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COMBAT STRESS REACTION AND POST TRAUMATIC
STRESS DISORDER

BY

Captain L.P. Weber

1990



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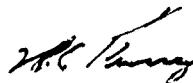
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R.C. FURRY
Lieutenant Colonel
Commanding Officer
1st Psychological Research Unit

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Abstract

A review of the literature examining Combat Stress Reactions and Post Traumatic Stress Disorders was conducted. Psychological, physiological and environmental factors associated with the aetiology of both disorders were discussed, with a special focus on the role AAPsych Corps could play in the prevention and management of such disorders in future conflict.

The findings and views expressed in this report are the result of the author's research studies and are not to be taken as the official opinion of the Department of Defence (Army Office).

Captain Weber was awarded the inaugural E.F. Campbell Medal for this paper's contribution to Military Psychology.

COMBAT STRESS REACTIONS AND POST-TRAUMATIC DISORDERS - A REVIEW

CAPTAIN L.P. WEBER

1 PSYCHOLOGY UNIT

1990

Abstract

A review of the literature examining Combat Stress Reactions and Post-traumatic Stress Disorders was conducted. Psychological, physiological and environmental factors associated with the aetiology of both disorders were discussed, with a special focus on the the role AAPsych Corps could play in the prevention and management of such disorders in future conflict.

"Perhaps one way we can have peace is to remember what happens after war".

(Penk and Robinowitz, 1987)

Introduction

In 1980 the American Psychiatric Association included the diagnostic sub-category "Post-traumatic Stress Disorder" [PTSD] in its third edition of the "Diagnostic and Statistical Manual" [DSM-III] (Price, 1984). This was the second time that a category addressing the specific psychiatric sequelae of combat/traumatic exposure had appeared in the DSM (Penk and Robinowitz, 1987). In the DSM-I, published during the Korean War, there existed a category labeled "Gross Stress Reactions". This covered situations where an individual had been exposed severely to demanding physical or emotional stressors, including combat (Figley, 1978). In the DSM-II however, it was replaced by a vague classification titled "(Transient) Adjustments of Adult Life". Little emphasis was placed on the impact of combat stress. It was simply said to be manifested by running, trembling, and hiding (Figley, 1978).

In the DSM-III-R (1987), PTSD is a subset of the diagnostic category "Anxiety". The criteria are listed as follows:

"309.89 Post-traumatic Stress Disorders

- A. The person has experienced an event that is outside the range of usual human experience and that would be markedly distressing to almost anyone, e.g. serious threat to one's life or physical integrity; serious threat or harm to one's children, spouse, or other close relatives and friends; sudden destruction of one's home or community; or seeing another person who has recently been, or is being, seriously injured or killed as a result of an accident or physical violence.
- B. The traumatic event is persistently re-experienced in at least one of the following ways:
- (1) recurrent and intrusive distressing recollections of the event (in young children, the repetitive play in which themes or aspects of the trauma are expressed)
 - (2) recurrent distressing dreams of the event

- (3) sudden acting or feeling as if the traumatic event were recurring (includes a sense of reliving the experience, illusions, hallucinations, and dissociative [flashback] episodes, even those that occur upon waking or when intoxicated)
 - (4) intense psychological distress at exposure to events that symbolize or resemble an aspect of the traumatic event, including anniversaries of the trauma.
- C. Persistent avoidance of stimuli associated with the trauma or numbing of general responsiveness (not present before the trauma), as indicated by at least three of the following:
- (1) efforts to avoid thoughts or feelings associated with the trauma
 - (2) efforts to avoid activities or situations that arouse recollections of the trauma
 - (3) inability to recall an important aspect of the trauma (psychogenic amnesia)
 - (4) markedly diminished interest in significant activities (in young children, loss of recently acquired developmental skills such as toilet training or language skills)
 - (5) feeling of detachment or estrangement from others
 - (6) restricted range of affect, e.g., unable to have loving feelings
 - (7) sense of foreshortened future, e.g., does not expect to have a career, marriage, or children, or a long life.
- D. Persistent symptoms of increased arousal (not present before the trauma), as indicated by at least two of the following:
- (1) difficulty falling or staying asleep
 - (2) irritability or outburst of anger
 - (3) difficulty concentrating
 - (4) hypervigilance
 - (5) exaggerated startle response
 - (6) physiologic reactivity upon exposure to events that symbolize or resemble an aspect of the traumatic event (e.g., a woman who was raped in an elevator breaks out in a sweat when entering any elevator)
- E. Duration of the disturbance (symptoms in B, C, and D) of at least one month.

Specify delayed onset if the onset of symptoms was at least six months after the trauma." (American Psychiatric Association, 1988)

The characteristics of this disorder include experiences that in some way repeat the traumatic event(s) in the form of intrusive images/flashbacks or nightmares; psychic numbing; recurrent or prolonged bouts of depression, anxiety, amnesia for a specific aspect (or aspects) of a traumatic event; guilt and shame. It can include physiological symptoms such as persistent tachycardia, sweating, and dilation of pupils (Horowitz, 1986; Keane et al, 1987; and Green and Grace, 1988). In an extensive study of Vietnam veterans, True et al (1988) found that nightmares and troubled memories were the most significant symptoms. Vietnam veterans had a four fold chance of experiencing these symptoms than non Vietnam veterans of the same period.

