouts and other forms of limited cognitive functioning in threatening situations [7]. The most severe performance deterioration that occurs in crisis situations is the 'freezing' response, which is characterized by a total inability to adaptively respond to the situation. Freezing is the result of the inability to activate a cognitive schema that provides a solution to the situation. As a result of the high demands an acute crisis situation places on people and the cognitive deterioration caused by stress, people cannot access or create a cognitive schema [13].

Thus, one of the most important moderators for the effects stress can have on performance is deterioration of cognitive performance or the inability to concentrate on the task. Researchers [14] investigated the effects of high stress military exercises on cognitive performance and anxiety. A group of operational U.S. Army Rangers on combat training and a group of U.S. Navy Seals trainees on 'Hell week' participated in this investigation. Both training methods involve multiple stressors, like sleep deprivation and extensive physical and psychological stress. The participants were tested on basic cognitive functions like vigilance, perception, reaction time and more complex functions like learning, memory and logical reasoning. State anxiety was also measured. The cognitive deterioration as a result of the training was severe. On all test decrements of performance were shown. The Seal trainees reported greater anxiety and tension and also showed greater deterioration of cognitive performance than the more experienced Rangers.

2.3   Threat-rigidity

Another important reported effect which has been found is that under stress people become 'rigid' in their reactions. People tend to have a more narrow field of attention and are less sensitive to peripheral cues [15]. This is also known as the threat-rigidity effect [16], which refers to the tendency to rely on well-learned or dominant responses in reaction to threat or extreme stress. According to the model of individual response to threat derived from this theory, reactions occurring in threat situations have cognitive and motivational manifestations. First, a restriction in information processing is shown due to 'reliance upon internal hypotheses and prior expectations' and an 'attention to dominant and central cues and away from peripheral cues'. Secondly, there is a constriction in control due to a 'tendency toward emitting well-learned or dominant responses' and 'increased drive'. These effects decrement the performance when 'dominant level responses' are inappropriate for performance and increment performance when they are appropriate for performance. Narrowing of attention under stress can also influence social behaviour. Research shows that under threat, team members will focus on their individual task and less on the task of the team as a whole [17]. Other effects on social behaviour are: a reduction in prosocial behaviour, increased personal aggression, neglect of social or interpersonal cues, and less cooperative behaviour among team members [6].

2.4 Terror Management Theory

According to the terror management theory, a cultural worldview provides people with a sense of order, stability, permanence and self-esteem and in this way forms a buffer for anxiety of death. As a result of these processes people are highly motivated to protect their own cultural worldview. Especially when confronted with mortality, people have a tendency to be very defensive of their own cultural worldview [18,19]. This can for example lead to a stronger nationalistic bias [20]. This theory has implications for performance in peace-keeping operation. In current peace-keeping operations there is an increasing risk for terrorist attacks on military personnel. This could influence the way soldiers interact with the local population. In defence of their own worldview soldiers may show a tendency to derogate the worldview of the people they are supposed to protect. This can lead to a decrease of motivation to fulfil a peacekeeping role and can even lead to more violence towards the civilian population. Incidents of violence against civil population are known in past peacekeeping-missions. In acute crisis situations the tendency to protect one's worldview may influence appraisal and judgement processes. For example, these processes could make it harder for soldiers to show restraint in a provocation situation.

3. TRADITIONAL TRAINING PRACTICES

The basic traditional preparation for missions involves training skills, drills and procedures that are critical in the actual operating environment. But training under normal conditions will not guarantee transfer of training in the more stressful conditions. Performance of well-learned skills can be negatively influenced by the effects of stress [21, 22]. Traditionally, military training uses military drill to reduce aversive effects stress can have on performance. Drills are responses soldiers are taught to display in certain situations. Drilled responses are trained intensively and frequently and become automated responses. Automated responses will suffer less from acute stress reactions than responses for which cognitive control is needed [13]. The threat-rigidity theory explains the effectiveness of drills. According to the threat-rigidity theory people have a tendency to show dominant or well-learned responses under stress. Drills are dominant responses. But, a dominant response will only be adaptive if the situation that triggers this response is similar to the situation in which the response is learned. 'This … means that threats resulting from common or familiar problems may induce effective coping responses from individuals, while threats arising from radical environmental change may bring on a maladaptive reaction. This also means that practice or drill may not lead to effective coping mechanisms, except when the parameters of threat situation are well known or when the drills can, in fact, train individuals for cognitive flexibility under adverse circumstances.' [16, p.507].

