ENDC PROCEEDINGS

10/2008

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ESTONIAN NATIONAL DEFENCE COLLEGE

10th International Military Mental Health Conference

Tartu, 24–27 sept 2007

PAPERS

PROCEEDINGS
10/2008

Edited by Aasa Must

ISSN 1736–0242

Tartu Ülikooli Kirjastus
www.tyk.ee

ACKNOWLEDGEMENTS

I wish to express my sincere thanks to all those authors who without hesitation helped in the preparation of this booket by providing printable versions of the papers they presented at the 10th IMMH conference held in Tartu from the 24th to the 27th September 2007. Unfortunately this publication does not contain the keynote speeches and some of the presentations. Those papers that were received are printed here with minor language editing. We take no liability for the style used or the validity of any citations.

Many thanks to Mr. Roy Lowthian for his valuable language recommendations.

Aasa Must, Ph.D.
Associate Professor,
Estonian National Defence College

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OPENING ADDRESS

Colonel, ladies and gentlemen, dear colleagues and friends,

First of all, I have to thank Major-General Laaneots, Commander of the Estonian Defence Forces for having willingly accepted to support the 10th International Military Mental Health Conference.

We are also very grateful to the Commander of the National Defence College, Colonel Ermus, for hosting the conference in the facilities of the National Defence College and to support us in fulfilling all our practical needs to make this conference a success.

Furthermore, there is no way of organizing an event of this size without a number of coworkers. We need of course a local conference organizer who coordinates all activities, who takes care of a professionally challenging meeting and of exciting social events. But there are also a lot of "work horses" acting behind the scenes who make sure that everything runs smoothly. So, many thanks to Merle Tihaste and to all the "unknown soldiers", for what you have already done and for what you will do for us the coming days.

Today, you see before you an especially happy chairman of the International Steering Committee because, as all you know from the label "10th IMMH" and from the invitation, we celebrate our 10th anniversary. However, an anniversary covers more than a time interval in rounded figures. Over the past decade the IMMH conference has grown from a small tripartite meeting between British, American and Dutch mental health professionals of the Armed Forces in Europe to become a broad international forum. Today we have more than 60 participants from 15 countries, spread over four continents.

Meanwhile we have created our identity, translated into a mission statement, and we have found our place amidst a huge number of other conferences and workshops. The growing participation rate over the years is proof that we fill a gap, in dealing with military mental health.

Indeed, our strength is the interdisciplinary collaboration between actors who contribute to the physical, psychological, social and spiritual well-being of the soldier. This is especially relevant in an operational setting because "who feels well, works well" to quote from the motto of the Australian Psychological Service. We are also probably the only International Conference Community that applies concretely the motto "mens sana in corpore sano" through the IMMH running club. But Jamie Hacker-Hughes, the initiator of it will tell you more about that later on today.

On the other side, given that all crisis response operations have become multiservice, multinational in an intercultural environment, it is important to bring those experiences from the field together in an international forum,

aiming at elaborating "guidelines for best practice". That is the reason why this meeting does not consist only of a series of presentations but also of workshops and of free time to get to know each other better and to engage in discussions on topics of personal professional interest.

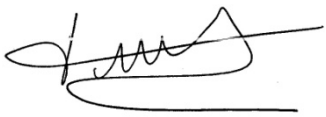
Last but not least we all should be aware that, as experts, we are there to assist the commanders and thus that we also have to listen to the "voices of the field".

Let us also say a few words about the leading theme of this conference: *Medically unexplained physical symptoms are perhaps psychologically explainable*; in short: *MUPS are perhaps PEPS*.

Indeed, a lot of soldiers show a number of complaints and are no longer able to perform well but they cannot be diagnosed as suffering from a particular syndrome, disease or disorder. This may have negative consequences on several levels; among others: professionally, psychologically, socially and financially. I truly believe that we have brought together here the right mix of competencies to address the phenomenon from different points of view. And whenever you feel challenged by the subject after this conference, you know that there is an NATO exploratory team of the Human Factors and Medicine panel on MUPS chaired by one of the keynote speakers of today, Col Dr Eric Vermetten.

To conclude: The French politician Clemenceau claimed that *war was too important to be left to the generals*. Simon Wessely contended that *research is too important to be left to the scientists only*. I would like to add to that, that *MUPS are too important to be left to the medics only*.

I wish each of you a very enriching meeting and a nice stay in Tartu!



Prof Dr Jacques Mylle
Chairman IMMHC

DOES THE BALKAN SYNDROME EXIST? – THE BELGIAN EXPERIENCE

JACQUES MYLLE

Belgian soldiers have participated in Crisis Response Operations since the early nineties. The first deployments took place in the Balkans. These real life operations led to health problems that looked quite similar to experiences in other Task Forces sent abroad but the pattern did not fit into any disease diagnostic. Hence, new descriptive labels were invented; e.g. the "Cambodia syndrome" in the Netherlands' troops, or the "Gulf war syndrome" among British and American soldiers. Therefore, this "new illness" – as a result of the Balkan deployment – was named the "Balkan syndrome".

After much criticism, among others, that the higher command was hiding information about the health condition of the deployed soldiers, the Belgian Medical Service started to record all symptoms/complaints of soldiers (designated to deployments) before, during and after deployment, as reported in their personal medical file. These reported complaints were put in a large database using the International Classification of Primary Care (ICPC-2) to encode those complaints. The database contains data of 4521 soldiers.

In this presentation we will first pay attention to aspects of nosography in general and secondly to the clinical epidemiology of the observed complaints in particular. Given that no consistent clinical image appeared, the conclusion is that there is no syndrome (in the strict sense) and thus that the "Balkan syndrome" does not exist.

Introduction

It is probably trivial to say that mankind has always tried to explain frightening phenomena he observed or the distressing experiences he went through. If he is not able to link it to real causes in the short run, then he will turn to a more descriptive label. This is, among others, typically the case for stress related experiences of soldiers in an operational context. For example, Myers (1870) used the term "soldier's heart" to label cardiac asthenia and neurocirculatory disturbances observed in British soldiers in India, Oppenheim (1892) introduced the concept "war neurosis" and Myers (1915, 1940) came up with the notion of "shell shock". All these labels are referring to

biomedical causes. During and after World War II, "combat fatigue" was the first label used to refer to psychological causes. Similar reactions following deployment in Vietnam were labeled "post Vietnam syndrome". Since then, the conglomerate of behavioral dysfunctions and impairments have often been labeled by lay-people according to the region of deployment; e.g. "Gulf war syndrome" among the American soldiers deployed in the Gulf in the early nineties or "Balkan syndrome" among the Belgian soldiers deployed in the mid-nineties. Of course, this labeling does not establish a link between cause and effect, and, certainly does not provide a scientific explanation. For example, some people believed that the symptoms of the Balkan syndrome were caused by pollution, among others by depleted uranium.

The aim is, by far, not to deny the existence of a problem experienced by deployed soldiers but the phenomenon does raise a number of scientific questions in the field of nosology.

Indeed, a first question is whether there is a pattern in the symptoms shown that makes it into a syndrome. If not, is the concept of Medically Unexplained Physical Symptoms (MUPS) a useful notion?

Therefore, in the following, we will first look into these questions at a theoretical level, and in a second part at an empirical level, by analyzing the prevalence of symptoms reported c.q. observed in a large sample of Belgian soldiers deployed in the Balkans.

Concepts

Three notions express different things in relation to health issues. First, *illness* refers to the way behavioral dysfunctions or disabilities are experienced by the subject; as an overall expression people may report that they feel ill. Second, d*ysfunction* or *disability* refers to the fact that people no longer meet certain behavioral, social, or professional standards. Third, people are suffering from a *disease* c.q. a *disorder* when they satisfy the following five conditions, described in a nosological taxonomy like the International Classification of Diseases (ICD) edited by the World Health Organization (WHO) or the Diagnostic and Statistical Manual for mental disorders (DSM), edited by the American Psychiatric Association (APA).

First, the set of symptoms shown has to form a *syndrome;* i.e. there must be a link between symptoms or between clusters of symptoms or a certain pattern must be present in this set. For example, one can suffer from a Post Traumatic Stress Disorder (PTSD) according to the DSM-IV on condition that one has experienced a confrontation with death (criterion A), shows at least one symptom of re-experiencing the event (criterion B), at least three symptoms of avoidance behavior and/or numbing (criterion C) and at least

two symptoms of hyper-arousal (criterion D); moreover these symptoms have to persist during at least one month (criterion E) and cause a significant impairment in one or more areas of functioning (among others professional, social, …) (criterion F). Second, the pathogenesis has to be known; i.e. the causes must be scientifically established. PTSD, for example, finds its origin in deep anxiety. Third, the etiology is known; i.e. the link between the cause and the consequences in terms of symptoms. In the case of PTSD, some triggers lead, by mere association, to re-experiencing the event, which causes hyper-arousal. The fact that these remembrances are painful leads to avoidance behavior and, in the long run, to numbing. Fourth, it is possible to formulate a prognosis; i.e. how the disease c.q. the disorder will evolve over time. If PTSD is not treated, the subjects' health gets worse. And fifth, methods for cure or at least for care do exist. PTSD can, for example, be treated with Eye Movement Desensitization and Reprocessing (EMDR).

Is MUPS an issue?

The importance of a positive diagnosis can hardly be underestimated. It gives the person a medical position: he becomes a patient. This position implies a number of advantages; the person does not have to feel guilty nor ashamed for his dysfunction. Furthermore, it is socially accepted that patients are set free of a number of obligations. He can choose from a number of options for care and cure. Depending on who is responsible for his disease c.q. disorder, he can file a claim for compensation and/or rehabilitation. And finally, there may be some secondary gains such as receiving more attention or compassion.

We will not enter here into the discussion about the categorical or dimensional character of diseases c.q. disorders – i.e. people do suffer from a disease c.q. a disorder or they do not. When the five conditions are satisfied versus they have it "a little bit" or "a lot" (Geoffrey Rose, cited in Smith, 2002).

Our central question is: what are the consequences of a negative diagnosis despite the impairment caused by an undefined set of symptoms?

By definition, MUPS do not form a syndrome but just consist of a set of symptoms of which the common characteristic is to be medically unexplained (so far). Hence, there is no pathogenesis available and, a fortiori, neither an etiology nor a prognosis. Furthermore, MUPS are "diagnosed" per exclusionem and methods for treatment vary from trial-and-error to effect based.

Thus, with respect to the operational fitness of the soldier, MUPS leave the soldier with questions about himself, and the leader with questions about the readiness of his unit. MUPS also raise a number of managerial questions for Defence as an organization, for its medical support and mental health needs.

The fact that no positive diagnosis is possible, makes that soldiers with MUPS suffer from something unknown, which may induce anxiety or lead to false idiosyncratic labeling. The latter may be reinforced by the media, as it was the case with the Balkan syndrome. Most MUPS are not testable complaints; so the issue becomes a question of believers – people truly suffer from something – versus non believers – people are faking for the secondary gains. In the latter case, soldiers may be stigmatized, "qualified" as softies or lame ducks. In the same vein, MUPS create a feeling of failure because the victims cannot meet their leaders' and comrades' expectations nor perform as well as they could before. In the end, they are at risk of being subject to learned helplessness and just resign, testifying a motivational and emotional deficit of becoming victim of secondary complaints like depression.

The Balkan syndrome or MUPS in the Belgian Armed Forces

The Belgian Armed Forces have participated in Crisis Response Operations, particularly in Peace Support Operations, since the early nineties in the Balkans. Task forces have been deployed, among others, in Croatia and Bosnia, and still are in Kosovo. There is no need to say that this kind of operations differs in many respects from the training situations in the cold war era. Leaders were at once confronted with a number of problems they had never met before, including a number of health complaints. The prevalence and variety of these complaints is paradoxical to the fact that the task forces were composed of selected healthy and well-trained soldiers.
Quite soon, Defence was blamed for ignoring the problem, for not taking any action in favor of the victims and for not taking preventive measures for the upcoming rotations.

In the late nineties, the Medical Service started a large scale study[1], first retrospectively and later on prospectively. In the retrospective phase, the medical records of all soldiers deployed in the Balkans were examined. In the second phase, soldiers' complaints were recorded in their medical files before, during and after deployment.

[1] We thank the Medical Service, especially Med Major Etienne Degrave, for having made the database available.

Given that MUPS are considered to be a medical issue, the International Classification for Primary Care version 2 (ICPC-2) was used. ICPC is a bi-axial system. One axis contains 17chapters, referring to different classes of complaints; e.g. B= blood, P= psychological, Z= social. The second axis is divided into seven components, each containing a number of items; e.g. the first component lists *symptoms and complaints* and the seventh one lists a number of *diseases*. Table 1 gives an overview of the ICPC axes.

Table 1. The axes of the ICPC

Chapters	Components
A: General & unspecified	*01–29: symptoms & complaints*
B: Blood	*(variable number per chapter)*
D: Digestive	30–49: diagnostic & preventive
F: Eye (focal sight)	procedures
H: Ear (Hearing)	50–59: treatment procedures &
K: Circulatory	medication
L: Musculoskeletal (Locomotion)	60–61: test results
N: Neurological	62: administrative
P: Psychological	63–69: referrals & reasons for encounter
R: Respiratory	*70–99: diseases*
S: Skin	
T: Endocrine, metabolic, …(Thyroid)	**Standard for the first component of**
U: Urological	**each chapter**
W: Pregnancy, child bearing,	01: pain
…(Woman)	26: fear of cancer
X: Female genital (X-chromosome)	27: fear of another disease
Y: Male genital (Y-chromosome)	28: limited functioning
Z: Social problems	29: other symptoms & complaints (rag bag)

The database contains 4521 records in total. The sample is nearly exclusively male. Nearly all soldiers belong to the Army, and predominantly to combat troops or to combat support troops.

Each record is binary encoded; i.e. “0” for absence of a given symptom and “1” for presence.

Furthermore, each symptom appears three times in the database (before, during and after) but for statistical purposes a new single univocal variable has been created by converting the three digit binary code into a decimal number, according to the following formula $(0/1).2^2 + (0/1).2^1 + (0/1).2^0$. The resulting codes are shown in Table 2.

Table 2. Converting the symptoms before, during and after into a single code

BDA		Meaning
0 0 0	0	–
0 0 1	1	after
0 1 0	2	during
1 0 0	4	before
0 1 1	3	during & after
1 0 1	5	before & after
1 1 0	6	before & during
1 1 1	7	before, during and after

It should be noticed that the codes 4, 5, 6 and 7 are of no relevance for the study at hand because they refer to symptoms pre-existing to the deployment and are thus not MUPS attributable to the deployment.

About 31.5 % of the soldiers suffered from Tiredness and/or Weakness at some moment; thus also even before deployment which suggests that expectancies about the deployment play a role. This symptom category shows the highest prevalence not only within chapter A, but throughout all chapters. About 3% suffered from tiredness/weakness after the deployment only, while some 5% did during as well as after. A negligible number (0.2%) complained only during the mission.

It is noteworthy that about 3% of the soldiers have been diagnosed to be victim of a trauma NOS (not otherwise specified) during the mission.

Among the digestive complaints (chapter D), abdominal complaints in general appear with 3.3% and diarrhea as a specific complaint with nearly 6%.

About 1.1% suffered from visual disturbances during and after the mission although they did not before. Among the musculo-skeletal complaints (chapter L), low back pain is the most typical symptom with 8.3%. For about two thirds of them, the problem arose during the deployment and persisted after the mission, but for the remaining third, problems started only after having returned home. In the second place, come neck complaints with 2%. At the neurological level (chapter N), headaches appear to be the most frequent complaint. In total, some 12% suffered from headaches, although two thirds contended to suffer from it after the deployment only. In contrast, over and above the headaches, only 2% has been diagnosed with migraine.

As opposed to the typical bio-physiological complaints, from which at most two symptom categories are worth mentioning (in terms of frequency), chapter P shows six categories of psychological symptoms. Nearly 11% suffered from sleep disturbances, 7.8% from memory disturbances. Some 5.5% showed acute stress reactions and 4.2% felt depressed. As in the former cases, for about two thirds, the complaints arose only after they

returned home from deployment. 3% reported they felt anxious, nervous or tense and 2.7 % was irritable or felt angry. For nearly all of them, the symptoms showed up after the mission. Among the respiratory symptoms, 3.6% of cough complaints appeared (but more or less equally split over during and after) and some 2.4 % of throat complaints. Except for 2.3% of infections of the upper respiratory ways, almost no other respiratory diseases were reported. 5.9% complained about skin pain or tenderness and some 2.3% of pruritus; about half of these complaints started after the mission.

With respect to endocrinal, metabolic and nutritional symptoms, 1.7% reported a weight loss, for 3 out of 4 soldiers this loss appeared after the deployment.

Table 3 summarizes the frequencies at the level of the chapters as a function of the time axis.