Parsons (1988) defined PTSD as:

"a conglomerate of reactions and symptoms related to psychic reanimation of psycho-invasive imagery and painful memories, affect and action directly related to the original traumatic event(s). Additionally, it includes symptoms of numbing, emotional constriction and chronic hyperarousal of the autonomic nervous system." (p247)

Horowitz (1986), outlined the process of stress reactions resulting from trauma in the following way:

- a. The immediate response to a traumatic event is alarm, accompanied by strong emotion, often fear. This can lead to a short period of emotional outcry.
- b. This is then followed by denial and intrusion. These symptoms may succeed each other and are described as below:

- (1) Denial: In this phase the individual may ignore the implications of threats or losses, forget important problems, and experience emotional numbing. Numbing is often a normal, "healthy" process of adaptation and integration after trauma, however it can develop

abnormal characteristics when it involves extreme counter-measures to stress, such as drug taking or thrill seeking. Numbing involves:

- (a) withdrawal of interest in life;
- (b) behavioural constriction to a point where new situations can not be dealt with effectively;
- (c) clouding of perception; diminished awareness of bodily perception - the individual may actually feel as if he is wrapped in insulation; and
- (d) blunted patterns of interaction with people including family, friends and work mates to a point where the individual becomes isolated.

- (2) Intrusion: This state can include unbidden ideas, rushes of feeling and compulsive actions; hypervigilance and startle reactions; and unproductive rumination of life events.

The important differences between PTSD and other categories of anxiety in the DSM-III-R are the requirements for an abnormal traumatic event or experience "outside the range of usual human experience that would be distressing to anyone"; and the common occurrence of delayed onset of symptoms. The latter feature is held to be associated with a process of numbing and denial. Often the mere fact of having survived a traumatic experience prevents immediate onset of symptoms. It is only as the advanced psychic numbing wears off that the symptoms become prominent (Shatan, 1978).

People who have endured extreme stress created by exposure to trauma are believed to suffer a profound rupture in the fabric of the "self" (Parsons, 1988). In recent years PTSD symptoms have been diagnosed in civilian populations exposed to non combat trauma or upheaval; including aircraft accidents, earthquakes, floods, torture (Cervantes, 1989); motor vehicle accidents, rape, chronic illness, painful medical experiences, business loss, and bereavement (Horowitz, 1986).

McFarlane (1988) identified and treated PTSD symptoms in a population drawn from victims of the Ash Wednesday bushfires in South Australia. He found that it took 12 months to two years for people to

seek help for their symptoms. Cervantes (1989) found that 52% of a sample of Central Americans who migrated to the United States as a result of war or political unrest, and 49% who migrated for other reasons (economic and/or educational improvement etc.) reported symptoms consistent with PTSD. There has also been extensive study of survivors of the Holocaust that demonstrate long-term, persistent psychological disturbances specifically related to trauma of that experience (e.g. Nadler and Ben-Shushan, 1989).

Events that create such a impact are generally unanticipated, uncontrollable and unpreventable. Frequently there may be an encounter with death, which could include a brutal or gruesome aspect; and the experience often generates a sense of overwhelming shock, and feelings of powerlessness and helplessness (Raphael and Middleton, 1988).

PTSD is therefore not a category related only to combat exposure. It is intended however, to narrow the scope of the remainder the paper to that trauma inducing environment. Before that occurs though, it is felt that some attention should be paid at this juncture to the issue of soldiers' "in situ" stress reactions to war [Combat Stress Reactions (CSR)].

There is little evidence in the literature at this point in time to show that CSR and PTSD are directly related but it makes intuitive sense that they are. If this assumption is made, it therefore follows that the management of combat stress in the field will have a direct bearing on the manifestation and prognosis of PTSD. Solomon and Benbenishty (1986) were able to demonstrate that effective front line management of stress casualties, using a therapeutic method to be outlined below, reduced the incidence of PTSD 12 months after the cease-fire. Only 38% of those for whom the treatment programme was successful displayed PTSD symptoms, against 74% of those who did not achieve the treatment goals. The sample used in this study included 82% of all known Israeli combat stress casualties in the 1982 Lebanon War. Horowitz (1986) also argued that early intervention of trauma stress can reduce immediate stress levels, and quite possibly prevent delayed or chronic stress reactions such as PTSD.

It is also apparent that the theories and philosophies that have shaped people's attitudes towards

stress reactions of soldiers in combat, have also greatly influenced attitudes towards continued maladaptation long after hostilities have ceased. Part of the reason for the inclusion of PTSD in the DSM-III was that attitudes towards the stress reactions in war had changed. The former had to occur before the latter could gain acceptance.