That the tendency to show dominant responses can lead to failures in performance is described in detail by Snook [23], who examined a friendly fire incident on April 14th, 1994, in which two Black Hawk Helicopters, with 24 peacekeepers in it, were shot down in Northern Iraq by two F15-fighters on a day with clear skies and no enemies around. The F15-fighters mistakenly identified the two helicopters to be enemy Mi-24 Hind, a kind of helicopter that was used by the Iraqis, instead of friendly Black Hawks and shot them down. One of the many explanations Snook refers to in his analyses of the incident is the tendency of people to show dominant responses in a stressful episode. The two fighters first wrongly identified the two helicopters because they were 'overtrained' to recognize Hinds and almost not trained to recognize Black Hawks and in the heat of the moment the dominant response (to recognize Hinds) influenced their judgment. Secondly, they chose to shoot down the two helicopters at once, although they posed no direct threat to the F15's. Snook argues that this is also the result of a dominant response. The pilots were not trained to intercept Helicopters and were overtrained in air-to-air combat with another fighter. So their dominant response was to interpret the situation as air-to-air combat and if a situation is interpreted like this, the drill is to 'engage'. They shot the helicopters as if they were fighters [23, p. 92-94].

Thus, drilling minimizes the deteriorating effects stress has on performance, but can also increase the risk of incorrect responses. The way military personnel are currently trained may even increase the risk of faulty decisions as a result of the dominance of overtrained responses under stress. The basic military training still mostly prepares for the traditional combat context. Fighting, survival and following orders are most important. Only in a later stadium, for example in the preparation towards missions, do military personnel get intensively trained in coping with the ambiguities and complexities of peacekeeping. This approach carries a particular risk. According to Weick:

'*skills trained just to the point of sufficiency may be potentially the most dangerous, since trainees, trainers and commanders alike assume that skill is available. In reality, that skill will be one of the first to disappear under pressure. It will be replaced by a much more primitive action that has been practiced for a much longer time.*' (in 94, p. 40).

The traditional training practice of drilling used for the preparation of military personnel is effective in increasing perceived control in threatening situations. In interviews we conducted with soldiers who experienced acute threatening situations during a mission, most expressed that drills are important for functioning. The reports they gave about the incidents they experienced implicated though, that especially simple drills are effective. Drills like 'if you are under fire, you find cover' or 'if you are in a burning vehicle, get out'. These are almost always adaptive, because the situations in which they have to be performed are easy to interpret. But drills that simplify situations that need more interpreting and decision-making can lead to situations in which the drill can be perceived as not adaptive. An incident one of our interviewees described is illustrative for this. The interviewee was leading a convoy of two buses to take military personnel to the airport. She drove in a car in front of the two buses. A terrorist attack with a car bomb hit one of the buses. The bus crashed into the verge of the road. The passengers of the bus were severely wounded. At that point it was not clear what the cause of the blast was. The interviewee described how she wanted to help the wounded, but a drill which proscribes that 'in case of a mine threat, it is not allowed to leave the hardened road' made her hesitate. Eventually she decided to help the wounded and left the road. But to explicitly ignore prescribed drills caused extra stress besides the stress of the event itself. Another interviewee described this kind of situation, in which a soldier doubts the effectiveness of a drill, as a moral dilemma. The socialization to follow procedure is so strong, that thinking about not following procedure creates a moral dilemma. This can lead to even more stress.

To improve performance in acute crisis situations, military personnel should be trained to cope with the stress that can arise from threatening, uncertain, ambiguous and novel situations. Traditionally, exposure to physical and psychological stress has been used to improve performance under stress. The focus of traditional military training has been on physical endurance. Implicitly, the assumption was that if soldiers succeed to perform under high levels of physical stress, they will show the same behaviour in actual crisis. This type of training aims to strengthen stress tolerance through increasing familiarity with extreme stress. However, it is questionable whether physical endurance training will lead to stress tolerance for more psychological stressors [2, p.204]. A method that is widely used in the Dutch army is working on heights. This training exercise is aimed at improving skills in working on heights and rock-climbing and at improving stress tolerance skills [24]. The assumption is that in overcoming their fear of heights, people activate coping skills which they will also be able to use in an acute crisis situation during a mission. However, research has shown that this type of training did not increase the coping repertoire [24]. So, the trainees did not learn new ways to cope with stress. Another short-coming of this kind of training is that it is questionable if learning to cope with this specific kind of stress (heights) will generalize to other stressful environments [2, p.204].