Table 3. Frequency (%) of complaints per chapter

CHAPTER	None (0)	After (1)	During (2)	During+after (3)
A	64.3	23.9	4.6	5.5
B	99.6	0.2	0.0	0.0
D	87.7	4.2	3.6	2.0
F	97.8	0.9	0.5	0.5
H	98.9	0.4	0.1	0.2
K	98.3	1.0	0.3	0.1
L	79.1	5.7	3.8	5.4
N	83.9	8.6	2.7	3.7
P	74.5	13.5	4.2	4.2
R	89.3	2.6	3.8	2.6
S	78.3	4.8	3.2	3.0
T	96.9	1.9	0.7	0.3
U	99.1	4.2	0.2	0.1
W X Y	–	–	–	–
Z	96.6	1.0	1.7	

A hierarchical classes analysis (De Boeck & Rosenberg, 1988) by means of the HICLASS program (De Boeck, Van Damme & Van Mechelen, 1992) did not reveal any pattern in terms of chapters nor in terms of symptoms; i.e. there are no groups of subjects who suffer from particular a (sub)set of symptoms.

Discussion and conclusions

A lot of symptoms did appear in the target group with very low frequencies. Only a few showed a prevalence higher than 2%. Taken together they constitute a sufficient proof that MUPS do exist in an operational context.

Moreover, problems seem to appear more frequently after the deployment (2/3) than during (1/3). This phenomenon may be linked to the predominantly problem-focused coping style of soldiers who try to hide their problems in the masculine environment the army is or it may be the result of a non-heard claim for recognition for what they went through, once back home.

Even if some symptoms are quite common, no patterns of symptoms could be detected in some groups of soldiers. Hence the Balkan syndrome, defined in the narrow sense, does not exist.

The fact that a high number of deployed soldiers formulated at least one or a few complaints is a sufficient reason to take the bull by the horns and thus to take MUPS seriously.

Given that the human being is a bio-psycho-socio-spiritual entity and given the interactions between these domains of functioning, a multi-disciplinary approach to MUPS is indicated.

Given that by definition MUPS cannot be explained at the medical level, maybe they are (at least partly) psychologically explainable through theories or models about learning, motivation, emotions, stress and/or cultural differences. And thus, perhaps, MUPS are PEPS (Psychologically Explainable Physical Symptoms).

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AFTER RETURNING FROM MILITARY DEPLOYMENT TO HOTSPOTS OF IRAQ AND AFGHANISTAN – THE ESTONIAN EXPERIENCE

TIIT MEREN, MERLE TIHASTE

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This article *has been produced in close cooperation with a key person of the Psychological Service (PSY.S.) of the Estonian Defence Forces (EDF) Ltn. Merle Tihaste and with special advisory remarks from Capt. Lauri Abel and Major Kersti Lea representing the Estonian MoD.*

The first author's position, as a reserve officer, has enabled him to observe and analyze this particular topic from a more independent (neutral) standpoint and to draw conclusions that are, indeed, a subject for further discussion.

Since 2004 Estonian troops have participated as coalition-partners in military stabilization operations in Iraq and as ISAF combat units in Afghanistan.

At first glance the amount of Estonian military contingency in Iraq and Afghanistan is not big. But in a more detailed look one discovers that Estonia's human participation in Afghanistan per capita of national population is even bigger than from certain other NATO countries; we have deployed 1 soldier per 5800 of our national population. In comparison with the United Kingdom which has 1 soldier per 8000 and the United States – 15.000.

90% of our contingency are Combat Units. They operate in the hottest spots, patrolling on the streets of Baghdad and operating in Helmand Province. They have no restrictive limitations of military activity (national caveat). They operate out of base, on the streets of Baghdad, every day and in Helmand Province they do not return to base sometimes for several weeks.

The severity of military engagement is characterized by certain lessons-learned as well the losses; 2+2 combatants – dead, 15+20 – injured, which gives reason to expect that the rate of mental health problems in our soldiers could be substantial.

International experience on combat stress and associated mental symptoms: US, Canadian and UK military psychologists report that at least 10–20% of deployed soldiers had various mental symptoms which had

further developed into posttraumatic stress disorders (PTSD). Which in turn make the combatants incapable of acting in the war theatre, not deployable in the next round of rotation and not acceptable to their families when they return back home. Repeat „combat tours“, according to US sources, increase the presence of acute combat stress to 50% (!) in their contingencies and substantially increased rates of suicide.

In contrast to the international experience in the Estonian Defence Forces we do not have cases of diagnosed PTSD and deployment related suicides among our combatants during and after returning from deployment to Iraq.

Is this a true picture of the Estonian combatants` mental health state after returning from deployment or do we miss some facts? Are our soldiers really better selected among candidates for deployment in comparison to other NATO countries? Are they possibly better prepared to resist extreme conditions, better guided through the dramatic scenes of the war theatre and brought back home „in time”? Is their social re-adaptation matched to the conditions and circumstances back home better than in other NATO countries? Are we using better methods to prepare, monitor and support our deployed soldiers? Or are these results just an erroneous illusion caused by the fact that we are not seeing the true picture?

The PSY. S. of EDF was officially founded in 1993 but in 2008 is still manned by only 3 psychologists. Their ambition is to win recognition in the eyes and minds of our defence leaders and to establish a task oriented central structure and the post of Head of Psychological Service of EDF together with a corresponding chain of command. Under his/her supervision 3 departments should be established; Research & Science, Education and Training and Counseling & Consulting.

Although located in different units all psychologists contribute to monitoring the mental health status of our combatants before, during and after deployment.

In the Pre-Deployment phase they prepare deploying personnel through psycho-educational training for better adaptation to the operational environment and to manage the related stressors. In Leadership Training they debrief combatants in the case of critical incident, communication and problem-solving techniques and unit moral.

In Unit Training they talk about individual differences in the adapting process, the role of family and close relationships, stress, burn-out symptoms and how to cope with them.

In the Deployment phase they perform support of most significant others, distance attendance to identify psychological disorders and misbehaviors. Consulting in case of conflict situations in unit or problems at home. The leaders and soldiers are guaranteed with psychological support in case they need it.

In the Post-Deployment phase they screen emotional stability, physical health and the process of psychosocial re-adaptation. On returning from deployment (in the airport) a clinical screening test (EST-Questionnaire) is administered to assess potential psychiatric deviation together with a medical check.

1 month after homecoming an individual interview with psychologist takes place together with the filling of the PTSD-Questionnaire.

6 months after homecoming a follow-up contact takes place.

To answer the question do we have a true picture of our soldier's mental health status – let us look first at what objective factors have contributed to creation of this positive result.

All deployed soldiers are chosen from an active service contingency. No conscripts are deployed. Recruiting doesn't happen in supermarkets or university campuses among failed students. No specially appetizing bonuses are offered. Joining deployment rests purely on the free will of our soldier.

The terms offered by the deployment contract are probably rather liberal; rotation lasts only 6 months and a vacation follows. It is not unexpectedly cut. No prolongation of the rotation period to 12 or to 15 months happens. In the case of multiple rotations (2–6) the decision to go was seemingly easier because the experience acquired earlier had motivated our soldiers to continue with their job.

What factors may have created a false picture? According to psychologist's interviews „Fear to talk" is one of the leading problems.

In the war theatre some of our soldiers are afraid to ask for help for mental symptoms ... because they fear it endangers their future career. Some of them simply prefer not to talk at all about their past memories. It may have happened that, with their mental symptoms that had somatized, they go and complain only to their civilian GP´s and on condition, that no backflow of information to military medicine doctors happens. As well a though guy syndrome („Big boys don't cry") is deep rooted in the Estonian way of thinking.

While psychologists have the results of their interviews, military leaders of EDF have their fixed opinions that often don't go side by side with the psychologists' view.

The latter state that unfortunately we don't have a clinical psychologist „in the Base" as well as having no systematic mental health monitoring during deployment. We miss the deployment related health research, troops health assessment system, epidemiological research or exhaustive post-deployment health screening. What we have is uncoordinated (non-systematic) activities to cover every single case that pops up, a chaotically documented history of events and soldiers with apparently hidden problems that have not been solved.

Do our psychologists monitor our combatants' mental symptoms continuously enough?

As stated we have no clinical psychologist stationed in Iraq or Afghanistan to detect early mental symptoms of a problem that might grow big and be difficult to recognize and treat afterwards. „Blind periods" in monitoring mental status exists between 1.–6. months, as well as after 7 months period after returning from deployment.

No legal basis exists in the EDF to order a soldier to undergo Medical Checks or interviews after deployment. It means that our soldiers participate in follow up studies only based on their good will. Also, no one compensates the soldier for the traveling costs to regular Medical Checks. This diminishes our opportunity to get a true picture about a soldier's general health after deployment as well as to identify and react to negative changes.

Conclusions

1. The Psychological Service of the EDF has made a successful attempt to perform the monitoring of the mental health status of deployed soldiers and has presented the results from their provisional studies and interviews to the defence community of Estonia.
2. The higher authorities of the EDF seem to consider the Psychologist's Statement as not decisive, not advisory and not a priority (in the Military Decision Making Process). Although nobody disagrees with the conceptual idea, there is no initiative to structure the activities of psychological or psychiatric support for deployed Estonian soldiers in an effective manner.
3. Taking into account the high presence of the Estonian contingency in the military hotspots of Iraq and Afghanistan - the Psychological Service of

the EDF with only 3 chaotically located persons – is dramatically unmanned and unstructured.

4. As acknowledging of mental health problems in connection to acute or chronic combat stress is undervalued by higher authorities in the EDF – a shortage exists in diagnosing, treating and rehabilitating.
5. According to private interviews with our soldiers, an urgent need exists to legally adopt a comprehensive system of Social Guarantees and Family Support Programs. Its absence is becoming an existential reason for our deployed soldiers to loose their further motivation in participating in following rotations.

MEDICALLY UNEXPLAINED PHYSICAL SYMPTOMS IN A HUMAN PERFORMANCE PERSPECTIVE

MARTEN MEIJER, RODNEY DE VRIES

Abstract

The psychological symptoms of lacking concentration, losing short term memory, overwhelming fatigue and rapidly changing bodily pains may be captured by the expression of medically unexplained physical symptoms (MUPS). These symptoms sometimes occur after participation in intense military operations and may have some relations with the Post Traumatic Stress Disorder (PTSD) or the Traumatic Brain Injury (TBI). The symptoms surface before, during or after deployments and affect military performance and combat readiness. Some authors capture these syndromes as Post Deployment Syndromes (PDS). We prefer unexplained over unexplainable as unexplained defines the symptoms as not yet explained instead of impossible to explain at all. This preference meets the need for continuation of research efforts and raises the expectation that the symptoms will be explained on a certain moment in time.

The Netherlands Armed Forces deployed over 2000 military personnel to Cambodia in the early 1990's. Some of them returned with PTSD, others with TBI and others with MUPS. An exploratory team of the NATO Human Factors and Medicine Panel developed in June 2007 the terms of reference and technical activity proposal to study the relations between deployments, PTSD, TBI and MUPS and to recommend good practices for early diagnosis and treatment of MUPS.

As the military culture appears to be rather masculine, reporting physical symptoms seems to be easier and less career damaging than reporting psychological symptoms. This so-called somatisation distracts the focus on root causes, which lack of focus can explain the high proportion of unmet needs after deployments. The socio-economic aspects of MUPS, like benefits of attention, care, claims and compensation can also distract the focus on root causes. Therefore military health professionals need to be aware of the onset and development of medically unexplained physical symptoms and best practices for treatment.

Another aspect of MUPS is that these symptoms might not be appreciated by scientist or practitioners as a phenomenon which is unexplained and therefore out of their control. On the other hand we will note that what we really study, explain or understand is so little, as for instance the heart has its reasons, which the reason does not understand. This perspective raises the question how many psychological syndromes are really explained. For instance, is the Post Traumatic Stress Disorder really explained in its full context or is it for instance still missing the communication context in which PTSD blocks the communication between patients, practitioners and the parent society?

From a human performance perspective we will conclude that practitioners have to focus on prevention and treatment of MUPS, with or without a valid explanation, as prevention and treatment need first attention. Decreasing the number and intensity of symptoms deserves priority to maintain human performance and wellbeing. It is also recommended to address and prioritize each symptom individually in stead of using container-concepts like MUPS or PDS.

1.0 Introduction

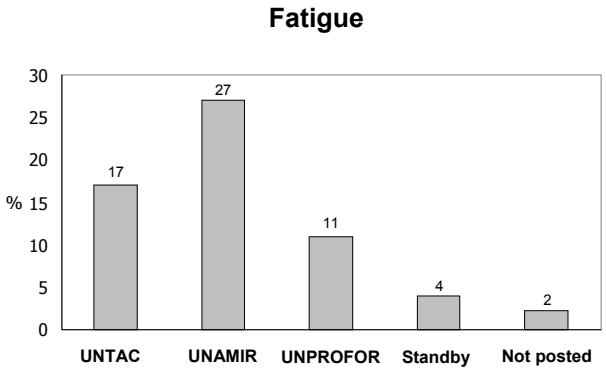
In 2004, the International Military Mental Health Conference convened in the Netherlands Veterans Institute in Doorn to address common issues in veterans care. Dr Maaike De Vries presented her paper on her PhD thesis on the Post Deployment Syndrome. She wrote and we quote with her permission:

2.0 Post Deployment Syndrome in Dutch Cambodia Veterans by Maaike De Vries

"In the early 1990s, around 2600 Netherlands service personnel were sent out in the United Nations Transitional Authority Cambodia (UNTAC). Shortly after their return, a number of them reported various physical symptoms. Because these service personnel believed that their employer was not listening to them, they formed themselves into a group of 27 activists. They were after widespread publicity and as a result of political pressure the complaints of these Cambodia veterans were at last investigated scientifically. These veterans all attributed their symptoms to the anti-malaria drug with the trademark Lariam. At the time of their posting the drug Lariam was surrounded by mystery: the instruction sheets had been removed from the

packs, eerie stories were going around about the drug and a number of service personnel even had tee-shirts printed with the message "It's the Lariam that did it". Another feature of the symptoms reported by these Cambodia veterans was that many of them seemed to be very similar to symptoms reported by American and British service personnel who had taken part in the first Gulf War.

A total of 1733 Cambodia veterans took part in an investigation to determine the nature, the extent and the possible causes of these symptoms. Four to five years after their return from Cambodia, 35% of the veterans that had been examined complained of memory loss, 28% complained of concentration problems and a quarter suffered from chronic fatigue. These figures are all based on self reported measures.



In accordance with the usual practice in scientific investigations, the symptoms were also assessed using a standard questionnaire. This revealed that 17% of the Cambodia veterans suffered extreme fatigue and related problems. The investigation also included four control groups. As you can see in the graph, service personnel sent out to Rwanda, Zaire and Burundi in the UNAMIR mission, also complained of chronic fatigue. However, it is possible that these figures are misleading. In the first place, it covered a relatively small group of just ninety individuals. Secondly, these individuals had returned much more recently than the Cambodia veterans. The fatigue results were also somewhat high for those service personnel that had returned from the UNPROFOR mission in Bosnia although that was normal for a group of service personnel that had been on standby for a posting to Rwanda and also for a group that had not been posted anywhere.

American Civil War
Irritable heart, Soldiers' heart, Da Costa syndrome
WW I
Effort syndrome, Shell shock, Neuro-circulatory aesthenia, Trench neurosis, War neurosis
WW II
Combat fatigue, battle exhaustion, combat neurosis
Vietnam War
Agent Orange syndrome, post-Vietnam syndrome, combat stress, post -traumatic stress disorder
Gulf war syndrome
Bosnia syndrome
Post-Cambodia complaints

Symptoms suffered by returning service personnel have been investigated since the times of the American Civil War. It is particularly noticeable that in every case new syndromes are found and given new names. You can see a list that is far from being exhaustive of the names of disorders reported as a result of both battlefield and peacekeeping missions. The different designations of the symptoms can be largely attributed to the then level of medical knowledge as well as to cultural factors.

In brief

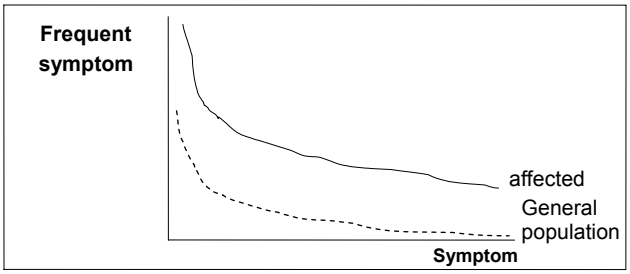
Comparable disorders
Comparable functional mechanisms

Similarities seem greater than differences

However, it is clear that these disorders can be characterised more by their similarities than by their differences. There is a striking similarity in the different disorders and the manner in which they are perceived to function. In order to demonstrate the lack of rationality in trying to name a new syndrome after every posting of a group of service personnel, it has been agreed that the term Post-Deployment Syndrome should be used. The terminology indicates that such symptoms often occur after a battlefield posting and it also postulates a legitimate basis for the symptoms themselves. There

is also room for lateral thinking with the Post-Deployment Syndrome, inasmuch that the symptoms reported by service personnel returning from an overseas posting can be compared with those experienced by civilians after disasters and major calamities. In other words, why create a new terminology for symptoms in servicemen when the same symptoms can also be found among civilians?