PART I

COMBAT STRESS REACTIONS

Clinical investigations of the origins of acute and delayed combat stress reactions only began this century (Foy et al, 1987). Prior to WWI combat stress casualties were generally seen as being weak, cowardly, malingering and nostalgic. They were believed to be lacking the military discipline found in normal soldiers (Figley, 1978; and Parsons, 1988). There is evidence to suggest that such psychiatric casualties were widespread during both the American Civil War [1861 - 1865] (Parsons, 1988) and the 1904 - 1905 Russo-Japanese War (Spiller, 1988). The latter war saw the first officially recognized combat stress casualties, 1,700 by the end of the first year. By early 1905 the numbers exceeded the capacity of the army's psychiatric facilities, and stress casualties had to be dispersed among field hospitals. (Spiller, 1988).

World War One

The first formalized psychiatric description of combat related disorders was attempted by Freud when he coined the term "War Neurosis" to describe symptoms he observed in soldiers following combat. He held that the necessary precursor to war neurosis was an unresolved psycho-sexual developmental conflict. (Figley, 1978).

The belief that combat related disorders resulted from interaction between pre-existing character and personality defects, and the stress of combat, became the foundation of professional psychiatric and military opinion for many years to come. However, issues such as pre-morbid personality type, pre-military service factors and other intrapsychic terms began to dominate the

literature, over-shadowing the environmental factors related to the combat experience (Figley, 1978).

At the same time that Freud was expounding his psychodynamic approach, others were studying combat stress and persistent post combat maladjustment from a physiological viewpoint. Neurasthenia, [Shell Shock] was believed to be one of the major precipitants of maladjustment (Marr, 1919). This clinical approach held that men exposed to blast waves from exploding shells were physically concussed at a neural level, often to the point of causing brain damage. Even in this model, however, the emphasis was on a predisposing weakness in individuals:

"Actual mental disease is not inheritable as such; what is inherited is an unstable or disordered arrangement of the inherent structure of the nerve cells subserving the mind, and this allows mental affections to intervene." (Marr, 1919, p. 48).

Implicit to all attitudes of combat stress reactions; and long-term, persistent maladjustment, was the assumption that most soldiers could be exposed to all possible stressors of war without adverse symptoms developing. What we now call PTSD was held to be an abnormal reaction to the normal experience of combat facilitated by an individual's pre-existing psychopathology (Foy et al, 1987).

Treatment of casualties reflected this assumption; consider for example the case of one 24 year old British private who had been mute for 9 months:

"He had fought in the retreat from Mons, the battles of the Marne, Aisne and the first and second battles of Ypres. He had fought at Hill 60, Neuve Chapelle, Loos and Armentieres. Then he went to fight at Gallipoli, where he collapsed from heat exhaustion. When he awoke he could not speak. His medical treatment, intended to return his psychological planets to their rightful orbit, was electric shock and the application of "hot plates" and lighted cigarettes to his mouth" (Spiller, 1988: p.30)

By 1917, one seventh of all discharges for disability from the British Army were for mental disorders, and 20% of the 200,000 soldiers on Britain's pension list suffered from a psychiatric disability (Mareth and Brooker, 1985). Following WWI large numbers of men continued to be treated for combat stress related disorders that were diagnosed to be some form of neurosis (Figley, 1979). Spiller (1988) reported that in 1942, American Veterans Hospitals held more shell shock patients from the First World War than any other category [68,000, or 58% of all patients].

During the First World War a radical change had taken place in the treatment of Combat Stress Reactions. An American psychiatrist, Dr. Salmon, devised a method of treating stress reactions close to the front (Kentsmith, 1986). Prior to this, in most armies psychiatric casualties were evacuated rearwards, and treated in large military / psychiatric hospitals. His method involved the implementation of three therapeutic principles:

- a. Immediacy - treatment took place immediately the symptoms of stress rendered the soldier unfit for duty;
- b. Proximity - casualties were treated close to the front, and their units; and
- c. Expectancy - throughout the treatment process the soldier was made aware that he was expected to return to his unit as an active combatant.

These principles remain current today and form part of the basis of AAPsych Corps' proposed Combat Stress Management doctrine, which will be discussed in more detail below.

Unfortunately, no such revolution in the treatment of those soldiers suffering delayed reactions took place.

World War Two

At the commencement of the Second World War, the lessons learned in WW I with regard to combat psychiatry appeared to have been largely forgotten. Annual admission rates for combat stress ranged from 20 to 48 % of total casualties (Mareth and Brooker, 1985). One division reported as

many as 50 psychiatric casualties per day (Labuc, 1987). Psychiatric casualties increased by 300% compared with the previous conflict, notwithstanding the fact that pre-induction psychiatric rejections were three to four times higher than for WW I (Figley 1978). In the early stages soldiers exhibiting war neurosis were again evacuated out of the combat zone. Only a very small percentage ever recovered sufficiently to return to active duty. In North Africa, 30% of all casualties were identified as psychiatric. Following treatment only 10% of those returned to the war (Hareth and Brooker, 1985).

In 1944, a U.S. Commission was established to examine the issue of war stress. By then, over 1 million soldiers had been relieved from duty for psychological reasons. The Commission consisted of a number of civilian psychiatrists and was headed by Dr. Menniger. They recommended that the term "Combat Exhaustion" be used as a diagnosis for an number of symptoms; including fear, mental and physical fatigue, performance guilt, hypersensitivity, withdrawal, depression, confusion, sleep disturbances, loneliness, anger, helplessness and irritability (Parsons, 1988). This was a recognition that fatigue played a major role in the onset of stress symptoms.