4.   NEW PERSPECTIVES ON TRAINING

A distinction should be made between regular training and stress training. Regular training is aimed at skill acquisition and retention. Stress training is aimed at improving stress tolerance; the ability to

maintain effective functioning in a high-stress environment [25, p. 193]. Beneficial consequences of providing knowledge and training about stress effects are: '(a) it enables the individual to form accurate expectations regarding the stress environments, thereby increasing predictability, (b) it decreases the distraction involved in attending to novel sensations and activities in the stress environment; and (c) it allows the individual to identify and avoid performance errors that are likely to occur in the stress environment'.

4.1   Stress Exposure Training

New developments in stress training methods have come from clinical practices [26]. A specific type of stress training that has been developed for 'normal' populations is 'Stress Exposure Training' (SET) and has three overall goals '(a) gaining knowledge of and familiarity with stress environments, (b) training those skills required to maintain effective performance under stress, (c) building performance confidence.' [27, p225]. Meta-analysis has shown that overall SET reduces performance anxiety and state anxiety and enhances performance under stress [28].

The SET design consists of three phases, which all have their own objectives and outcomes [27]. The first phase, 'presentation of requisite knowledge', aims to improve knowledge of typical stress reactions. In practice this will begin with an indoctrination phase to ensure that participants accept the benefits and goals of the training. After that, preparatory information about stress effects and possible coping resources will be given. This will make stress situations less novel and unfamiliar and will lead to more positive expectations of self-efficacy. It also increases predictability of stress reactions, which can decrease distraction during a stress episode. The second phase, 'skill practice with feedback', is aimed at improving self-regulation and meta-cognitive skills and increasing the coping repertoire. Self-regulation skills, like using positive coping thoughts and using relaxation techniques, will minimize the deteriorating effects of physiological and emotional stress reactions. SET also aims at developing meta-cognitive skills. Meta-cognition refers to 'executive level processes entailing knowledge, awareness, and control of cognitive activity involved in goal attainment' [29]. Meta-cognitive skills will improve adaptive coping; knowing when to use which coping style. In SET the development of meta-cognitive skills is aimed at teaching people to have a constant awareness of stress reactions in order to invoke appropriate skills when necessary. Another meta-cognitive skill that is important in improving performance under stress is using problem solving skills to reduce errors in task performance. Another aspect of SET is increasing the coping repertoire by teaching people new ways to cope with a stressor. This can be very domain specific, like teaching peacekeepers how to act in a possible riot situation. Which kind of domain-specific skills will be developed depends on the target group. Some more general coping skills, like looking for social support and improving social interaction, are very characteristic of SET programs as well. Feedback is a crucial part of this phase of the SET process, because it ensures the development and learning of new skills [25, 27]. The third phase of SET, 'skill practice with stressors', aims at transfer of skills learned to a realistic environments. A characteristic aspect of SET is the gradual increase of exposure to stressors. To improve both the confidence in performance under stress and the actual performance, it is important that the practice situations are challenging, but not too difficult. This is ensured by gradual exposure [25, 27]. Eventually a SET program should improve 'learned resourcefulness' in its participants. Learned resourcefulness is the opposite of learned helplessness. Learned resourcefulness is characterized by positive expectations about one's own capabilities to cope with stressful situations. This expectation is built by experiences of controllability and success in stressful situations [24, 26]. If people have positive expectations about their performance under stress, they will make more positive appraisals of their coping possibilities in a threatening situation, which will decrease the stress reactions and subsequent performance impairments.

4.2   Transfer of training

One characteristic of the new military environment is that situations are less predictable. This means that it is not possible to train in detail for every situation that will be encountered. To make sure training transfers

to unfamiliar situations, for which no specific training has been provided, adaptive transfer of training is necessary. When there is adaptive transfer of training participants have the ability to use learned skills and knowledge to solve new problems in new situations. This contrasts with analog transfer of training, which aims at the transfer of learned skills and knowledge in environments similar to the training environment [30]. The use of drills only provides analog transfer of training because it provides a solution to a specific situation. To improve adaptive transfer of training, people should be trained to use their knowledge and skills to find new solutions in new situations. Research has shown that self-regulatory skills, like emotion regulation and meta-cognition are important for improving adaptive transfer [31]. SET stimulates these skills and therefore may improve adaptive transfer of training. To make sure adaptive transfer is increased special attention should be given to the restricted usefulness of drills in novel situations and the importance of meta-cognitive skills that increase the ability to monitor the influence stress reactions can have on judgment and performance. One way to improve this kind of meta-cognitive skills is using error-management training [31]. In error-management training the importance of letting a learner actively explore ideas and test them is underlined. In this kind of training, tasks are more difficult right from the start so participants will make errors and participants are informed that errors are an important part of learning. Error-management training can be implemented in scenario based training by developing a scenario that will elicit potential errors and supporting error correction [32].