Health disorders after disasters



The same disorder profile as in the general (unaffected) population, disorders only in a significantly higher frequency range

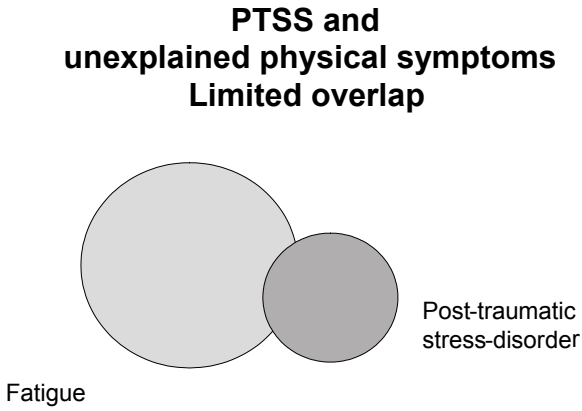
So what sort of symptoms are we talking about? In brief, these are typical symptoms that are encountered quite regularly within any population, except that they occur much more frequently after military postings and domestic disasters. There is no question of any differences in the symptom profile that can point to a specific syndrome. In brief, these are normal symptoms that occur more often than normally as a response to out-of-the-ordinary experiences.

Health disorders: nature and frequency

- Post-traumatic stress
- Unexplained physical disorders, such as fatigue, chronic pain, mobility disorders
- Neuro-psychological disorders, such as lapses of concentration, memory loss
- Anxiety, depression

Extent: 20-50% after 1 year (Havenaar & Bromet 2002)

These symptoms are either post-traumatic stress reactions or physical symptoms. The physical symptoms have as yet no satisfactory medical explanation. Symptoms such as fatigue, chronic pain or mobility problems are often all categorised as unexplained physical phenomena. Neuro-psychological symptoms are also frequently encountered as a result of battle-zone postings, disasters and calamities. Individuals find that they are no longer able to concentrate or that they suffer from memory loss. Finally, anxiety and depression are also very common.. Scientific research has revealed that around 20% of all service personnel posted to overseas battle zones develop complaints of this type. Research carried out on the victims of disasters, that is to say representatives from the civil population, shows that between 20 and 50% of all victims still suffered seriously from the effects of the event one year later. In brief, symptoms occurring after military postings, disasters and calamities occur frequently. At the same time, it is clear that the majority of people will never experience such symptoms and will go through their entire lives unaffected in this way.



Symptoms occurring after military postings, disasters and calamities are often assumed to be solely due to traumatic events. Research conducted on the Cambodia veterans looked for a connection between post-traumatic stress disorder and unexplained physical symptoms. Only a small proportion of those service personnel who were suffering from severe fatigue symptoms satisfied the relevant criteria for the diagnosis of post-traumatic stress disorder. This leads to the conclusion that post-traumatic stress disorder is also an unsatisfactory explanation for the problems suffered by the Cambodia veterans. In other words, there is more to it than just trauma.

Factors that can prolong disorders

Bijlmer: men in white suits

- Attributions

Ideas that people have on causal relationships between individual factors and health disorders

- Lack of care, understanding and respect

To conclude this presentation, I would like to explain a number of things that are relevant for symptoms occurring as a result of military postings, disasters and calamities: Firstly, there are some factors that can prolong such symptoms. Attributions, that is to say, ideas that people have on the causal relationship between individual factors and health problems, are very important in the identification of such symptoms.

Cambodia veterans attribute their problems to Lariam. After the First Gulf War, an attempt was made to find an explanation for the symptoms reported by the Gulf War veterans, blaming among other things vaccinations, while the victims of the Bijlmer disaster feared that their problems were related to depleted uranium that might have been on board the doomed aircraft.

Proper, open and honest risk communication

Short-term:

Preventing mass hysteria
Preventing irrational anxieties
Maintaining a feeling of control

Long-term:

Preventing attributions
Preventing mistrust of the authorities
Preventing conspiracy theories

Another factor that is certainly relevant in the diagnosis and treatment of symptoms is the lack of attention, understanding and respect. Veterans and the victims of disasters deserve attention, understanding and respect, both for what they have been through and also for what they may yet develop, which could seriously affect what they do for the rest of their lives.

A second point concerns a good, clear and honest policy of risk communication. Greater clarity, honesty and openness on such matters as exposure to potentially hazardous substances, the side-effects of drugs and other potential risks, would have the effect of preventing much suffering. In the short term, an effective system of risk communication can help to prevent mass hysteria and irrational anxieties and strengthen the feeling of control.

In the long term, it can contribute to preventing attributions being made and to maintaining confidence in the government or the competent authorities. At the same time, it can also help to dispel conspiracy theories.

Health examinations

Preventing attributions and mistrust of the government and helping to dispel conspiracy theories

Provides insight into the state of health of an individual serviceman or an affected community

Contributes to the provision of care, understanding and respect for victims

A final point that I would make relates to the need for serious psycho-social research and by that I mean scientific research covering a number of measurements. The first measurement would preferably take place before an individual's posting followed by a number of further measurements after his return.

Thorough health examinations would also contribute to preventing unjust attributions and mistrust of the government and would also help to dispel conspiracy theories. In addition, health examinations can give a good insight into the health of an individual serviceman or of an affected community. If,

for example, the need and the demand for care can be clearly defined, the provision of this care will be much better and much easier to deliver. Moreover, health examinations can provide a positive contribution for the development of care, understanding and respect for service personnel posted to overseas battle zones and for the victims of disasters and calamities. That is certainly important, because as I said before, returning home from a war is certainly no picnic".

In overviewing this paper of Maaike De Vries we note that different theaters of operations expose deployed personnel to different stressors. The jungle and heat of Cambodia made malaria prophylaxis necessary, so deployed personnel has used this prophylaxis for 6 months or more. Operations in the first Gulf War exposed deployed personnel to depleted uranium dust and the continuous need to be ready to take countermeasures against toxic warfare. Recent NATO operations in Afghanistan made long stay on high altitude necessary, which definitely impacts all human physical systems, with a great likelihood on symptoms like polyuria, heart rythym changes and exhaustion. But from the first World War the very specific symptoms of disorientation resulted form ongoing artillery bombardments. Symptoms from all these operations can be captured by the phrase 'Post Deployment Syndrome' or PDS. However, we do not like to recommend the use of this phrase PDS, as it is blurring a sharp view on direct possible causes of the symptoms. As in a lot of mental health care it helps clients when therapists are very specific, not vague. This also brings us to our recommendation of not using PDS is military mental health care. We also criticize the specific word Syndrome, because this postulates relations between symptoms, which are not well defined or may not even exist at all. In the next paragraph we will discuss derailments like violence and suicide in the military. These behaviors do not specifically follow deployments, but can be part of typical characteristics of the military organization or military personnel.

3.0 Suicide among Dutch military Service Personnel and Dutch Veterans by Marten Meijer and Gielt Algra

Derailments among veterans is sometimes mentioned in the mass media. This often concerns derailment of a violent nature. For example, in October 2002 an American Gulf War veteran shot and killed over 10 people in the Washington DC area over a period of several weeks. This excessive violence

was front-page news in the area for a good few weeks[2]. Earlier that same year, after returning to the Fort Bragg army base from Afghanistan, several American soldiers murdered their wives and subsequently committed suicide. There are also incidences of violent behaviour, including suicide, among Dutch veterans. We will deal with some of these incidences further on in this paper. International systematic research among veterans in the United States, Norway and Canada shows that some groups of veterans are indeed at a higher risk of such types of dysfunction (Pollock et al, 1990, Hendin and Pollinger-Haas 1991, Kramer et al. 1992, Bullman and Kang 1994, Weisaeth 1994, Wong, 2001. Particularly in the Norwegian research, the fact that the relationship with the deployment in which they took part cannot always be established leaves scope for the alternative explanation that military personnel are in any case more at risk of such dysfunctions, for example because the armed forces attract more adventurous people, or even people of a violent disposition (Weisaeth, 1994, p. 128,[3] Weisaeth, 1995, p.10).

In this chapter we formulate an answer to the question of the extent to which in particular young veterans and military personnel in active service are involved with derailments in terms of violent behaviour and suicide. First of all, we will describe some results on this subject from international research among veterans. From the aforementioned international research we can deduce that a small group of veterans encounters severe problems when trying to settle back into society and in calling for help in time. We will then present research data concerning the aftercare provided for Dutch military personnel from the Royal Netherlands Marine Corps who participated in the missions in Bosnia and Haiti in 1995 and 1996 and concerning the aftercare provided for veterans in general. Finally, we will provide information on sentences imposed on military personnel in active service and suicide among military personnel in active service. Bases upon this information, we will draw several conclusions and made recommendations for the further improvement of veterans care. In order to modify the negative connotations of derailments, we would like to point out that it only occurs among a very small group of veterans. In order to convincingly compensate for the negative image that may possibly be created, we would like to point out in advance that a much larger group of veterans attracts attention for exemplary behaviour. Not only were these people prepared to and capable of risking their lives for the common good during their active service, but they also

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2 The Sunday Times-Washington Times, 27 October 2002, p. 1: Sniper suspects' bid for attention helped investigators complete a puzzle.

3 Weisath, L. (1994): The UNIFIL study 1991–1992. Report part I, chapter X, Mortality in the UNIFIL Population Oslo, Norway, Headquarters Defence Command, The Joint Medical Service.

constitute a law-abiding and self-sacrificing group in today's society. This is left in no doubt whatsoever when one takes into account the many awards for gallantry and Royal honors bestowed on veterans. This excellence is also illustrated by the fact that a Second-World War veteran once rose to the highest office of prime minister, as well as the fact that a veteran from the Netherlands East Indies is the father of a minister in the current government.

According to the Dutch definition, veterans are military personnel who have been deployed in wartime conditions or comparable conditions, but who have left active service. Participants in crisis operations, non-article 5 crisis response operations or humanitarian operations, be they under the auspices of the United Nations (UN) or otherwise, are also expressly included in the above definition.

The Netherlands has many veterans as a consequence of the participation of Dutch military personnel in the Second World War, the police actions in the former Netherlands East Indies, the fight against infiltrations in the former Netherlands New Guinea and the war in Korea. Of these so-called 'old' veterans, over half a million were deployed in total, but their number has been undergoing a strong decline in recent years as a consequence of natural wastage. From 1978 to 1985, 8,000 young potential veterans were added to these numbers as a result of the deployment of Dutch military personnel in the United Nations Interim Force in Lebanon (UNIFIL). This development continued with the participation of mainly Dutch marines in UN operations in Northern Iraq and Cambodia. These operations were followed later by UN missions in the former Yugoslavia, Haiti, Angola and Rwanda, and involved participation by other Services of the armed forces of the Netherlands. The recent UN mission in Ethiopia and Eritrea was another marines occasion as far as the Dutch contribution was concerned. By participating in such operations and then leaving active service, the number of young veterans is undergoing a steady increase. Figure 1 shows how the numbers of old and young veterans have developed from 2000 onwards.

Figure 1 shows that by the end of 2006 the number of old veterans will have dropped from 140,000 to 81,000. The number of young veterans, which in 1990 consisted chiefly of some 8,000 UNIFIL veterans, is expected to increase to 44,000 in 2006. In 2002, the ratio between the numbers of old and young veterans was approximately 3 to 1. Up to 2003, approximately 75,000 of these veterans had registered with the Veterans Institute. 8,000 of these registered veterans belong to the group of young veterans. The group of young veterans is therefore strongly under-represented in the total complement of registered Dutch veterans (see figure 2).

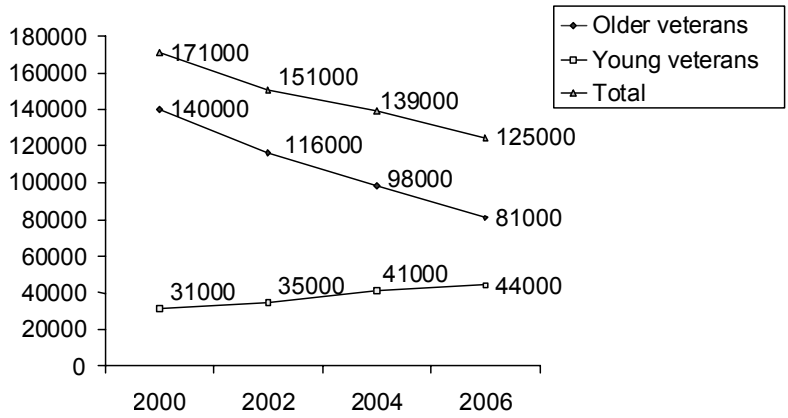

Figure 1. Estimated number of old veterans, number of young veterans and the total number of veterans from 2000 to 2006 inclusive. Source: Elements of a strategic long term plan by the Veterans Institute Foundation, 2003, p. 3.

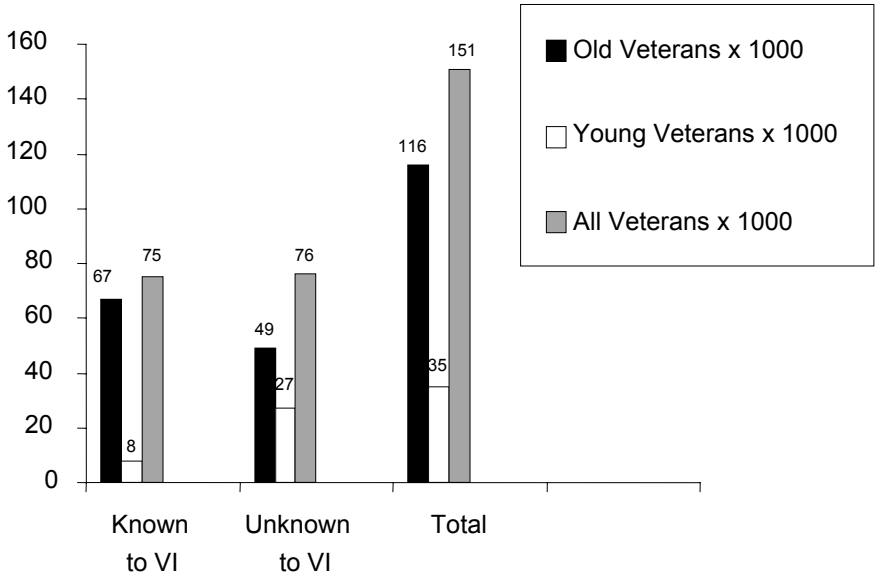

Figure 2. Estimated numbers of old veterans, number of young veterans and the total number of veterans in 2003, as well as numbers of veterans pass holders, known to the Veterans Institute. Source: Elements of a multi-year plan by the Veterans Institute Foundation, 2003, p.4.

Figure 2 shows that of the 151,000 veterans, only 75,000 had applied for a veterans pass in 2003. This is almost 50 percent. This percentage is somewhat higher among the old veterans, namely 58 percent. Only 23 percent of the young veterans has registered with the Veterans Institute. For research purposes, therefore, use often has to be made of information on Dutch military personnel in active service. However, with the passage of time, the representation of young veterans in the total veterans complement will grow, thus gradually decreasing the need for conducting research among military personnel in active service.

3.1 Research into dysfunction among veterans in the United States, Norway, Canada and the Netherlands

On the basis of mainly international research, some information is already available on violence and self-destructive behaviour among veterans. In the United States, for instance, the aftermath of the Vietnam war gave rise to a series of research projects among Vietnam veterans.

The United States ended its war in Vietnam in 1974. Over three million American military personnel had served there, in most cases for a year. Of these three million there were almost 58,000 fatalities, many more were wounded, an unknown number were missing in action and many were rendered permanently disabled as a consequence of physical injuries. In the subsequent years, an as yet unknown number died as a result of suicide. Particularly the latter fact resulted in abundant research, the results of which are inconsistent in part. We will discuss six research projects in chronological order, providing a number of critical comments for each one.

Pollock e.a. (1990)[4] describe how the American media repeatedly report the number of suicides among Vietnam veterans as being in excess of 50,000. If this number were to be correct, the number of deaths as a result of suicide would almost exceed the total number of fatalities. However, extrapolating from a group of Vietnam veterans studied, they conclude that the number of suicides will ultimately not exceed 9,000. Yet the study makes it painfully clear how little systematic data is gathered on the subject of suicide among veterans. Despite all the veterans care in the US, too little attention is paid to this subject. The researchers also state that Vietnam veterans are 25% more likely to commit suicide than their contemporaries. Finally, they present some apparently conflicting data concerning suicide. Depression is generally the main cause of suicide. Depression is 2 to 3 times

[4] Pollock, D.A. (1990) Estimating the number of suicides among Vietnam Veterans *American Journal of Psychiatry, vol 147, no 6, pp. 772–776*

more prevalent among women than among men. Nevertheless, the number of suicides among men is 3 times higher than among women. In our opinion, these paradoxical results can be explained if we take into consideration the fact that research into depression was conducted on the basis of questionnaires, in which women, in keeping with their sex-role stereotype[5] of 'warmth and expressiveness', express their state of mind more ably than men. The sex-role stereotype of 'competency' among men would explain precisely why so many suicide attempts are successful, although such an analysis is somewhat cynical.

In their research into suicide among Vietnam veterans, **Hendin and Pollinger-Haas (1991)**[6] conclude that the main reason for suicide is guilt, both about having survived whereas their brothers-in-arms were killed, and about having killed of prisoners-of-war or civilians. Having killed out of fear or anger has the most clear relationship with suicide. The shelling of villages regarded as hostile, in which there were also many civilian casualties, leads to guilt and suicide to a lesser extent. The researchers found that Vietnam veterans are 11 to 65% more likely to take their own lives than their contemporaries without war experiences. The information that guilt after having killed prisoners-of-war is the main predictor of suicide is strongly similar to findings from research conducted among Second World War veterans, albeit that the direct connection between guilt and suicide is made for the first time in this study. Without a doubt, the merit of this study is the fact that attention is paid expressly to guilt, which for mental health practitioners is often the key to diagnosing psychological trauma.