The US Army Commander, General Omar N. Bradley was the first to implement this classification. This occurred during the Tunisian campaign and it is purported that he made this decision so as to minimize the implication of the presence of a neuropsychiatric disorder (Rahe, 1988). At the same time, Salmon's principles of treatment were re-discovered, with the result that 60% of those treated were returned to active duty, a further 30% were able to be employed in non-combatant support role. Only 10% were sent home as unfit to serve.

For those individuals with persistent, long-term problems however, there was little or no recognition given to the impact of their exposure to trauma on the battle field. The primary cause of both acute and chronic combat stress reactions was still held to be the product of an interaction between predisposing and precipitating events in the psychic life and environment of an individual (Ellery, 1945). Ellery described psychological predispositions as "defects" acquired due to bad training in early life that gave rise to morbid complexes. He claimed that in one WW II study, 82%

of psychiatric cases had demonstrated this predisposition.

Korea

During the Korean War, lower combat psychiatric cases were experienced than in previous wars [approximately 30 in 1000]. This was attributed to the 9 month rotation period employed in that war (Figley, 1978). Military physicians were nevertheless better prepared. From the outset they employed Salmon's principle with the result that 85 to 90% of combat fatigue cases were returned to active duty (Nareth and Booker, 1985).

Vietnam

The Vietnam War was the next major conflict to involve the United States and its allies. From the start of the war, the Americans pursued an active programme of prevention and early treatment of combat stress [known as combat exhaustion] (Boman, 1982). Early in the war, official figures suggested this policy was working, with rates as low as 12 per 1000 being cited [lower than for soldiers still in the USA at that time] (Boman, 1982).

Boman (1982) analyzed statistics available on casualty rates for US soldiers in Vietnam, and came to the following conclusions:

- a. Although some authorities claimed a combat exhaustion incidence rate of 6%, there was a 40% rate for character and behavioural disorders. Character and behavioural disorders were not considered to be psychiatric problems, and the men so diagnosed were handed back to the command administration as being deemed not suitable for treatment. However, as Boman notes, the factors used to arrive at a diagnosis of a character or behavioural disorder (including somnambulism, bed wetting, anxiety, dreams, amnesia after explosions, conversion and dissociative reactions, and psychosomatic complaints) all fit the classic pattern of combat stress reaction. One psychiatrist, who diagnosed 960 of 1,000 men referred to him as character disorders - "Anti Social Type", had them returned to command for discipline without treatment. He stated that he felt psychiatry was becoming involved in an attempt to protect men who were refusing to honour their obligation to their society and country.

c. The US also used pre-military factors in their diagnosis. A soldier having a history of pre-military service adjustment problems was almost automatically excluded from the classification of combat exhaustion. Boman (1982) notes that because of this approach, very large numbers of casualties could therefore have been excluded from the statistics associated with combat stress. He describes the interesting situation of individuals who had served more than nine months on a tour of duty before exhibiting symptoms of combat stress being diagnosed as character disorders, because of a pre-service history of maladjustment; while pre-service "healthy" individuals who experienced stress much earlier in their tour of duty were diagnosed as combat neuroses sufferers because of their "clean slate" prior to service.

c. Often men who began to display symptoms of stress were first treated by the unit medic. He would administer reassurance, encourage them to ventilate their feelings, then return them to their units. They would not be included in official records as casualties.

d. The soldiers also implemented measures of their own to deal with, or vent, their anger, frustration and fear. Drug abuse, violent activity directed towards their comrades [fragging], insubordination (Boman, 1982); and abusive violence towards enemy and non combatant indigenous populations (Grady, 1989), reached levels never before experienced by an American army. None of this behaviour was seen to be indicative of an official combat exhaustion reaction.

Shatan (1973) also observed that a denial and numbing effect could well have convinced US physicians that combat neurosis rates were lower for the war than they actually were. Because of the rotational system of tours of duty, soldiers could utilize these defence mechanisms during periods of non-combat in order to maintain normal functioning. These processes have been found to be capable of controlling stress reactions for prolonged periods after the war experience.

From the above it would therefore seem reasonable to assume that based on today's diagnostic and treatment approaches, the incidence of combat stress among US soldiers in Vietnam was probably much higher than official figures indicated.

Australia

The Australian contingent in Vietnam did not have a psychiatrist on staff until 1969. This meant that there was only specialist psychiatric access for approximately two of Australia's ten years of involvement. The data presented below covers the period June 1969 to December 1970 (Boman, 1982).

During that period a total of 50 soldiers per 1000 were diagnosed as psychiatric casualties. When a distinction was made between support and combat troops, the following figures were arrived at:

- a. 86 per 1000 for support troops, and
- b. 38 per 1000 for combat troops.