5.   SET FOR A MILITARY POPULATION

To make a SET program effective for a military population, the characteristics of military operations should be taken into account. An extended analyses of the operational context in which a mission will take place will add to the relevance and transfer of training [33]. SET should be aimed at the different stressors that could be of importance during a certain mission. For example, peace support operations may have a high level of provocation attempt. So, during the 'presentation of requisite knowledge' phase military personnel should be informed on stress reactions they could have as a result of provocation. In the 'skills practice and feedback' phase, increasing awareness about the benefits of restraint and training restraint would be appropriate for this kind of stressor. The 'practice under stress' phase should include situations which are as realistic as possible. For military application of SET, this means exposing participants to multiple stressors in a well crafted scenario in which performing in an ambiguous and stressful situation (for example exposure to provocation) can be practiced [32]. Adding an error-management training component to these scenarios will improve adaptive transfer of training. To be most effective SET should be structurally integrated in current military training [34]. By implementing SET practices into current training programs the transfer of these programs is expected to improve.

Besides taking into account the characteristics of military operations, it is very important to take into account the characteristics of military culture when developing SET-programs for a military population. The way SET has been implemented until now may not have done so enough. Thompson et al. [34] reported mixed results of research on the effectiveness of SET in a military population. In the design of these SET programs military culture was not adequately taken into account. The presentation of requisite knowledge was provided by mental health workers in a rather academic way. This does not acknowledge the existence of a stigma on mental health issues in the military organization. This stigma could undermine the effectiveness of SET programs. Researchers [35] who tried to implement a stress management program for French police Special Forces encountered similar problems due to culture. They identified a collective defence mechanism called 'virility' which refers to the ability to inflict pain or suffering in another person, without problems. This prevented officers from expressing their emotions and feelings. In interviews with instructors from the Dutch army, a similar culture was identified among military personnel, especially among the young men. Some instructors reported that they had difficulty talking with trainees about the effects stress and emotions can have on performance, because the trainees didn't acknowledge the influence stress could have on them. Thus, for SET programs to be effective in military populations it is very important that the indoctrination phase establishes belief in the importance of the

training. A SET program will not be effective if its participants do not acknowledge its usefulness. In the indoctrination phase different methods should be used to show that stress can decrement performance. First of all, military instructors instead of civilian instructors should be used to increase acceptance [34]. In interviews we held with instructors of the Dutch military the importance of professional military trainers or instructors was underlined. When trying to train military personnel to cope with stress, the ability of the trainer to 'ask the right questions' is most important. An indoctrination method that is currently used for training in the Dutch army is exposing participants to extreme stress first and then confronting them with their stress reactions. Instructors reported that this is effective for some trainees, but still some trainees refuse to openly talk about their experience. Taking into account that the culture in which military recruits are trained is characterized by 'virility' and stigma on emotional expressions, this is not surprising. Using vicarious learning (watching or hearing about others experiencing stress reactions and coping with these reactions) maybe more effective, because it does not directly confront the individual trainee with his or her own vulnerability. Another way of improving belief in importance of SET programs would be to try to influence military culture itself. Soldiers are socialized to evaluate skill, drill and physical ability as important components of readiness for missions, so why are they not socialized to evaluate mental readiness the same?

6.   CONCLUSIONS

The new military environment places increasingly more demands on soldiers during operations. The complexity and dynamics of the context in which they operate increases insecurity and will lower perceived control of the situation. It is under these conditions that military personnel will be confronted with acute life-threatening crisis situations. The way they respond to crisis situations can have major tactical and political implications. Therefore, it is very important that they are able to adaptively react to the situation. However, reactions in acute crisis situations can be severely impaired due to emotional and physiological reactions. Cognitive impairments and cognitive inflexibility will result from stress reactions and can increase the chance of errors in judgment and functioning. To minimize these effects, military personnel needs to be stress tolerant. A cognitive behavioural approach, called Stress Exposure Training, is recommended to improve stress tolerance in military personnel. To make this method effective it should be an integral part of military training and take into account military culture.

7.   REFERENCES

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