Kramer e.a. (1992)[7] expand the subject of suicide among veterans by discussing risk-taking behaviours which leads mainly to motor vehicle accidents, shooting incidents or overdoses of alcohol or drugs. In addition to actual suicide, they also conduct research into thoughts about death and dying, one's own death and the way in which one will die. In figure 3 they show how often these thoughts occur among a group of Vietnam veterans in general, among an outreach group of Vietnam veterans who are not (yet) undergoing treatment, among a group of veterans undergoing psychological trauma treatment and among a group of non-veterans.

Figure 3 shows that the therapy group thinks about death, their own death and suicide the most. Remarkably, the study also shows that the outreach

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5 Broverman, I. K. et al (1972): Sex-role stereotypes, a current appraisal. *Journal of Social Issues, vol 28, pp. 59–78.*

6 Hendin, H., Pollinger Haas, A. (1991): Suicide and guilt as manifestations of PTSD in Vietnam combat veterans. *American Journal of Psychiatry, volume 148, no 5, pp. 586–591.*

7 Kramer, T. L. et al (1992): The comorbidity of PTSD and suicidality in Vietnam veterans.

group has the most psychosocial problems, measured in terms of unemployment and divorce (see figure 4).

Figure 3. Thoughts of death and dying in general, one's own death and suicide, as measured in a general group of veterans, an outreach veterans group, a group of veterans in therapy and a group of comparable non-veterans. (Kramer et al. 1992).

The authors of this study provide no explanation for these differences in psychological and psychosocial problems per group, as these would appear to exist as illustrated in figure 4. This might be explained by the finding that a veteran needs psychosocial stability to enter a therapy program[8]. Unfortunately, there is no control group consisting of non-patients. Nevertheless, the two figures show clearly that the veterans in the therapy group and the outreach group suffer from severe psychological and psychosocial problems. In the meantime there have also been indications from the United Kingdom that in the group of British Gulf War veterans who are receiving professional help, the unemployment and divorce levels are lower than among veterans who are not yet undergoing therapy, but do have problems (Meijer and Jones, 2003). This could be explained by the fact that superiors or life partners stimulate the veterans to seek professional help. If there are no superiors or life partners as a consequence of unemployment or divorce then this stimulus to seek professional help is also absent, which could explain the above-mentioned differences between the outreach group and the therapy group.

[8] Bernardy, N. et al. (2004): Predictors of dropout from group therapy for PTSD in Vietnam Veterans. New Orleans: 20th ISTSS poster session.

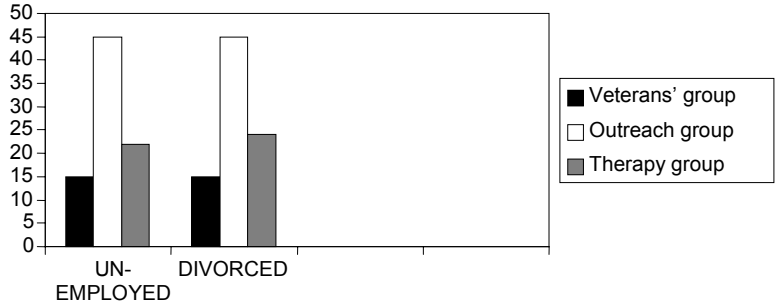

Figure 4. Percentages of divorced or unemployed individuals in a general group of veterans, an outreach group of veterans and a group of veterans in therapy for psychological trauma (Kramer et al. 1992).

In their study into suicide among Vietnam veterans, **Bullman and Kang (1994)**[9] also look at violent causes of death such as motor vehicle accidents and drugs overdoses. They also make the connection between the PTSS symptoms of withdrawal and numbing and anomie, the literal absence of values and norms. This term has already been used by the sociologist Emile Durkheim[10] as a rationale for suicide. He concludes that 'value inflation leads to anomie, and anomie to suicide'. Particularly among veterans from the United States Air Force who contributed to the dispersal of Agent Orange, the highly toxic herbicide, the likelihood of suicide is 4 to 6 times higher than among veterans who did not take part in this activity. Within the group of 'Agent Orange' veterans, the likelihood of veterans with PTSS suffering a violent death was 71% higher than that for veterans who had not been diagnosed with PTSS. Agent Orange veterans are registered as such with the Veterans Administration. Remarkably, the authors do not give an explanation for the differences they have identified. It is possible that feelings of guilt, as described by Hendin and Pollinger-Haas, could offer an explanation. Furthermore, another explanation could lie in the fact that the Agent Orange veterans were mainly air force personnel who often only worked together in units for a short time; this will be explained in further detail later on.

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[9] Bullman, T.A., Kang, H.K. (1994) PTSD and the risk of traumatic deaths among Vietnam veterans. *Journal of nervous and mental disease, vol 18, p. 604–610.*

[10] Bullman, T.A., Kang, H.K. (1994) PTSD and the risk of traumatic deaths among Vietnam veterans. *Journal of nervous and mental disease, vol 18, p. 604–610.*

Weisaeth (1995)[11] has conducted research among approximately 15,000 Norwegian veterans who took part in the United Nations Interim Force in Lebanon, UNIFIL, in the period from 1978 up to and including 1991. On the basis of research into causes of death in this group, he concludes that violent causes of death, including suicide, occur more frequently among Norwegian UNIFIL veterans than natural causes of death. Among the Norwegian population of men in the same age group, it appears that natural causes of death occur more frequently than violent causes of death. Weisaeth explains these differences from deployment experiences, which have led to psychiatric problems among some of the deployed military personnel. An alternative explanation may be that 'risk-takers' are more likely to choose a military career, and thus increase the likelihood of a violent death for the entire military population, irrespective of any deployment experiences whatsoever. Comparison of this information on Norwegian UNIFIL veterans with information on the cause of death among Royal Netherlands Army and Royal Netherlands Military Police military personnel from the period 1988 – 1990 would appear to confirm this alternative explanation (see figure 5).

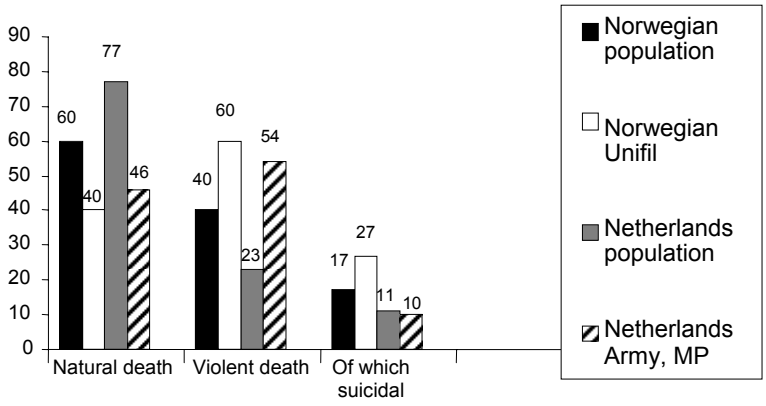

Figure 5. Percentages of natural causes of death and violent causes of death, including suicide, in the Norwegian male population, Norwegian UNIFIL veterans, the Dutch population and Dutch military personnel from the Royal Netherlands Army and Royal Netherlands Military Police in the period from 1988 up to and including 1990.

Figure 5 shows that the incidence of violent causes of death is higher among both Norwegian and Dutch military personnel than natural causes of death.

[11] Weisath, L. (1995): Die for Bosnia? Marineblad, vol. 104, no. 10, pp. 276–283. Wong, A. et al. (2001): Are UN peacekeepers at risk for suicide? *Suicide and life-threatening behavior, vol 31, no 1, pp. 103–112.*

In the Norwegian and Dutch population this is precisely the other way round, with more people dying a natural death than a violent one. These facts would appear to confirm Weisaeth's alternative explanation of selection effects in the armed forces, particularly if we assume that in around 1990 the number of Dutch military personnel with deployment experiences was still relatively low. The differences in the incidence of suicide between the Norwegian and the Dutch population are also caused by national differences. In Norway, the annual average deaths per 100,000 men in the age group of 15 to 24 is 26, whereas in the same age group of Dutch men, an average of 11 die as a result of suicide each year[12]. Further research, to include information on Dutch military personnel with deployment experience, could provide a definite answer to the question of how high the risk of suicide is in this group.

The psychological autopsy of the suicide of a Dutch peace mission veteran (see photo 1) shows that deployment experiences can indeed be related to a later suicide.

Photograph 1: During a UN mission in Cambodia, a marine of the Royal Netherlands Marine Corps dresses the wounds of a Cambodian mine accident victim. After two deployments to Cambodia and after leaving the marine corps, the marine committed suicide. Published with written permission of the veteran's mother.

[12] Hawton, K. et al. (1997): Relation between attempted suicide and suicide rates among young people in Europe. *Journal of epidemiology and community health, vol 52, no. 3, pp. 191–194.*

In this case, the marine had been deployed in a peace mission for two six-month periods within two years; his work in the field hospital meant that he had shocking experiences on an almost daily basis. For instance, at one time he had to deal with the victim of a mine accident, whose fall as a result of the explosion of the first mine detonated another mine. Beyond saving and with fatal, mutilating injuries, this victim died on the operating table shortly afterwards. The marine was unable to do anything, nor could he understand the dying victim's last words. Furthermore, the death of children, often also the victims of mine accidents, left an indelible impression. After his honorable discharge from active service, he was unable to suppress memories of these dramatic experiences. He often withdrew and had trouble sleeping because of nightmares and fears, with all the predictable consequences. This contributed to the fact that he kept breaking off intimate relationships with life partners after a relatively short time. He also had difficulty holding down a job for long. After having what appeared to be a promising new start, he still became overwhelmed by feelings of helplessness, and subsequently took his own life.

On the basis of research conducted among Canadian military personnel who have participated in peace operations, **Wong et al (2001)**[13] conclude that these military personnel are not more likely to commit suicide than members of the average Canadian male population. In our opinion, they ignore the fact that Canadian military personnel are subject to stringent selection criteria, in terms of both physical and mental health. For this reason, the null hypothesis should be that Canadian military personnel are less likely to commit suicide than the average Canadian man, with the results of their research disproving this hypothesis, leading to the conclusion that participation in peace operations does indeed increase the likelihood of suicide. Unfortunately, their research ignores the aforementioned selection effect, referred to in the literature as the 'healthy worker effect'. Furthermore, in their research they conclude that Canadian Air Force personnel are more likely to commit suicide. They attribute this to the short time that air force personnel work in a unit, as they are transferred with great regularity and on an individual basis. The studies of suicide in the Canadian armed forces give the impression of risk-taking behaviour, taking part in as many peace operations as possible within the shortest time possible, so as to benefit from the attendant financial remuneration. Incidentally, this tentative analysis also requires further research on the basis of case studies.

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[13] Wong, A. et al. (2001): Are UN peacekeepers at risk for suicide? *Suicide and life-threatening behavior, vol 31, no 1, pp. 103–112.*

[14] Wong, A. et al. (2001): Are UN peacekeepers at risk for suicide? *Suicide and life-threatening behavior, vol 31, no 1, pp. 103–112.*

We will conclude the analysis of dysfunction among foreign veterans with an example which shows that the problems military personnel have in coping with their experiences are not just things of the past, in spite of all the aftercare available to them (see box 1).

Box 1. Troubled soldiers keep quiet.
On 30 October 2002, the American newspaper USA Today published an article on its front page entitled 'Troubled soldiers keep quiet'. The article describes how, after returning from Afghanistan, four soldiers from the 82nd Airborne Division and Special Forces killed their wives at the American army base, Fort Bragg, in North Carolina. Two of the men subsequently committed suicide. The analysis of possible problems which could have caused these events quoted from a report issued by the American army in 1994, which showed the incidence of domestic violence in military families to be three times as high as in non-military families. References were also made to the male organisational culture in the American armed forces, in which military personnel rarely seek professional help, if at all, and certainly not for psychiatric problems. Military personnel with personal troubles appear calm to the outside world, but sometimes keep up the pretence for far too long, which can be to the detriment of their partners and families.

In addition to the domestic violence referred to in box 1, there are also indications that violent behavior among American veterans in prisons is in any case more prevalent than among the American prison population as a whole (see figure 6).

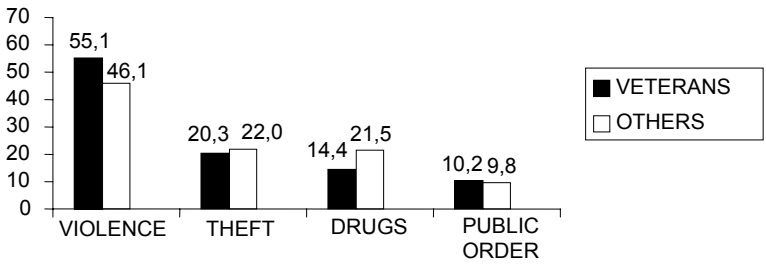

Figure 6. Ratio between veterans and non-veterans among inmates in American state penitentiaries, according to the nature of the crime. Source: Mumola, 2000[15].

[15] Mumola, C.J. (2000): Veterans in prison or jail. Bureau of Justice Statistics, January 2000, NCJ 178888. United States Department of Justice.

Figure 6 shows that more veterans are imprisoned for violent crimes than non-veterans. Furthermore, their prison sentences are an average of 50 months longer than those of non-veterans. This connects to the gravity of the crime committed. For other crimes, the differences between veterans and non-veterans are less marked.

The comment about the organizational culture in box 1 is supported by research in the British armed forces, which shows that over 70 percent of military personnel fail to report psychiatric problems for fear of losing the trust of their commanding officer or colleagues[16]. Conversely, this fear gives the colleagues and commanders in question the additional responsibility to take care of their colleagues and employees. Box 2 contains a summary of the recommendations given to commanders in the American marine corps in order to provide this special attention and care for their personnel.

Box 2. What a commander can do to provide attention and care[17].

1. Solve problems at the earliest stage possible. Too many problems are ignored for too long, because people think 'it'll get better by itself.
2. Diagnose at an early stage when military personnel find themselves in high-risk situations such as serious debt, criminal sentences, relationship problems, or when they show symptoms of depression or addiction.
3. Bear in mind disappointments that people have to deal with, and give plenty time and attention to them.
4. Schedule times within training on an annual basis when people can talk openly about things, including personal matters.
5. Take into account groups of people who, because of the above, are more likely to exhibit self-destructive behaviour, and always call in professional help at an early stage.
6. Work with a buddy system, in which the buddies often catch the first signs, and stimulate them to pass on this information.
7. Emphasis the fact that it's ok to seek help. Leaders play an important role in diminishing the prejudices that still exist with regard to mental health care.
8. Use the spiritual welfare service and the defence social service to focus on the consequences of a suicide for surviving relatives, as well as for fellow soldiers from the unit.

[16] Cawkill, P. A study into commanders' understanding of, and attitude to, stress and stress-related problems. *Paper presented at the 5th Military Mental Health Conference, 16–18 December 2002, Herford, Germany.*

[17] Jones, D.E. (2000): Suicide prevention in the Marine Corps, a leader's guide. *Marine Corps Gazette, February 2000, pp. 16–20.*

A report by a peace mission veteran shows that the instructions given in box 2 are already implemented in practice by good commanders, who feel that this speaks for itself. He writes the following about his period of injury and recovery:

> *As a seriously-injured peace mission soldier, the attention I received from my colleagues, my battalion commander and my company commander did me a great deal of good. I was visited at home, when they had a brief stay in the Netherlands for Rest and Recuperation (R&R) leave, and afterwards too, and they sent me cards and kept in touch by telephone. Furthermore, after the deployment I was invited to attend the medal parade for the battalion, where I was awarded my insignia for wounded veterans*[18].

3.3 Further research into derailments of young veterans and military personnel

Research into derailments of young Dutch veterans has to date consisted largely of case studies. More epidemiological research is being prepared, but this still faces methodological problems, several of which will be described in the discussion with respect to the 'pool of errors'. However, this does not detract in any way from the overwhelming suffering of the veterans and military personnel shown in the case studies, as illustrated in box 3.

Box 3. The violent and self-destructive behaviour of a peace mission veteran

"I didn't come to terms with it at all, I just drowned it, literally and figuratively… I drank a lot of alcohol ….. I got into fights when I was out….. until it occurred to me that things were really very bad. Then I started getting panic attacks on top of everything else…and then my wife said: "You really should get help, this isn't right". "Yeah, yeah, I will, I will". But well, I didn't seek help, because you want to handle it on your own….and that ended up in a suicide attempt… Well, I started a fire downstairs at home, and went upstairs and lay on the bed. Somehow, thank goodness, it didn't work. Then I got picked up by the police… and the military police were there too… and then another ten or twenty days of questioning and God knows what else, all kinds of weird stuff…and then they said: things are not right with you. They put it down to Yugoslavia.

[18] Meijer, M., De Vries, R (2004): (Trans.) *Injured, but not beaten.* A study of damage and recovery among Dutch veterans. Doorn: Veterans Institute, in preparation.