These figures would appear to be at odds with what one would predict. It would seem reasonable to expect a greater incidence of CSR amongst troops actually engaged in combat activity. Boman suggests however that for Australian troops in Vietnam, fear of the unknown was a major contributor to war stress. Combat patrols were, more often than not, uneventful. Combat soldiers were aware of this, so the jungle was less of a threat for them. Support troops, on the other hand, knew little of what was outside the perimeter so it was easier for them to develop unsettling anxieties and fears of possible danger. Boman notes that there were a number of instances where support soldiers became much more at ease within the confines of the bases once they had participated in a combat patrol, and had seen for themselves what lay "beyond the wire"

Other statistics of interest included:

- a. 80% of combat stress casualties were between 19 - 23.
- b. In the over thirty group the following diagnostic patterns were identified:
 - (1) 30% = endogenous depression,
 - (2) 20% = obsessional personality disorder,
 - (3) 14% = neurotic depression, and
 - (4) 5 times greater alcohol abuse than overall group.

.. 56% of all combat stress casualties were Regular soldiers of the ARA, while 33% were National Servicemen. This ratio is slightly greater than the ratio of Regular soldiers to National Servicemen who served in Vietnam. However, National Service soldiers tended to present one month earlier than Regular soldiers. In the US experience, a fall in the number of combat stress casualties coincided with the increased utilization of drafted soldiers.

d. Of all psychiatric casualties:

(1) 14% had a history of pre-service psychiatric disorders, of these 8% had received either in-patient or out-patient psychiatric treatment.

(2) 4% had a criminal record, and had been in corrective institutions.

e. Presentations for treatment peaked after 5 months service in Vietnam [compared with 3 months for US soldiers];

f. 20% of the psychiatric casualties were not dealt with in Vietnam.

The Israeli Defence Force [IDF] Experience

Prior to the Yom Kippur War in 1973 there had been little perceived need for a formalized Combat Stress Management programme; however, in the early phase of that war their accustomed dominance of enemy forces suffered a reversal. Over 900 of the first 1600 casualties evacuated from the battle were identified as psychiatric. Combat stress casualties for the duration of the war averaged 30% of total casualties (Salter, 1989). There was also a significant breakdown in morale within units. As a result, the IDF determined that an effective stress management process was urgently required.

The programme devised was, once again, built around Salmon's treatment principles. It was first employed in the 1982 war in Lebanon, with marked success. The percentage of soldiers who suffered a combat stress reaction during this war; and the exact statistics on the number of soldiers

treated and returned to the front have been classified by the IDF and are not available (Solomon and Benbenishty, 1986). Estimates of the success of the CSR management programme vary considerably in the literature for this reason, for example: 80% (Gabriel, 1982), 60% (Solomon and Benbenishty (1986), 95% (Rahe, 1988). However, if even the lowest estimate is taken, it is clearly a significant improvement of man power conservation at the front when compared with the alternative of evacuation to areas well to the rear.

Falklands War

During the war on the Falklands Islands, the Combat Stress Reaction rate reached only 8% (Price, 1984, see also Note 1). Compared with previous wars, for both Britain and other nations, this figure is extremely low. What is even more surprising was the absence in the Falklands of two factors thought to be closely linked to reductions in combat stress casualties:

- a. psychiatric treatment personnel in line units, and
- b. psychiatric screening of all evacuees (Price, 1984).

Price identified five optimal factors that he felt contributed to the unusually low CSR rate:

- a. The use of elite units. The British deployed units from the SASR, Paratroop Regiment, Special Boat Service, Marine Battalions, Gurkhas and Guards Regiments. The men from these units had been serving together for years, and many had seen active service in Northern Ireland.
- b. Duration. The Falklands Campaign lasted only 25 days.
- c. Indirect fire. In the Falklands the British experienced limited heavy bombardment, a complete absence of intense counter-attack and only intermittent air bombardment.
- d. Unopposed landing. The Argentines failed to take the initiative and offer resistance at the initial British landing at San Carlos Water.

Offensive and defensive posture. The British Army advanced rapidly in a fluid, mobile offense; using primarily light infantry weapons. At no stage were they forced into a significant defensive posture.

Price cites research examples that demonstrate that the obverse of these conditions on the Falklands have been closely associated with the onset of CSR in other theatres of war. He did not mention the issue of PTSD however, nor has any formal study of delayed reaction to combat in the Falklands yet appeared in the literature (Jones and Lovett, 1987). Following exposure by chance to three Falklands veterans in their medical practice who displayed symptoms in keeping with PTSD, they were prompted to write their article. They suggested that they may have just encountered the tip of the iceberg, and that:

"The comfortable conclusion that the Falklands War had remarkably few psychiatric casualties is not tenable."(p.35)

As a result of the lessons learned, and relearned, the combat environment is now generally accepted by clinicians as being an abnormal and traumatic one with the potential to overwhelm normal men. Future wars will involve the use of weapons with the capability for widespread devastation, disruption and trauma. Experiences encountered by soldiers will continue to exact their toll in the form of combat stress reactions. It would seem reasonable to predict that a figure of 25% of total casualties would be optimistically low in a significant conflict scenario. Given the limited manpower resources available, conservation by way of early recognition and treatment of these casualties would appear to be of vital importance to the Australian Defence Force. It is therefore critical that the reactions of an individual who ceases to cope adequately are viewed as normal rather than neurotic, by servicemen at all levels. They must be seen as a signal that he no longer has the resources to deal with the pressure of combat; that the only way he can maintain the integrity of his "psychic self" is to withdraw for a period to recuperate, and that having done this he will be in a position to return to an active combat role.