Then they threw me into the military penitentiary for nine months for arson and attempted manslaughter. Until my lawyer came up with PTSS and a lot of other weird terms. He said "You need help, and you'll get the best kind of help in Utrecht". Then I ended up in the military psychiatric hospital, nine months as an in-patient, and later one day a week. And now I can talk about it a little…" (Bosnia veteran in 'Crazy', documentary by Heddy Honigmann, 1999)[19].

Box 3 shows that some young veterans can experience serious problems. The exact size of this group is very difficult to establish. This is made difficult in part by the fact that young veterans have not yet joined organisations, and are therefore difficult to research. Another contributory factor is that their psychiatric complaints are not easily identified. Certainly not by the veterans themselves, as their perception of their own behaviour is affected, but sometimes other people in their environment fail to recognise the symptoms too. Even civilian counselors do not always investigate the connection between physical, unexplained symptoms and deployment experiences. Violent behaviour by veterans can also be connected with deployment experiences. For instance, in October 2003 a Cambodia veteran shot and killed his ex-partner, his ex-mother and father-in-law and his ex-brother-in-law. A provisional analysis[20] shows that prior to his deployment, this veteran had already attracted attention because of a fascination for weapons. After honorable discharge from active service, he still had easy access to weapons, as he continued to work in a sports school and shooting school. After suffering dramatic bereavements within a short period of time – his relationship broke down, he lost his job, his honour and prestige as a weapons expert and was refused access to his home – the aforementioned easy access to firearms proved to be a lethal combination. It had already been shown that for a Kosovo veteran, the combination of almost permanent presence in a shooting school and constant suffering from vivid memories after a period of deployment proved fatal. He killed himself with a firearm at the shooting school[21].

The case in box 3 also shows that violent behaviour, which is a manifestation of dysfunction, can result in a sentence. In the same way as the data

[19] Hopman, B., Weerts, J.M.P. (2003): The wounded warrior as husband and father. Utrecht: Compilation of the experiences of peace mission veterans. Doorn: Veterans Institute.

[20] Karskens, A. (2003): (Trans.) Short circuit in Kerkrade. *Nieuwe Revu,* no. 46. 5–12 November 2003, pp. 28–32.

[21] Schoeman, J.S. (2000): Veterans of 'right' and 'wrong' missions. Militaire Spectator, vol 169, no. 5, pp. 231–240.

on sentences in American prisons was given in figure 5, data on sentences imposed on Dutch military personnel could give an indication of the levels of violence in this group. In order to conduct such an investigation, in early 2003 the military judge from the District Court of Arnhem was contacted in early 2003. On the basis of data thus collected, it was possible to determine the types of crime for which military personnel are generally sentenced. Figure 8 shows the sentences among Dutch military personnel in the period from 1996 to 2003, divided according to the nature of the crime for which they were sentenced. In order to compare the Dutch data with the American data in figure 6, figure 9 shows the crimes for which the sentences were imposed, divided into public order offences, drugs, violence and theft.

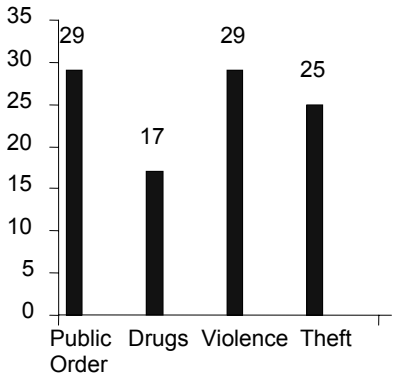

Figure 9. Sentences according to nature of crime, expressed in percentages of the total number of sentences in the period 1996–2003, excluding absence without permission.

Figure 9 shows that most sentences stem from violent offences. This concurs with analyses from the United States, which show that in state penitentiaries, veterans are sentenced more often for violent offences than for other offences.

It is possible that the mission of the armed forces, to commit mass force, is connected with this in a number of ways. Firstly, the armed forces could attract people with an interest in weapons and violence. This can be interpreted as self-selection of personnel. In addition, the selection upon intake can further increase the proportion of people with an interest in guns and violence; a selection effect. The violent behaviour identified can also be attributed to exposure to weapons and violence during training and deployments. In this respect, all three explanations could very well apply.

In order to acquire an estimation of groups with an increased risk of derailment, the information concerning sentencing has been divided into Services of the armed forces. Figure 10 shows the number of sentences per Service, standardised per 10,000 military personnel. The standardisation has corrected the difference in size between the Services.

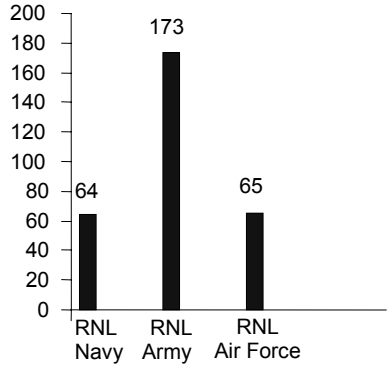

Figure 10. Sentences per Service, excluding the Royal Netherlands Military Police, per 10,000 military personnel per year over the period 1996–2003.

Figure 10 shows that per 10,000 military personnel, fewer sentences are imposed on Royal Netherlands Navy and Royal Netherlands Air Force personnel. The most sentences are imposed on military personnel from the Royal Netherlands Army. In order to identify the high-risk group more accurately, an analysis was subsequently conducted to establish which group within the Royal Netherlands Army receives the most sentences.

According to the annual information submitted to the House of Representatives in chapter X of the National Budget, the total personnel complement of the Royal Netherlands Army decreased in the period in question from 42,987 in 1996 to 30,557 in 2002. During this period, the number of military personnel decreased from 31,945 in 1996 to 21,942 in 2002. Of these, 12,685 had a fixed-term contract in 1997. In 2002 there were 11,636 military personnel with a fixed-term contract in service with the Royal Netherlands Army.

Figure 11 shows the number of sentences imposed on military personnel from the Royal Netherlands Army, divided into types of contract of the military personnel.

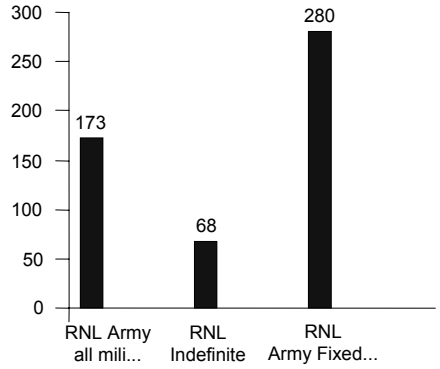

Figure 11. Numbers of sentences per 10,000 military personnel from the Royal Netherlands Army, divided into infinite and fixed term contract over the period 1996–2003.

Figure 11 shows that in the Royal Netherlands Army, military personnel on a fixed-term contract are sentenced over four times as often as military personnel on indefinite contracts. This vast difference requires an explanation, which cannot only be sought in selection upon intake, but also in previous education, social position or prospects for the future. Incidentally, the high-risk profile of fixed-term contract military personnel was referred to in as early as 1995[22]. Further research should give a decisive explanation in this regard, which will enable policy to be developed for this high-risk group.

Another aspect of derailments among veterans is suicide among veterans. As mentioned earlier, a collection of systematic data on the subject of mortality among veterans is lacking for the Dutch situation. However, information is getting available for each Service of the armed forces on mortality among military personnel in active service. The analyses below relate to the two largest Services, namely the Royal Netherlands Navy and the Royal Netherlands Army.

[22] Schoeman, J.S. (Trans.) Motivated & Trainable… Armed Forces & Society, June 1995, p. 5.

3.4 Results of research into mortality in the Royal Netherlands Navy

According to the annual information submitted to the House of Representatives in chapter X of the National Budget, the total military personnel complement of the Royal Netherlands Navy decreased from 14,071 in 1996 to 11,867 in 2002. In the period from 1995 up to and including 1999, 62 of these military personnel died, who were still in active service at the time of death. 41 died of natural causes such as illness. 21 died of non-natural causes, also referred to as violent causes of death. Of these 21, there were 2 cases of suicide. Over the average personnel complement in the period from 1995 to 1999, this is an annual incidence of 0.4. This is an annual incidence of 3.0 per 100,000 people. According to the Central Bureau of Statistics, in 1999 the annual incidence per 100,000 Dutch men aged from 15 to 55 inclusive was 16.1 suicides per annum. The annual incidence among Dutch women in the same age group is considerably lower, namely 8.2 per 100,000.[23] As the percentage of women in the total personnel complement of the Defence organisation is approximately 8.5 percent, the incidence in the comparable group must be set slightly lower. Nevertheless, the incidence of suicides among Royal Netherlands Navy military personnel is very low.

In order to give an accurate interpretation of the total mortality among Royal Netherlands Navy military personnel, it is possible to compare this data with data from the United States Navy[24]. As the Marine Corps in the Netherlands forms an integral part of the Royal Netherlands Navy, but in the United States is an autonomous Service of the armed forces, the data on the Royal Netherlands Navy is broken down into the categories of fleet personnel and marines. Figure 12 shows the total mortality among Royal Netherlands Navy military personnel, the Dutch Marine Corps, the United States Navy and the United States Marine Corps. Furthermore, the total mortality per Service is broken down into natural causes of death and violent causes of death, with suicide given as a separate cause of death.

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[23] Heeringen, C. van, Kerkhof, A.J.F.M. (2002): (Trans.) Treatment strategies in suicidality. Houten: Bohn Stafleu Van Loghum, p 6.

[24] Almond, M.D., Carlton, J., Bohnker, B.K. (2003): Navy and Marine Corps Active Duty Mortality Patterns for 1995 to 1999. Military Medicine, vol 168, no 1, pp. 32–39.

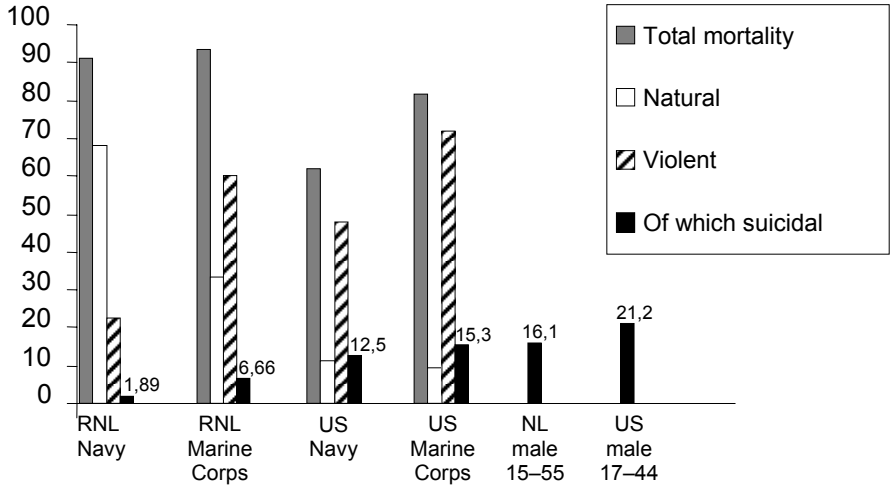

Figure 12. Mortality in total and according to cause among military personnel of the Royal Netherlands Navy, broken down into fleet and marines, the United States Navy[25], the United States Marine Corps[26], Dutch men[27] and American men[28], expressed in deaths per 100,000 per year over the period 1995–1999.

Figure 12 shows that the total mortality is the highest among the Dutch Marine Corps. This mortality is caused largely by violent causes of death, which include suicide. The incidence of suicide is much lower among Dutch men aged between 15 and 55. Among Dutch military personnel of the fleet, the total mortality is slightly lower than among Dutch marines. This mortality is determined mainly by natural causes of death. The total mortality in the United States Navy and the United States Marine Corps is considerably lower than among the Dutch navy and Dutch marines. This is probably caused by the 'up or out' personnel selection system. This system causes the

[25] Almond, M.D., Carlton, J., Bohnker, B.K. (2003): Navy and Marine Corps Active Duty Mortality Patterns for 1995 to 1999. Military Medicine, vol 168, no 1, p. 36.
[26] Almond, M.D., Carlton, J., Bohnker, B.K. (2003): Navy and Marine Corps Active Duty Mortality Patterns for 1995 to 1999. Military Medicine, vol 168, no 1, p. 36.
[27] Heeringen, C. van, Kerkhof, A.J.F.M. (2002): (Trans.) Treatment strategies in suicidality. Houten: Bohn Stafleu Van Loghum, p 6.
[28] Almond, M.D., Carlton, J., Bohnker, B.K. (2003): Navy and Marine Corps Active Duty Mortality Patterns for 1995 to 1999. Military Medicine, vol 168, no 1, p. 37.

average age of this category of the aforementioned American military personnel to be considerably lower than for the Dutch military personnel in question, with all of the obvious consequences for mortality. For the American military personnel, too, the incidence of suicide is below the national average. Additional policy is developed for young American marines, because the mortality rate for violent causes of death among is higher among them than the national average. The vast majority of these causes of death have no connection with the exercising of duties. Traffic accidents were the main cause of death among the American military personnel.

3.6 Results of research into mortality in the Royal Netherlands Army

According to the annual information submitted to the House of Representatives in chapter X of the National Budget, the total personnel complement of the Royal Netherlands Army decreased from 42,987 in 1996 to 30,557 in 2002. During this period, the number of military personnel decreased from 31,945 in 1996 to 21,942 in 2002. Of the regular military personnel, 12,685 had a fixed-term contract in 1997. In 2002 there were 11,636 military personnel with a fixed-term contract serving in the Royal Netherlands Army.

In the period from 1996 to 2002 inclusive, of all personnel in service with the Royal Netherlands Army, including civilian personnel, 335 persons died while in active service. 218 died as a result of illness, and 117 as a result of other, non-natural causes of death. Of the 117, there were 32 cases of suicide. Over the period from 1996 to 2002 this means an annual incidence of 4.6 suicides among the average personnel complement of the Royal Netherlands Army in that period. This is an annual incidence of 13.6 per 100,000 people. According to the Central Bureau of Statistics, in 1999 the annual incidence per 100,000 Dutch men aged from 15 to 55 inclusive was 16.1 suicides per annum. The annual incidence among Dutch women in the same age group is considerably lower, namely 8.2 per 100,000.[29] As the percentage of women in the total personnel complement amounts to approximately 8.5, the incidence in the control group should be set slightly lower, at approximately 15.4. Nevertheless, the statistics do not appear to be alarming.

These statistics are somewhat different among military personnel. During the period in question, there were 24 suicides among military personnel. The

[29] Heeringen, C. van, Kerkhof, A.J.F.M. (2002): (Trans.) Treatment strategies in suicidality. Houten: Bohn Stafleu Van Loghum, p 7.

annual incidence among them amounts to 14.1 per 100,000. This is slightly less than in the control group of Dutch men from the ages of 15 to 55 inclusive, but because a number of women make up the group of military personnel, the incidence in the control group must again be set lower, at approximately 15.4. Here, too, the situation does not appear to be alarming.

In the group of military personnel on fixed-term contracts, in the period in question 15 died as a result of suicide, which means 2.1 per annum in the average personnel complement of military personnel on fixed-term contracts. This means an annual incidence of 17.9 per 100,000. Military personnel in this group are granted honorable discharge at around 30 years of age. In the control group of Dutch men aged between 15 and 29 inclusive, the annual incidence is 11.3 per 100,000; for women in the same age group it is approximately 5 per 100,000. As female military personnel are included in the military personnel with fixed-term contracts, the incidence of suicide among the control group must be set slightly lower, at approximately 10.8. This shows that the incidence of suicide among military personnel on fixed-term contracts is 66% higher than in the control group of Dutch men and women of comparable age.

Figure 13 shows the mortality among military personnel of the Royal Netherlands Army, both among all military personnel and among military personnel on fixed-term contracts. The mortality is also divided into natural and violent causes of death, including suicide.

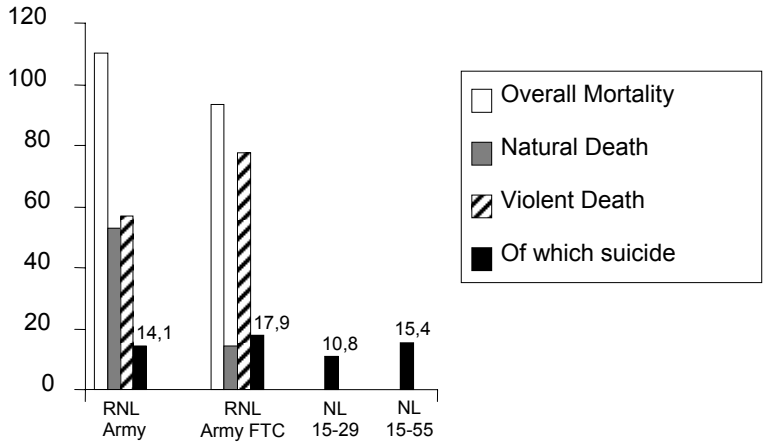

Figure 13. Mortality among military personnel in the Royal Netherlands Army according to cause of death and suicide among comparable groups of Dutch men and women per 100,000 per year in the period 1996–2002.

Figure 13 shows that in each group, the total mortality is made up of death by natural causes and violent causes of death. Suicide makes up a small part of the violent causes of death. The incidence of violent causes of death is much higher among military personnel on fixed-term contracts than natural causes of death. This difference is largely attributable to the younger age of the military personnel on fixed-term contracts. After all, the likelihood of death by natural causes increases with age. The reasons behind the aforementioned higher incidence of suicide in this group is as yet unknown. Differences exist in the selection requirements between personnel on fixed-term contracts and those on indefinite contracts. It is thus possible that the selection criteria for personnel on fixed-term contracts are less stringent than those for indefinite contractors. As a result, groups with a higher risk of suicide are less likely to be filtered out. For instance, there seems to be a higher incidence of criminal indiscretions in the past, broken homes and domestic (sexual) violence[30]. It is also possible that this group is deployed more frequently, leading to an increase in the likelihood of problems in the acceptance of deployment experiences or in making the transition back to civilian society. Finally, fixed-term contractors have by definition less clarity in terms of career prospects than personnel on indefinite contracts. The lack of clear career prospects could serve to explain this higher incidence of suicide. For instance, this factor is also an explanation for the fact that suicide is more prevalent among the unemployed[31] and in rural areas as opposed to urban areas[32]. Only further research can provide a definitive answer to the question as to which factors are responsible for the higher incidence of suicide among military personnel on fixed-term contracts in the Royal Netherlands Army.

[30] Schoeman, J.S. (Trans.) Motivated & Trainable… Armed Forces & Society, June 1995, p. 5.

[31] Speijer, N. (1979): (Trans.) The suicide issue, p. 117. Deventer: Van Loghum Slaterus.

[32] Clarke, S.C. Bannon, F.J., Denihan, A. (2003): Suicide and religiosity- Masaryk´s theory revisited. Journal of Social Psychiatry and Psychiatric Epidemiology, vol 38, no. 9, pp. 502–506.

3.7 Discussion of the 'pool of errors'

The data obtained on sentences by the police court in might be affected by recent changes in military criminal law, that have resulted in fewer cases coming before the military police court. However, this does not affect the distribution of convictions among the Services of the armed forces. Furthermore, the nature of the offences for which convictions are imposed will not change substantially.

Furthermore, a waiting list of cases will result in bias, if a considerable length of time passes between the time at which the offence was committed and the date of the hearing. This causes bias mainly if the size of the waiting lists changes strongly during the measurement period. However, no evidence has been gathered to support this statement.

The statistics given above in respect of suicide among Royal Netherlands Navy and Royal Netherlands Army personnel must be interpreted with the usual caution. This caution is required because bias resulting from a 'pool of errors' easily occurs in the calculation of the incidence of suicide in groups. Eight important forms of bias are described below.

In the first place, bias occurs in cases when the research group comprises both men and women. The incidence of suicide among Dutch men is twice as high as for women. For an accurate comparison with norm statistics for men or women, the ratio of men to women in the research group must be calculated.

Secondly, bias occurs as a result of age differences in the research group and the norm group. Among Dutch men aged 15, the incidence of suicide is over three times lower than it is among men over the age of 75.

In the third place, bias occurs as a consequence of selection. Employment organisations generally make their selections according to the physical and mental health of the personnel they appoint. This is known as the 'healthy worker effect', as a result of which bias occurs in comparisons with the general Dutch population. Such bias can also occur if military personnel are subjected to different requirements than their civilian colleagues.

Fourthly, bias can occur as a result of the power of numbers. Accumulation of the number of suicides over a large number of years can yield impressive numbers. For instance, some time after the conclusion of a peace mission in which there were few fatal casualties, the number of suicides will be greater than the number of fatalities among military personnel during the mission. This can be illustrated by means of an example. If there are 2 fatal casualties during a Dutch mission in which 2,000 military personnel are deployed, after 10 years the number of cases of suicide will be higher than the number of fatalities during the mission. After all, in a population numbering 100,000 Dutch men, there are approximately 15 cases of suicide per year. For a group of 2,000 men, in a period of 10 years this equates to

(2,000 x 10)/100,000 = 0.2 of 15, which equates to 3 cases of suicide. In 2002, British news headlines reported that more Falklands veterans had committed suicide than had been killed during the actual Falklands conflict. Wait long enough, and such a statement will certainly come true.

In the fifth place, bias occurs as a consequence of downsizing of personnel. The annual suicide rate in an organisation may be constant over a number of years, whereas the size of the personnel complement in the same period can drop drastically. This begs the question of whether in such cases there is genuinely an increase in the incidence of suicides. Consequently, it is necessary to determine the annual incidence per 100,000 persons.

In the sixth place, bias occurs as a consequence of uncertainty as to cause of death. Accidents, often one-vehicle traffic accidents, could actually be the victim's chosen way of ending his or her life. A panel of experts is often used in investigations in order to provide certainty in cases of doubt. Van Heeringen and Kerkhof (2002) focus a great deal of attention on the various forms of bias. Conversely, an apparent suicide can also be a means of concealing a murder. British newspapers reported a criminal investigation in 2002, instigated at the request of relatives of a British soldier after his death at the Princess Royal Barracks in Deepcut, Surrey, in September 2001. Initially the soldier was believed to have taken his own life, but this appeared not to be the case.

In the seventh place, it can be tempting to view information in terms of its statistical significance. A test such as this from the point of view of inferential statistics assumes a generalisation to a larger domain, or a comparison with an earlier period. However, in this case we are concerned with information from the entire period during which military personnel on fixed-term contracts are present in similar numbers. Consequently, the entire domain was analysed, and it would not be advisable to conduct such a test on statistical significance. This can also be illustrated by means of an other example. In October 2003 it appeared that of the 130,000 American military personnel in Iraq, over a period of 7 months there had been at least 13 cases of suicide. This is calculated as being over 17 suicides per 100,000 per annum, approximately 49% more than the annual incidence in the period from 1992 to 2001, which is 11.5 suicides per 100,000 per annum. Without any test of statistical significance, this was reason enough for the United States Department of Defense to deploy a team of doctors and mental health personnel to Iraq in order to investigate the situation further, and where possible prevent recurrences.

Finally, statistical analyses show the following: owing to the low numbers, the annual variance in suicides among fixed-term contract personnel is high. After averaging the extremes of 0 suicides in 1997 and 4 in 2000, using Student's t test the difference between this group and Dutch men in the age

group of 18 to 29 year-olds in the years from 1996 to 2002 is statistically significant (t = 2.38, df = 6, p = 0.027). These differences also appear to be statistically significant after analysis of the differences in causes of death between military personnel on fixed-term contracts and Dutch men aged between 18 and 29 using a chi-square test, these differences appear to be statistically significant (chi-square = 8.4, df = 1, p = .005. Table 1 shows the causes of death in both groups in the annual prevalence per 100,000, averaged over the period 1996–2002.

Table 1. Causes of death among Dutch men aged between 18 and 29 and Royal Netherlands Army military personnel on fixed-term contracts, expressed in numbers per 100,000 per year. Sources:Directr of Personnel RNL Army and Statistisch Jaarboek 2003 (Statistics Yearbook), p. 26 and p. 100.

GROUP/ CAUSE OF DEATH	Dutch men 18–29	RNLA fixed-term contractors	Total
Natural	35	14	49
Suicide	11	18	29
Total	46	32	78

Table 1 shows that considerably more Dutch men in the age group of 18–29 died from natural causes than in the group of Royal Netherlands Army military personnel on fixed-term contracts. A 'healthy worker effect' in terms of physical fitness evidently applies to the latter group. However, there are considerably more suicides among the men in this group than there are among the group of Dutch men aged between 18 and 29. The situation regarding mental health in this group of military personnel is clearly alarming. Further research must provide an answer regarding the significant differences between the two groups, after which it will be possible to develop preventive policy[33].

3.8 Conclusions and recommendations

As a consequence of the contributions by the Dutch armed forces to UN operations over the last decades, the number of young veterans is gradually increasing, a trend that is expected to continue into the future. As they have

[33] Presentation by LTCDR US Navy Elspeth Cameron Ritchie at the 19th Annual Conference of the International Society of Traumatic Stress Studies, Chicago, 1 November 2003.

free access to the psychosocial aftercare provided by the Defence organisation, it is important that they are also aware of the possibilities open to them at the Veterans Institute. These possibilities should be pointed out to them when they leave the Defence organisation. Another possibility would be for the Veterans Institute to develop special programmes for groups of young veterans.

For many years now, this need for aftercare by both older and young veterans has been met by the Association of Dutch Military War and Service Victims (BNMO), the BNMO Centre and the Foundation for Veterans Services. For the last three years, aftercare has also been provided by the Central Office of the Veterans Institute; this is appreciated highly by veterans.

Aftercare through reunions is given an even higher rating. The Veterans Institute is able to provide assistance in organising such reunions. The aftercare questionnaires following a deployment are less well received by military personnel, particularly the enlisted men. This may require modification of the questionnaire method used, and improvements could be made in reaching the target group of enlisted men, for instance by using much shorter questionnaires or conducting telephone or internet surveys. The Veterans Institute can also help in this regard.

Research conducted among American veterans shows that a considerable proportion of them end up with serious problems, which go hand-in-hand with serious forms of violence and, in some cases, with suicide.

On the basis of a number of studies on the subject of suicide, we conclude that feelings of guilt, PTSS and depression are significant predictors of suicide.

These feelings of guilt stem from having survived where brothers-in-arms have been killed, or about having killed prisoners-of-war, women, children or senior citizens. This begs the question of whether the frustration at having to stand by doing nothing, while hostilities and massacres continue, can lead to similar feelings of guilt. This requires further research. Moreover, the military organisational culture stands in the way of early recognition of these problems, even after leaving active service. This means that leaders in the armed forces, as well as counselors, should pay extra attention to these military personnel and veterans. The expertise of the Centre for Knowledge and Research of the Veterans Institute, as well as the counseling service of the Veterans Institute's Central Office can be used to this end.

Finally, Dutch research among military personnel in active service from the two largest Services yields the conclusion that, among the group of fixed term contract military personnel in the Royal Netherlands Army, violent behaviour and suicide are more prevalent than among other military personnel. The reasons for this come from self-selection or selection upon

intake, among others. Further research should give a decisive explanation in this matter and can also focus on comparable high-risk groups among veterans".

In reviewing this paper of the 6th International Military Mental Health Conference by Marten Meijer and Gielt Algra the question raises if the behaviours of violence and suicide originate from deployments, or are more typical for the military population in general. Some kind of violence is liked by recruits who volunteer for the armed forces. Especially when the system of a conscripts force is abdicated and an all volunteer has to start, the chance that among these volunteers many recruits have some incline to the use of violence. This might also explain the specific risk group of fixed term contract personnel of the Royal Netherlands Army, which appeared to be at risk for the misuse of violence or for suicide. After abdicating compulsory military service in 1994, especially this part of the Netherlands Armed forces had to deal with replacing large numbers of conscripts by volunteers, probably also by lowering the selection thresholds for getting into the Netherlands armed forces. The navy and the army did not have that many conscripts, so getting the right numbers and quality in their volunteers was not too difficult. These examples show that violence and suicide among military personnel may be considered a bad result of deployment stress and high anger levels, but also can be a result of failing recruitment and selection. At the end of the day both violence and suicide may also be considered to be unexplained behaviours or symptoms, which have to be cured and prevented, with or without the ultimate explanation on hands.

In the last section of this paper we review the paper of Jacques Mylle and Eric De Soir, which they presented at the 6th International Military Mental Health Conference. We present their paper in order to demonstrate how communication skills in military personnel and their mental health practitioners can help to cure or prevent unexplained physical symptoms and can help to enhance human performance in military organizations.

4.0 Early Intervention in Veteran Care: A systemic approach to Reintegration by Jacques Mylle and Eric De Soir

Teaching the axioms of communications to soldiers and their significant others, prior-to, during, and after deployment seems to be essential in the prevention of marital and/or family problems.

In what follows the original definitions of the five axioms, literally taken from Watzlawick et al. (1967), will be printed in italics. We will try to explain in our own words what they really mean.

"One cannot not communicate" ...

Axiom 1: In an interpersonal context "one cannot not communicate" (p. 51). Every behaviour thus contains a message. Hence the paradoxical situation that a person who is not attempting to communicate will still communicate; non communication itself is a form of communication.

"You always speak double words"

Axiom 2: "Every communication has a content and relationship aspect such that the latter classifies the former and is therefore a metacommunication" (p. 54).

"Everyone has his own truth"

Axiom 3: This relates to punctuation phenomena and states that the nature of a relationship between two partners is determined by the manner in which they punctuate the communication between them.

"With or without words ..."

Axiom 4: "Human beings communicate both digitally and analogically. Digital language has a highly complex and powerful logical syntax but lacks adequate semantics in the field of relationship, while analogical language possesses the semantics but has no adequate syntax for unambiguous definition of the nature of relationships" (pp. 66–67)

"Who is the boss?"

Axiom 5: "All communicational interchanges are either symmetrical or complementary, depending on whether they are based on equality or difference" (p. 70)

This conceptual framework makes it possible to better understand the highly complicated communication processes, in particular those governing couples' interaction within the context of "forced temporarily divorce" or long term deployment.

The impossibility of not communicating means that all interpersonal situations are communication situations, and that the very specific situations during the emotional stages of deployment need very specific coping skills before they can be understood as legitimate and normal by both partners of a

relationship (instead of giving them the idea that this only happens to them and that they are the only ones having marital or relational problems).

The differentiation between digital and analogical modes of communication is very important because analogical messages and definition of relationship exhibit a high degree of isomorphism. The ambiguity involved in the simultaneous exchange of messages concerning both the relationship itself and things outside the relationship leads to problems of interpretation and translation, which, if left un-clarified, lead to pathological interaction patterns.

The concept of punctuation allows the possibility of talking about the reciprocity of human relationships in a manner that is at once different from and more complex than that of the traditional stimulus-response model of behaviour. Partners of a relationship – certainly in the context of the tough challenge which a long term deployment is for a couple – should understand that their proper behaviour is both origin and consequence of the behaviour of their counterpart.

As Simon, Stierlin, & Wynne (1985) state: "*Punctuation refers to the structuring and organization by an observer of a continuous sequence of events and behaviours. Two partners, for example, perceive and organize their ongoing interaction into various sequences, and each subjectively perceives different patterns of cause and effect, or different structures of interaction. Depending on whether the interactive process between A and B is seen from the perspective of A or B, it may seem as if A is reacting to B, or as if B is reacting to A. According to one punctuation, a wife nags because her husband withdraws from her; according to the other, the husband withdraws from his wife because she is constantly nagging him. The manner in which an ongoing communication process and/or interaction sequence is punctuated determines the meaning attributed to it and how each person's behaviour will be evaluated, that is, who is responsible or "guilty", and how one describes to (re)act*".[34]

In our review of this paper of Jacques Mylle and Eric De Soir to the 6th International Military Mental Health Conference we note that applying the essentials of communication foster the process of reintegration after deployments. We add to that that these essentials of communication also foster the communication between deployed military personnel, their parent society and their military mental health professionals. By fostering this communication deployed personnel with unexplained physical symptoms might get better understood by their mental health professionals, who stay close by to prevent the existential loneliness or shame, which is strongly

[34] Simon, F.B., Stierlin, H., & Wynne, L.C. (1985). *The language of family therapy. A systemic vocabulary and sourcebook*. New York: Family Process Inc.

coupled to their unexplained medical symptoms. By a better understanding of what they have been through, it also likely to find causes of their physical symptoms. In this perspective we can describe a disorder like the Post Traumatic Stress Disorder as a mere lack of understanding of the world of the deployment, which is not understood by the world of the parent society, which sends military personnel into deployments all over the globe. A better communication between deployed military personnel, their families and their parent society will contribute to explain their medically unexplained physical symptoms, as it helps to make both worlds meet.

5.0 Conclusions and recommendations

The concept of medically unexplained physical symptoms (MUPS) is a container concept, which includes a lot of physical symptoms of which the root causes are not yet known. However, as their root causes are not yet known, the evidence for the need for bringing them under one umbrella of MUPS is lacking also. Future research might show that MUPS have very different root causes and their good practices for diagnosis and treatment might be very different as well. Therefore it is recommended to diagnose and treat each symptom in MUPS on its own.

In the same line of reasoning the Post Deployment Syndrome is not specific enough to reveal the specific stressors of the specific theatre of operations. Even within one and the same theater of operations military personnel gets exposed to various levels and various sorts of stressors. Recent research [35] shows that these variations in stressors result in variations in symptoms also, giving evidence again for the dose-response relationship between stressors and strains of disorders like PTSD.

Therefore it is recommended not to use the container concept of PDS in good practices of military mental health care, as it is not specifying the typical stressors of the deployment. By the mere lack of a good analysis of the exposure to stressors in the battlefield the likelihood of finding root causes of MUPS is also decreasing.