Hartman (1989) stressed the need for a comprehensive policy on battlefield stress management within the ADF. He identified three areas that he believed required development:

- a. Education,
- b. Realistic Training, and
- c. Battlefield Psychiatric teams

AAPsych Corps has, for a number of years, been in the process of developing a doctrine for the management of Combat Stress Reaction casualties. As of early April 1990, a proposal for an MLW of CSR management had been completed, and it will be submitted for approval before June 1990. The doctrine developed provides for a designated psychology unit [1 Psych Unit] to provide Combat Stress Management Teams [CSMTs] for deployment in the Area of Operations. These teams will utilize an extended version of Salmon's treatment model. This model incorporates his principles of Immediacy, Proximity, and Expectancy and adds to them:

- a. Military Milieu. A principle that stresses the need for CSR casualties to maintain their military identity. This will be achieved by keeping them in uniform, and assigning them non combatant duties around the treatment area. They will not be treated as if they are sick or incapacitated.
- b. Rest and Replenishment. Emphasis will be placed on providing the CSR casualty with an opportunity to "recharge" his physical and mental reserves.
- c. Simplicity: Psychological treatment procedures will be take the form of a simple "debriefing process" designed to give the soldier a chance to:
 - 1. talk over his combat experiences,
 - 2. ventilate some of his emotional reactions to the trauma he has experienced,
 - 3. be made aware that his reactions to it are a normal response to an abnormal situation, rather than the reverse, and
 - 4. learn appropriate stress management skills.

These therapeutic components are very similar to the strategies used currently with civilian communities following man made and natural disasters, and they have been found to be effective in facilitating improved stress management in traumatized populations.

- d. Supervision: CSR casualties will be treated within a CSR treatment centre, under the supervision of trained AAPsych Corps staff. [See Note 2].

KB9 saw the first such deployment of a CSMT, and two further deployments will occur during 1990. It is to be hoped that deployments will become an accepted element of military exercises in the future, given that there now exists a psychology unit within the ARA that is specifically tasked with the provision of stress management in the field.

It is recognized by AAPsych Corps that education of soldiers at all levels is an important factor in the prevention and management of combat stress. Some authorities (e.g. Noy, 1989) believe that the most efficient way of reducing the impact of CSR is to train all soldiers in stress management techniques prior to combat exposure. In other words - prevention is much more effective than cure. The Israeli experience suggests that some very simple and basic strategies employed at sub-unit and unit level can greatly reduce the incidence of CSR. 1 Psych Unit is currently developing an appropriate CSR management Aide-Memoire for use throughout the Army, and AAPsych Corps psychologists around Australia are available for unit training presentations covering a wide range of stress related topics.

It is clear from the above that at least two of the requirements identified by Hartman have, or are in the process of being addressed by AAPsych Corps. It is now up to the Army as a whole to recognize the importance of stress management, and to be aware that the resources already exist for its effective prevention and management.

PART 2

POST-TRAUMATIC STRESS DISORDERS AND WAR

"..(It) is folly to suppose that war has been forgotten even when a combatant tells you that it is not remembered. Human memory has a special way of keeping alive the "hot cognitions" despite a dearth of reinforcers. Even in the conscious there is a timelessness" (Penk and Robinowitz, (1987) p.3)

Introduction

PTSD is a relatively recent addition to the lexicon of psychiatric diagnoses. It is a diagnostic category under evolution. Several new criteria have been added to the DSM-III-R [e.g. Amnesia] that were not included in the previous edition. There has been considerable debate in the literature as to whether it adequately covers persistent stress responses or not (Keane, et al, 1987). Many individuals display some symptoms, but not others, and so can't officially be classified as experiencing PTSD (Kinze, 1988). This does not mean, however, that their suffering is any less acute or debilitating.

Within the civilian community, it is becoming important as a legal basis for compensation claims following disasters (Peters, 1990). There is the risk that it will become a self generating and perpetuating malaise because of the secondary gains associated with demonstrated symptomatology. It also runs counter to the age old military tradition of a "stiff upper lip". It is therefore easy to view it with a degree of suspicion and distain, particularly within a military context. It is proposed in this paper, however, that PTSD is a very real psychological problem for a great many individuals. It is further argued that PTSD, like CSR, is to a degree preventable; but only if attitudes towards stress within the Defence Force are "modernized". It is often said that the most important asset to the services is the serviceman. It is certainly time that some of the energy and investment that is expended on the modernization and maintenance of other assets was emulated in the sphere of manpower.

The Vietnam War has often been described as unique in terms of the stressors encountered by soldiers (Boman, 1982; Warner, 1985; Raphael and Middleton, 1988). Factors such as:

- a. the guerrilla style of combat waged by the enemy, and their anonymity;
- b. the 12 month individual rotation policy adopted by the Americans;
- c. the rapid transition available from combat zone to home;
- d. the high incidence of atrocities;
- e. the lack of popular support at home;
- f. the high degree of upto date "full living colour" coverage of the war by the media;
- h. the extensive use of chemical and mechanical environmental control;
- i. the lack of any significant homecoming celebrations or rituals; and
- j. the silence following the war;

have all been cited by researchers and veterans alike as unique aspects of that war that have impeded psychological adaptation to post-war life (Marshall, 1987 and Raphael and Middleton, 1988). There is no doubt that Vietnam and its aftermath have sparked an resurgence of interest in the long-term psychological consequences of war on the participants. It is also evident that the predominant veteran groups used in studies of PTSD have come from the Vietnam War (DeVance Hamilton, 1987). This should not be taken as an inference that the Vietnam War was unique from the point of view of PTSD. It will be argued below that PTSD is a feature of all wars.