The description of violence and suicide among personnel in the Netherlands Armed Forces revealed that elevated rates of violence or suicide only are reported in very specific groups in the Netherlands Armed forces. This description is cross sectional and not longitudinal, so scientific proof of causal relations was not possible. The possibility remains open that the described elevated rates of violence and suicide arise from lowering initial

[35] McGurk, D. Castro, C (2007) Presentation at the 10th International Military Mental Conference, TARTU, Estonia 25 September 2007.

selection criteria to adapt to the increased need for recruits to fill units, who were ready to send out for deployment to the former Yugoslavia in 1994. This is even more likely when we recall that compulsory service was abolished in the Netherlands in 1994, resulting in an urgent need for selecting voluntarily recruits in the first months after this abolition. Last but not least we recall that communicational skills of deployed personnel help them to cope with the homecoming and integration in their social systems in their parent societies. Gaining these skills even more might also help to make the transition from the theatre of operations to the parent society by describing the huge differences between these two worlds, especially by sharing the awesome or alienating aspects of the theatre of operations. Next to these communication skills, also bodily directed interventions like hapto-therapy might encourage deployed personnel to start communicating about their deployment experiences, as observed by Vermetten et al[36].

[36] Vermetten, E. (2007) Presentation at the 10th International Military Mental Health Conference, TARTU,Estonia, 24 SEP 2007.

SPECIFIC STRESS PROBLEMS IN ELITE UNITS ON FOREIGN MISSIONS

ALEXANDER VAN ACKER

Psychosomatics seem to be a good indicator of the stress level in a unit. This may be the best and easiest detector of changes in stress levels in elite units on foreign missions. General knowledge about stress is important. Most armed forces now take care of that. There are the classical stress management approaches, mainly directed at leadership, unit cohesion, identification of external stressors and general morale boosting measures. Additionally, starting from the physical well-being approach, personalized stress management training, given at platoon level, is being tried out, in the Belgian army.

Introduction

Many bizarre physical symptoms, unexplainable strictly by organic medicine, can be explained psychologically. Especially in Elite Units on foreign missions this is a warning signal to be heeded. Already during their training on home ground there can be telltale signs. Usually those complaints seem to be due to somatization[1] of stress and unhappiness of the troops. Those problems will, cumulatively, interfere with the operational efficacy of the unit. If those warning signals are not taken seriously in time we risk a progressive escalation of problems. With growing distress the more fragile people will go further through somatization, go in for drinking and drugs, depression or aggression, desert ... There is no fixed schedule in this: some people go for one way of trying to compensate for their inner stress, and finally decompensate, others go for other ways.

People usually tend to decompensate in a fixed way. Probably they discover some way of coping with their internal unrest, and pain early in life and later in life they keep to it, even if it is later proven dangerous or lethal like .i.e. cigarettes, alcohol and drugs.

From personal contacts with the colleagues at Unit Level I learned that the morning sick call is an informal measuring instrument of the Unit's well-being. If there are more people than on average days, if the complaints are vague, general, with little respect for anatomic reality, are clearly somatiza-

tions, it's a sign that the Unit suffers from too much stress. This could be a good early warning signal, alas command too often discounts it, which in a way is correct, as work-dodging, malingering, pretending etc. … by analysis of individual cases it will normally show up the weaker elements of the Unit, a possible reason to discount the phenomenon. A better reaction is to heed those early warning signs and wonder about what stressors are at work in the Unit before the next stages of more dangerous mental decompensation are reached.

A useful approach is to think firstly about the nature and possible impact of what can be called external and internal stress[2]. Then we can look at some explanations of possible stress accumulation in Elite Units. Finally some direct practical approaches can be tried to reach the individual, to make him/her aware of this stress level and to teach him/her how to deal with it at the individual and patrol level.

I STRESS IN THE ELITE UNITS

It's useful, in an operational way of thinking, to distinguish between external and internal stressors.

1 - External stress has been acknowledged by the military as far as armies go. Sun Tzu[3] already talks extensively about the importance of the lay of the land, the climate and other external factors … The English army in Lord Kitchener's 1898 Sudanese Mahdi campaign did everything it could to get the soldiers used to the Egyptian climate. However for a long time western military planners considered mainly the physical hardship of the troops under exterior stressors like the Russian Winter of 1812 for Napoleon or tropical bacteria, viruses and in colonial, tropical fighting. Even if Sun Tzu had already spoken about the importance of the soldier's morale in 400 BC, it was only after the desertions or the refusals to fight of the French Army, after the disastrous Nivelles offensive at the Chemin des Dames in 1917, that the military staff saw the importance of taking into account the amount of stress the troops could take without faltering. Still however, as the expression shell-shock confirms, mental stress was seen as being caused by the accumulation of too much exterior stress like bombardment, physical hardship of trench life, aso… The usefulness of brief therapy near the front line was discovered by people like Brown and Dillon (GB)[4].

The British and US armies , mainly in WW II, with the help of organized psychological help, with people like Myers, Rogers, Foulkes, Bion, aso .. rediscovered the PIE (proximity, immediacy, expectancy) principles and that group discussion of the hardships suffered and their feelings about it helped.

This approach was then taken up by all modern armies and proved it's usefulness in WW II and Korea.

Alas dictatorial regimes like the 3rd Reich and the Soviet Empire used the old WWI approach and shot the "malingerer" or sent them to death in sacrificed battalions.

1.2. Internal Stress

Especially in our peace missions, we are confronted mainly by what we call internal stress. Intensive combat, as external stressor, became rare but there is a continuous level of background stress. The accumulation of internal and external stress finally can cause severe problems to the mission, especially if it's a sensitive mission or a small one, where every person counts.

We can define the internal stress as the amount of tension the soldier brings along, in his head, from home to the mission, due to personal, family and relational problems. This is difficult to measure as on one side the individual, used to carrying all these impedimenta in his head might think them "normal" and believe this doesn't interfere with his/her functioning. On the other hand we see in the Western world that too much respect is given to privacy, and in Belgium the disappearance of live in quarters, will cause the staff to ignore many of the problems their team members might carry with them. The lack of padres doesn't help either. They are often the recipients of confidences about intimate suffering and they are respected middlemen between the staff. They discreetly bring to the attention of command the discontent that might be lurking and accumulating under the surface.

1.3. Personal/individual mental make-up and internal and external stress

To complicate matters there is the extra tension that common and personal events bring, due to the particular build-up of the individual personality.

It's widely accepted that soldiers have different physical possibilities and that training and assignment has to take this into account. In practice however too little attention is still paid to the problem of the personal mental resistance. It's known that people, due to their particular genetics, life experience and sensitivities stress in different ways, at different times towards different stressors. However even higher command tends to have difficulties with that; General Patton's negative remarks towards the mental breakdown cases in the Sicily campaign of 1943 are well known.

The difficulty is that, while everybody knows what physical fatigue is, it's more difficult to imagine how somebody can faint if he/she sees blood, or, worse, a big spider, if he/she never felt the same. Physical experiences are more universal than the mental stress and thus easier to extrapolate from personal experience to those of fellow-soldiers. Mental experiences and reactions are more difficult to appreciate and to imagine, proofs are in all those books over the ages writing about how people feel, think, act and react, try Balzac and Dostoyevsky. But even if not obviously traumatized, individuals will often react in unpredictable ways, unless you know them well personally and are acquainted to their peculiar way of reacting to events.

II THE STRESS REACTION

2.1. Introduction

There is a fallacy which is often repeated in the military and in the business world, that a certain level of stress is good. This comes from the graph which shows that maximum arousal comes after some time of stress [5]. If indeed you can react physically better at the maximal arousal level we should not forget that this comes at a price. Indeed the stress reaction is a physical adaptation reaction to perceived challenges or threats. This had Darwinian survival value for primitive man who had to fight or flight in a dangerous nature, full of predators. However, when mankind developed weapons, we became the main worry and stressor of the predators. Then under actual life circumstances, where stress usually doesn't entail physical action, the stress reaction becomes an energy wasting process.

2.2. Stress is mainly an individual matter

What make the stress reaction extra hard on the body is that it can start from anything perceived by the prefrontal brain regions as a threat. Alas evolution is lagging behind and the brain doesn't yet differentiate between physical and mental disturbances. This means that anything alerting you can trigger the body into activating stress reaction. This means that your commander saying something in a brusque way can upset your body as much as a barking dog jumping at you to bite you. Even worse this means that we can perceive threats where objectively nothing is happening around us. Man brings his personal history, prejudices, apprehensions, fears and imagination along to complicate the matter. This means that the stress reaction will not

only be different according to objective circumstances but it is due much more to subjective perception[6]. Imaginary threats, arising from the figments of one's imagination can start up the stress reaction and again our body is going to pay a price. Then we become our own worst enemy.

This complicates life in a military unit as people come in with different initial levels of stress, are sensitive to different kinds of stress and react differently. This goes against the dream of the unit as a well-ordered machine where every person is an efficient and predictable cog in the whole.

On international missions alien situations, by their unknown nature and their challenging nature, add to the basic level of stress with which you start the day on mission. Then the individual is nearer to his maximum level of stress with the threat of reacting brusquely.

2.3. Stress is cumulative

Another and underestimated problem with stress is that it is cumulative[7]. If it only takes seconds to start up a physical stress reaction, reaching a peak after minutes, it will take hours to subside, after the alarm is over. Thus if before the body has finished clearing up after one alarm another alarm sets off the body chemistry and physiology, it will stay disturbed. After a long alarm phase it might take the body days or weeks to recover. Of course the longer and the more intense the activation of the body is, the worse we hamper and disturb its normal functioning and the higher the probability of final breakdown.

The problem of accumulation of stress is a difficult one for the military. Not only are there the normal individual, family, organization and hierarchy connected stresses but on mission, in an unforeseeable way, suddenly major stress can befall the individual, through ambush, fighting, maiming, and death around you.

An extra difficulty is that minor stressors are often not perceived as stressors by the surrounding people and sometimes not even by the person himself. However even minor stress takes time to subside, before the disturbances caused by the alert phase in the body calms down. The "critical mass" theory from physics is useful. It seems as if we all have different maximum levels of stress we can take in a limited amount of time, according to times and circumstances. As already mentioned people on missions already bring along, a fair amount of internal stress, then comes the external stress of having to take in and adapt to the alien circumstances of the deployment. Thus some people are already near maximum load before anything happens. When too many extra events, external ones from mission connected incidents or "internal" ones from home front problems add their

weight a stress overload can be reached. At a certain level of stress nearly everybody will crash. And as veterans know well, those that don't stress in stressful circumstances may be the most dangerous ones e.g idiots, psychopaths, psychotics … Who can even endanger operations.

2.4. Stress is communicative

As we know from the observation of closed systems the pressure cooker principle applies. This accumulation of tension and stress inside a small compound, where a large number of people are obliged to live together for months on end, is a hotbed for all kinds of rumours. Some of those rumours can get out of hand and conspiracy and doom theories can suddenly flood the unit. After an underground gestation period some bizarre theory can flare up and even lead to, an objectively unwarranted, panic, the nightmare of any command.

2.5. Stress and habituation

In time we are able to habituate to some stressors. The habitual or the foreseeable ones are the easiest to discount after a time. Thus many tasks which are stressful at first become easier after repetition. This implies the need for training, training and re-training. The more often you are realistically ambushed, as an exercise, the less stressed you will be when the real thing happens. However man is not a machine, nor a rat in a maze.

III FOUR PITFALLS IN MILITARY THINKING ABOUT STRESS

3.1. Selection instead of training

There is a historical background to this. One of the most commons pitfalls in military thinking is dreaming back to the easy conscription years. Then indeed military planners and leaders had the luxury of a continuous stream of young people with all kinds of personalities, characters and training. Then the main problem was how to select the best possible ones for the military and for special assignments. Now this conscription has stopped another way of seeing personal selection and training has to be developed.

Then, probably structurally, command dreams they can find, on the market the ready made soldier, with the right kind of mental make-up. Because it works for most other aspects of the army's functioning, they prefer schematized, generalized approaches. The administration favors rulebook guidance systems, which proved so useful in managing most processes. So they will ask the selecting staff to find those dream soldiers.

There is also the perpetual tendency to put too much emphasis on selection. Each new generation of young and enthusiastic psychologists, unhindered by practical field experiences, still seems to dream of the perfect tests which will unfailingly deliver the ideal soldier. This is based on the success of psychological tests for stable civilian jobs with simple job descriptions. However the armed forces need all kinds of people and personalities as it is an organization which has to be practically self-sufficient. Then there is the problem that military life, especially on mission, is unpredictable in what happens and about the stress this entails for the individual.

Finally what we tend to forget is that many men dream of a magical selection which will reveal the real soldiers, without the effort of having to learn and train systematically.

3.2. "Stress is good for you"

As already discussed in the previous chapter about the effects of stress and the danger of cumulative stress, stress is not good for you. Adrenaline gives an uplifting, high feeling but that doesn't mean that efficiency increases. Sensory perception does better but at the price of limiting memory functions and cool rational thought. Our brain is like any computer: give it too many tasks to do at once and it slows down.

Then there are people, already stressed by previous life events, who carry with them too high a level of stress and search for stressful situation to feel normal. This means that they don't want to feel stressed when objectively nothing is happening around them, so they construct a stressful environment to be able to talk away this stress.

Lastly there is a small group of adrenaline addicts who for one reason or another think they need high excitation levels to feel alive. It can be people who have for too long lived under stress and / or psychopaths.

The "stress is good for you" approach is medically the wrong one. Life, especially on military mission, will already bring about enough stress, don't add to it.

3.3. The Rambo Syndrome

Many people in the military, for instance, mainly our paratroopers and jet fighter pilots, who consider themselves to be elite troops, can't conceive themselves as being sensitive to the same emotional turmoil as mere mortals, they will not complain about stress and fear. Only in the secrecy of a visit to a private doctor, on the condition of his/her not sharing this information with their military counterparts, will they talk. Usually the more combat oriented the unit is the more the Rambo syndrome reigns. Rank doesn't seem to make much difference.

An extra problem is that many non commissioned – and petty officers who train our troops tend to forget what they were told at school and gain inspiration themselves from Hollywood military movies. Many soldiers, used to those kinds of movies, will go along with this kind of training, full of action and stress. They all tend to forget that we usually don't have to replay Iwo Jima on our international missions.

3.4. Some general morale boosters take the stress away

Most of the staff members underestimate the complexity of the stress problem.

As already mentioned in the first chapter stress is firstly individual and cumulative. What stresses one person doesn't stress the other one, nor with the same intensity. What does not stress one person at one point in time, might later on, when the measure is full for that person, lead to catastrophic stress reactions. Sensitivity to stress and the amount of accumulated stress one starts with on mission is an individual affair, difficult to measure beforehand.

General morale boosters have their effect and their limitations due to those factors.

IV ANTI-STRESS MEASURES[8,9]

4.1. General anti-stress measures

a. There is the general stress of being sent on mission in a foreign country with another climate and a different people with their own customs, diffidence and even hostility. Information sessions with extra literature to read afterwards and the possibility of meeting experts and questioning

them can help. Realistic training at home or in a friendly, look alike country helps to develop routines which will avoid the stress of culture shock.

b. Specific stress related to an individual mission or to special circumstances. It's difficult to prepare the troops for this. Here is where the experience of the staff helps. The more experienced the command is the more chances there are of handling the situation without feeling harried and of transmitting the own equanimity to the troops.
c. On mission instituting routines, common activities and diverse occupations helps. The military routines like rituals, parades, drill & exercises keep the unit aware of its military nature and give a sense of unity. Don't forget the "orphan" units like the medical platoon…
d. As far as possible form tightly knit teams, where people know each other. The regional regiments were a good solution. Alas it seems they are too expensive now for our governments.

4.2. Specific anti stress measures

Here lies our new challenge. As we saw stress on peace missions is mainly an individual problem.

a. Continuous selection based on stress detection.
It's more realistic to continuously asses and select people according to their actual stress state than to dream of a once and for all times selection at enlistment. As we saw stress is mainly an individual problem. If too many individuals however stress and panic stress becomes a unit problem. Alas we miss an individual stress dose meter like we have for radiation and people tend to lie, about their stress levels. Before the mission everybody wants to feel or at least seem "top gun". People also dream that the mission will solve problems they have in their personal life. Thus stress detection is a continuous problem for a unit.
It can be done on three levels:

- Buddy level: usually it's your friends and comrades who notice changes in your mood and behaviour first. They have to be trained to mention their observations to the hierarchy.
- NCOs and petty officers: Usually they know their troops and can easily spot deficiencies. It helps to explain to them what to look for: changes of mood and /or behaviour, and to get them to report their observations in time to their commanding officer.
- Command level. An experienced field officer usually picks up things fast. It helps if command organises formal "stress-briefings" and explains to

the staff the importance of mentioning, in time, deviation of mood or behaviour that they observe around them.

b. Continuous stress prevention

The armed forces have the advantage of being well organised and structured organisations, free to decide about the use of time, having the spirit of camaraderie… These are all advantages one often misses in civil structures. This allows them to work preventively on the individual and on the unit level.

a. At unit level:

- Explaining what's happening, what can be expected and discussing the pros and cons of different approaches to the mission alleviates cognitively the fear of the unknown and of their dark fantasies about what could happen.
- The use of rituals: the armed forces, and often each regiment, have their own rituals like parades, feasts … Rituals sooth the mind and underline the feeling of belonging.
- Keep mind and body occupied positively. Sometimes, due to the hostile environment, this can be a challenge. Think about activities like choral singing, theatricals, courses & lectures with discussions, … It 's at empty moments that people start to brood and imagine stressful events. One should also feel the advantages of belonging to such a good group that does all those nice things.
- R & R: don't forget the old classics: enough sleep and recreation helps. Try to go for overlap in the proposed activities and the psychological promotion of camaraderie.

b. At the individual level:

- Train people in individual stress prevention. The most difficult of propositions but in the long term the most promising new approach is the systematic relaxation training of individuals. After learning to identify one's stress level different relaxation techniques are possible. The best known ones are sports, gymnastics, yoga, meditation ... Some of the samurai techniques like the Kyudo (bow shooting) and the Johannes Schultz autogenic training, a form of self hypnosis towards relaxation are also usable.