Section A: Aetiology of PTSD

Since the official recognition of PTSD, considerable debate has occurred in the literature as to what elements of that service are critical to the precipitation of the disorder; and to whether or not the classification adequately accounts for psychological disturbances arising from combat service.

Early formulations of both acute and persistent battle stress reactions could be classified under

two broad headings (Foy et al, 1987). The first was the Stress Evaporation paradigm, which held that stress in combat was an acute reaction that would resolve once the individual was removed from the stress inducing environment. Neurasthenia and Battle Exhaustion are two examples of this. As has been noted earlier, any persistent stress reaction was held to be primarily caused by pre-existing psychopathology which was simply exacerbated by the combat experience.

The second was known as Residual Stress. In this model, the emphasis was on the combat experience itself. Every human being was held to have a "breaking point", beyond which stressors could no longer be tolerated. It was argued that these stressors could continue to influence behaviour long after the individual had been removed from combat (Foy et al, 1987). Current research trends favour the latter paradigm.

Until recently, both these models assumed combat to be single, global variable that acted on all individuals in the same way. Current research suggests however, that it is more likely to be a multi-dimensional in nature. Table 1 lists the combat variables identified in one recent study as being associated, to varying degrees, with the later onset of PTSD.

Table 1
Combat Variables associated with PTSD in Vietnam Veterans
(Card, 1987)

- | | |
|--------------------------------|--|
| * Received fire from the enemy | * Saw American dead |
| * Fired own weapon at enemy | * Saw enemy dead |
| * Killed enemy | * Found self in situation where survival was in jeopardy |
| * Saw someone get killed | * Received injury |
| * Saw enemy wounded | |
| * Saw American wounded | |
-

Some of the elements that make up the combat dimension, and their role in the aetiology of PTSD will be reviewed below.

Combat Exposure and Pre-service Morbidity

Since the inclusion of PTSD in the DSM-III a number of studies have been conducted to examine the link between exposure to stress in combat, and the later onset of PTSD symptoms. In 1980 Ewalt found that 33% of Vietnam Veterans who saw heavy combat were suffering from PTSD, and that the prevalence of such disorders depended much more on the veteran's exposure to combat stress than background factors (in Boman, 1982). Foy (1987), Foy, Carroll et al (1987) and Foy and Card (1987) have examined this issue in more detail and found a statistically significant link between PTSD and combat exposure, but not with pre-military adjustment.

Elder and Clipp (1988), on the other hand, in a study utilizing WW II and Korean veterans, determined that pre-service psychological adjustment was closely associated with later emotional problems. They argued that veterans who had been rated as self-inadequate [high scores on anxiety and bodily tension measures, and described as moody, introspective, self preoccupied and prone to unconventional thoughts] as adolescents, displayed greater emotional problems in the years after the war [See Note 3]. In attempting to explain this result they suggest that people so constituted psychologically are perhaps substantially more capable of reflection, with the result that the experiences of war become more traumatic for them.

People differ on demographic and personality dimensions and these affect how they integrate a traumatic event (Green and Grace, 1988). This suggests that some people are indeed better equipped to deal with combat stress, and are able to assimilate the experience into the fabric of their "world" and "self" views more effectively (Solomon et al, 1982). It is most probable that pre-service factors do play a role in this process; but that they do not involve the gross personality disorders previously thought to be responsible. Instead, it is likely that these differences can be attributed to factors more subtle in their manifestation.

Laufer (1988) argues that for most individuals, a war experience occurs during late teens and early twenties; a period of turmoil and adaptation as they seek to establish their adult identities. For a war experience to occur at that time disrupts and alters the growth of adult constructs,

having a "war self" which is underpinned by the "death principle". It is pre-occupied with death and survival. He further argues that the war experience is transitory, and that the "war self" becomes redundant throughout the remainder of the individual's life. It continues to exist however, along side the "adaptive civil self" - a construct that seeks to integrate an individual's identity across biographical time - in an antagonistic relationship. He concludes that there is no possibility that survivors of war can avoid this dialectic reality, and that the only way conflict can be controlled is by the strengthening of the "adaptive civil self" so that it remains the dominant element.

Heavy versus Light Combat Exposure

A number of studies have compared heavy combat exposure veterans with light combat and non-combat veterans of the same era. They have all found that those exposed to heavy combat have experienced a greater number of PTSD symptoms than the other groups (Penk et al, 1981; and Ewalt 1980, in Boman 1982; Card, 1987; Kulka et al, 1988; True et al, 1988; and Long et al, 1989). Card's study, using a sample drawn from men who had all completed Year 9 at High School in 1960, found that 27% of those veterans who were exposed to heavy combat later developed PTSD. This compared with 19% for the Vietnam veterans group as a whole; and 12% for non Vietnam veterans and non veterans.