Conclusion

We start the mission with people bringing along their internal, personal stress and their habitual ways of coping, more or less efficiently with it.

On mission we are in a stressful business, because of the sudden and unpredictable accumulation of external and internal stress.

Teach soldiers, non-commissioned and petty officers to recognize stress in themselves and those around them and to report dangerous stress levels to their command.

Teach the staff to keep as keen an eye on morale as on food and ammunition levels.

Teach personnel individual awareness of stress and how to develop ways of coping with this. Psychosomatisation can be one of the first alarm signals of too much stress accumulating in the unit.

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THE WAR WITHIN

Neuroimaging studies in Posttraumatic Stress Disorder

ELBERT GEUZE

■

Introduction

Since World War II, the concept of war has changed considerably (see van Creveld (1991)). Modern forms of armed conflict are characterized by an increase in intra-national (as opposed to inter-national) conflicts. These conflicts are led by individual leaders (as opposed to governments) and are motivated by religious, nationalistic, or ethnic factors (as opposed to territorial expansion). International organizations, such as the United Nations, North Atlantic Treaty Organization, European Union, and the Organization for Security and Co-operation in Europe, have played an important role in observing, monitoring and resolving these armed conflicts. The Dutch Army has participated in a large number of these observational, peacekeeping and peace enforcement operations (see Klep and van Gils, 2005). Although the majority of soldiers adapt successfully to 'ordinary life' after deployment, some may experience medically unexplainable physical symptoms (10–20%). Some (3–5%; see Engelhard et al., 2007) may also develop posttraumatic stress disorder.

Psychiatrists using the DSM-IV may diagnose PTSD if the person has been exposed to a traumatic event in which "the person experienced, witnessed, or was confronted with an event or events that involved actual or threatened death or serious injury, or a threat to the physical integrity of self or others **and** the person's response involved intense fear, helplessness, or horror (APA,1994). Besides the presence of these criteria (the A1 and A2 criterion respectively), the person must re-experience the event and display persistent avoidance of stimuli associated with the trauma and numbing of general responsiveness (not present before the trauma). Finally, symptoms of increased arousal should also be present. If all these criteria are met, symptoms persist for a period greater than one month and cause significant clinical distress, a person is given the diagnosis of PTSD.

Various methods are used to study the neurobiological mechanisms of PTSD. In the Military Mental Health Research Centre in Utrecht, the Netherlands, a number of different methods are employed. We perform research on personality, neuroimmunological and neuroendocrinological parameters, and

sleep. In addition, we have performed a number of neuroimaging studies in veterans with PTSD.

All studies performed, however, are only as good as the methods used. While neuroimaging methods are generally proven and tried, there are a lot of methodological issues in neuroimaging that need resolution. In addition, neuroimaging is an expensive tool. Neuroimaging tools, such as structural MRI, functional MRI, PET imaging, PET receptor imaging, EEG, magneto-encephalography, provide new promises and exciting prospects. However, in the case of complex psychiatric disorders or in the field of cognitive neuroscience, there is no reason to be pretentious. Ultimately, research culminates more research. Despite its limitations, however, neuroimaging is a valuable tool that enables us to take a look at the active brain in a relatively non-invasive manner. This provides us not only with new insights into the brain and neurobiological mechanisms, but also sheds light on the manifestation of psychiatric disorders in the brain.

Structural Neuroimaging in PTSD

The advance of neuroimaging techniques has resulted in a burgeoning of studies reporting abnormalities in brain structure and function in a number of neuropsychiatric disorders. Measurement of hippocampal volume has developed as a useful tool in the study of neuropsychiatric disorders. We have conducted an extensive review of hippocampal volumetric findings in neuropsychiatric disorders (Geuze, Vermetten, & Bremner, 2005b; Geuze, Vermetten, & Bremner, 2005a). Smaller hippocampal volumes have been found in epilepsy, Alzheimer's Disease, dementia, mild cognitive impairment, the aged, traumatic brain injury, cardiac arrest, Parkinson's disease, Huntington's disease, Cushing's disease, herpes simplex encephalitis, Turner's syndrome, Down's syndrome, survivors of low birth weight, schizophrenia, Major Depression, PTSD, chronic alcoholism, borderline personality disorder, obsessive-compulsive disorder, and anti-social personality disorder. The specificity of hippocampal deficits for any psychiatric disorder is thus very low.

Cortical Thickness

Structural neuroimaging studies in PTSD have focused primarily on structural alterations in the medial temporal lobe (Bremner et al., 1995a; Kitayama, Vaccarino, Kutner, Weiss, & Bremner, 2005), and only a few have examined gray matter reductions in the cortex. Advances in computational image analysis provide new opportunities to use semi-automatic techniques to determine cortical thickness, but these techniques have not yet been applied in PTSD. We have examined twenty-five male Dutch veterans

with deployment-related PTSD and twenty-five male veterans without PTSD matched for age, year and region of deployment with structural MRI. Individual cortical thickness maps were calculated from the MR images, and all the subjects' brains were aligned using cortex-based alignment in a region of interest based approach. Cortex-based alignment substantially improves statistical analysis by reducing anatomical variability. Regions of interest examined included the bilateral superior frontal gyri, bilateral middle frontal gyri, bilateral inferior frontal gyri, bilateral superior temporal gyri, and bilateral middle temporal gyri. Veterans with PTSD revealed reduced cortical thickness in the bilateral superior and middle frontal gyri, the left inferior frontal gyrus, and the left superior temporal gyrus. Cortical thinning in these regions may correspond to functional abnormalities (such as in executive functioning, working memory and failure of inhibition of fear) observed in these areas in patients with PTSD.

Functional Neuroimaging in PTSD

Memory

Over the last decades, several studies have reported deficits in learning and memory in patients with PTSD. Patients with PTSD display poorer performance on several tests of learning and memory including the Wechsler Memory Scale – Revised (WMS-R) (Golier et al., 2002; Bremner et al., 1993; Nixon, Nishith, & Resick, 2004), California Verbal Learning Test (CVLT) (Yehuda, Golier, Halligan, & Harvey, 2004; Yehuda, Golier, Tischler, Stavitsky, & Harvey, 2005; Stein, Kennedy, & Twamley, 2002; Stein, Hanna, Vaerum, & Koverola, 1999; Lindauer, Olff, Meijel, Carlier, & Gersons, 2005), Rey Auditory Verbal Learning Test (AVLT) (Uddo, Vasterling, Brailey, & Sutker, 1993; Vasterling et al., 2002; Brandes et al., 2002), Selective Reminding Test (Bremner et al., 1995b), and the Rivermead Behavioural Memory Test (Moradi, Doost, Taghavi, Yule, & Dalgleish, 1999; Koso & Hansen, 2005). The majority of these studies were performed in patients with PTSD related to combat experience,(Gilbertson, Gurvits, Lasko, Orr, & Pitman, 2001; Vythilingam et al., 2005; Neylan et al., 2004; Yehuda et al., 1995) whereas only some have examined cognitive performance in PTSD related to civilian trauma, (Bremner, Vermetten, Afzal, & Vythilingam, 2004; Pederson et al., 2004; Yehuda et al., 2005) or in children with PTSD (Moradi et al., 1999; Beers & De Bellis, 2002).

Although clinical experience and epidemiological studies indicate that PTSD has an impact on social and occupational functioning, few studies have examined functional impairments (Bleich & Solomon, 2004; Alonso et al., 2004). If objective memory performance serves as an accurate predictor

of social and occupational functioning, it may be considered as a target for psychopharmacological intervention in PTSD, as is currently proposed by the MATRICS program in patients with schizophrenia (Marder et al., 2004; Green et al., 2004). To date, no study has been published relating memory performance in patients with PTSD to occupational and social functioning. We examined fifty Dutch veterans (25 with deployment-related PTSD and 25 without PTSD matched for age, and year and country of deployment) were assessed with a comprehensive neuropsychological test battery consisting of four subtests of the WAIS III (Picture Arrangement, Block Patterns, Similarities, and Vocabulary), WMS-R Figural Memory, WMS-R Logical Memory, CVLT, and the AVLT. Veterans with PTSD were free of medication and substance abuse. Multivariate analysis of variance was used to assess group differences of memory performance. Veterans with PTSD had similar total IQ scores compared to veterans without PTSD, but displayed deficits of figural and logical memory. Veterans with PTSD also performed significantly lower on measures of learning and immediate and delayed verbal memory. Memory performance accurately predicted current social and occupational functioning (Geuze et al., in press).

Memory processing

Although patients with PTSD frequently report memory difficulties and empirical research provides support for a memory deficit in PTSD, few fMRI studies have adequately investigated neural correlates of learning and memory of neutral (i.e. not trauma related) material in patients with PTSD compared to controls. In studies with healthy subjects, memory processing has been investigated using various fMRI designs. These studies indicate that a fronto-temporal network (including the prefrontal cortex, endorhinal cortex, parahippocampal gyrus, and the hippocampus) constitute a neural substrate for the encoding and retrieval of memory (Eichenbaum, 2000; Taylor et al., 2000; Squire, Stark, & Clark, 2004). Previous research has also shown that paired associates learning is impaired in patients with PTSD (Gurvits et al., 1993; Golier et al., 2002; Golier, Harvey, Legge, & Yehuda, 2006).

We designed a study to investigate associative memory processing in PTSD with fMRI using the encoding and retrieval of 12 word-pair associates as a neurocognitive task in Dutch veterans with PTSD and without PTSD (Geuze, Vermetten, de Kloet, & Westenberg, 2007; Geuze, Vermetten, Ruf, de Kloet, & Westenberg, 2007). Twelve male veterans with PTSD, and twelve male veterans without PTSD, were recruited, and matched for age, region and year of deployment. Changes in the fMRI BOLD response to encoding and retrieval of non-emotional word pairs (reflecting deactivation and activation of brain areas involved in associative memory processing)

were assessed. Veterans with PTSD revealed underactivation of the frontal cortex, and overactivation of the temporal cortex during the encoding phase compared to control veterans without PTSD. Retrieval of the paired associates resulted in underactivation of right frontal cortex, bilateral middle temporal gyri, and the left hippocampus/parahippocampal gyrus in veterans with PTSD. These data support the long-held notion that altered activity in fronto-temporal circuits is related to deficits in memory performance in veterans with PTSD.

Pain processing

Clinical studies have reported that pain experience in persons with PTSD is significantly increased compared to controls, and that chronic pain is a commonly reported symptom of patients with PTSD (Smith, Egert, Winkel, & Jacobson, 2002) (Asmundson, Coons, Taylor, & Katz, 2002; Beckham et al., 1997). However, previous empirical research has also reported that patients with PTSD report a decrease in pain intensity ratings after being exposed to traumatic reminders (van der Kolk, Greenberg, Orr, & Pitman, 1989). This has been purported to be related to opioid mediated stress induced analgesia (Pitman, van der Kolk, Orr, & Greenberg, 1990). Activation of the μ-opioid receptor system by endogenous opioid peptides has indeed been associated with reductions in sensory and affective ratings of pain experience (Zubieta et al., 2003; Zubieta et al., 2001).

Recently we performed an fMRI study (in combination with painful tonic phasic heat stimuli) to compare the brain activity in patients with PTSD and controls (Geuze et al., 2007). Both fixed temperature heat stimuli which was the same for all subjects, and individual temperature heat stimuli which were adjusted for equal subjective pain in all subjects were used. We predicted that patients with PTSD would display altered activity in brain areas related to pain processing.

The experimental procedure consisted of a psychophysical assessment and neuroimaging with fMRI. Two conditions were assessed during fMRI in both experimental groups: one with administration of a fixed temperature of 43 °C (fixed temperature condition), and one condition with an individual temperature for each subject but with a similar affective label, equal to 40% of the subjective pain intensity (individual temperature condition). Twelve male veterans with PTSD, and twelve male veterans without PTSD, were recruited, and matched for age, region and year of deployment. Veterans with PTSD rated temperatures in the fixed temperature assessment as less painful compared to control veterans. In the fixed temperature condition, veterans with PTSD revealed increased activation in the left hippocampus, and decreased activation in the bilateral ventrolateral prefrontal cortex, and the right amygdala. In the individual temperature condition veterans with

PTSD showed increased activation in the right putamen, and bilateral insula, as well as decreased activity in right precentral gyrus, and the right amygdala. These data provide evidence for reduced pain sensitivity in PTSD. It has been proposed that opioid-mediated stress induced analgesia is the mechanism responsible for this phenomenon. The witnessed neural activation pattern was proposed to be related to altered pain processing in patients with PTSD.

Concluding Remarks

Very little is known about the biological basis of individual differences in stress response and vulnerability for stress-related mental disorders. The neuroimaging studies described in this paper have provided support for neurobiological alterations in Dutch veterans with deployment-related PTSD. One of the major strengths of all the empirical studies in this paper is the use of matched trauma controls. We had access to a unique population of Dutch veterans from the Veterans Institute in Doorn. This enabled us to match our veterans with deployment-related PTSD to control veterans without PTSD. The groups were carefully matched with respect to year of deployment, region or country of deployment, and age. This means that control veterans had very similar experiences during deployment compared to the patients. They were also approximately the same age at the time of deployment.

Traumatic stress affects nearly all veterans, but while the majority of veterans learn to live with their experiences, for some veterans traumatic stress seethes inside. These veterans (as many as 5–15% of all veterans) experience a ‘war within’. The war within experienced by a proportion of returning veterans after deployment is threefold in nature. For these veterans, (1) the war is not over, (2) they are at war with themselves, and (3) they experience a ‘neurobiological war within’.

Structural neuroimaging has identified a number of morphological changes including smaller hippocampal volume and thinner prefrontal cortex. Functional MRI showed that veterans with PTSD have decreased pain sensitivity and altered painprocessing. In addition, veterans with PTSD show altered prefrontal and temporal cortex activation during associative memory processing. Neuropsychological memory assessment confirmed a structural verbal and visual memory deficit which was related to current social and occupational functioning. These neurobiological alterations witnessed in veterans with PTSD provide some acknowledgement that the problems experienced by them are not just ‘figments of the imagination’ but very real neurobiological consequences of traumatic stress. It is this neurobiological ‘war within’ that we should learn to wage and win.

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CLOSING ADDRESS

Ladies and gentlemen, dear friends,

The 10th IMMH conference has come to an end. Let us check to see to what extent we have fulfilled our mission statement:

1. *Did we grow in terms of an international forum?*
   The answer is yes, we had delegates from 15 countries as opposed to earlier conferences where we had up to 11 countries.

2. *Was it a forum where practitioners met researchers?*
   The answer is "yes". It suffices to look at the column "organization" on the attendees list to see the variety in background and occupation.

3. *Did we cover all facets of the human being; i.e. the bio-psycho-socio-spiritual domains and their interactions*?
   The answer is once more "yes". We had wonderful presentations which gave us some insight into the structure of the brain and in its functioning. Although some answers were given, they evoked as many questions as well. Aside from the biological sciences, we have psychologists supporting people in different ways: from the field psychologist over to the therapist to scientist; not to forget the social aspect represented e.g. by community nurses; and last but not least we have never had so many chaplains in the auditorium. What about the "field experts" like commanders? We are very pleased with the interest show by some junior leaders but I would really happy if, in the future, we could also welcome some more experienced leaders and decision makers. As stressed in the opening address, all experts are in the first place there to support the core business of Defence by optimizing the performance of the soldier in the field.

4. *Finally, did we reach some guidelines for best practice*?
   If we do not have anything on paper yet, we all have at least a number of messages or lessons-learnt that we take home. Through formal and in-formal discussions, in syndicates and in the bar with a drink, we reached a growing understanding of each other's strengths and weaknesses, of the opportunities and pitfalls of systems and structures.

   At the start MUPS was like a closed house for most of us. Now, we have discovered that it is a house with several floors and a lot of rooms. The techniques presented are like keys that open doors, but on entering a

room you find 10 other doors leading to unknown rooms. We, as mental health professionals, have a number of these keys in our hands. Going back to the leading theme of the conference "MUPS are perhaps PEPS", after this conference we can contend that MUPS are at least partially PEPS. The challenge is to enhance our knowledge about causes and effects.

The mark of attention the presenters received has a high symbolic value with respect to the ideas above: a torch to light the way in exploring the dark world of unknown mental health issues like MUPS.

Thus, taken all together, the10 IMMH has been a success of the whole line. The 10th IMMH is dead; long live the 11th IMMH (Sofia, Bulgaria)!

Prof Dr Jacques Mylle
Chairman IMMHC

Jacques MYLLE	Prof Dr MSc, Royal Military Academy Belgium
Tiit MEREN	Capt. (R) MD PhD, "Civilian Surgeons-in-Deployment", Reserve Officers' Association of Estonia.
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