Abusive Violence [War Crimes]

A feature of the Vietnam War that has gained much publicity is that of abusive violence [atrocities]. In one study of American soldiers 22 % of veterans had witnessed abusive violence, while 9% had actively participated in it (Shatan, 1978). Grady et al (1989) demonstrated that the witnessing of abusive violence against civilians or soldiers was one of the most powerful predictors of a diagnosis of PTSD. It would appear that it has not been unique to that war however. Archibald and Tuddenham (1965) found a high association existed between the experience of war atrocities and persistent psychological disturbances among WW II veterans.

In 1963 a USA study conducted by Milgram focused on the issue of behaviour considered to

constitute war crimes. He established an environment in which the subject was encouraged, and/or ordered to administer apparently lethal electric shocks to another individual during the course of a learning experiment. This behaviour was sanctioned by the experimenter; with re-assurance being given that:

- a. he [the experimenter] would take full responsibility for the subject's behaviour, and the possible impact on the victim; and
- b. the experiment was important in scientific terms.

65% of subjects administered shock through to the end of the series, well beyond the indicated lethal level. None refused to administer shock at levels below an indicated 300 volts (Milgram et al., 1975). Variations on Milgram's study found that compliance rates diminished when subjects believed they would be held responsible for their actions, and when they could more easily identify with the victim by being placed in a position of close proximity to him (Milgram et al., 1975).

Shatan (1978) argued that in Vietnam two important elements of Milgram's study existed that facilitated the perpetration of atrocities. In the first place there was an authoritative sanction for killing. This is the case in any war. Secondly he claimed that there was a prevalent tendency to distance and dehumanize the Vietnamese.

Racial differences between perpetrator and victim possibly played a part in this latter process, however some researchers believe other factors are more important. Laufer et al (1984) found that PTSD were significantly higher among black American soldiers than among white. They argued that the white soldiers dehumanized the victims to a greater degree, and were therefore less affected by the atrocities committed. However, they were unable to identify a significant "racial" factor to explain the difference. Instead they proposed that different socialization of whites and blacks had led to a difference in the abilities of the two groups to identify and empathize with the Vietnamese.

Another aspect of the Vietnam War noted by Marshall (1990) that has led to persistent psychological reactions is that of unintentional or unavoidable abusive violence. The killing of civilians,

especially women and children, in ambushes set for enemy soldiers; and the discovery for example, that an enemy soldier killed in a contact was a young girl are often the primary content of nightmares and flash-backs in veterans he has counselled.

It is therefore imperative that soldiers' training stresses the importance of individual responsibility for the observance of rules of conduct in combat. Not only do transgressions by soldiers breach the moral, legal, and ethical obligations owed to both the local inhabitants of the combat zone, and the enemy; but they also pave the way for significant psychological distress for the soldier himself, in the years after the event.

Section B: Post Combat Factors - The Impact of Coming Home

Elder and Clipp (1988) argued that it was the war trauma itself, rather than the homecoming response, that was decisive in the onset of PTSD. Parsons (1988) however, proposed a "dual traumatic matrix" to explain the onset of symptoms arising from the Vietnam War. The two components of the matrix are:

- a. Vietnam Traumatic Stress - stress arising from the actual combat experience, and
- b. Sanctuarial Stress - stress from the failure of the people at home to honour their moral obligation to provide sanctuary, welcome, and celebration on the return of the combatants

He concluded that had the latter component of the matrix not been so significant in the war, the emotional problems evident in a lot of veterans would not have been so profound.

Marshall (1987), noted that for many veterans, the silence that followed the war was overwhelming. It seemed to them that the war vanished into limbo, with no one wanted to talk about it. They felt that no one appeared to care. Warner (1985) claimed that the lack of recognition and silence was unique to Vietnam. He argued that there wasn't the same postwar "reconstruction" for Vietnam veterans that there was for those who fought in WW II; and that it was closely linked to the perception that while WW II soldiers had represented "good" and had triumphed over "evil", the

Vietnam veteran had been an active agent in a "bad" war that had concluded as a failure. Penk and Robinowitz (1987) point out that the trend of "forgetting" and disinterest in the general community was paralleled in professional fields, with little clinical interest being shown until 1981.

Boman (1982) listed a number of strategies believed to be important in the successful reintegration of veterans into non-combatant roles. He suggested that these steps help reduce the risk of PTSD.

They include:

- a. Gradual rather than precipitous transition from combat to non combat roles.
- b. Re-orientation of combatants to civilian roles and routines.
- c. Formal ceremonies acknowledging the soldier and his change of status.
- d. The sharing of experiences with an immediate unit group.
- e. The forewarning of veterans of new stressors associated with transition
- f. The maintenance of meaningful non-combat roles.

A number of these require implementation by the broader civilian and military community. Several can however, be achieved by the instigation of a formalized "debriefing process" [specifically strategies "b", "d" and "e"]. It has been claimed that such a process was inadequately provided for in the case of Vietnam Veterans (Warner, 1985); since then a suitable programme has been developed by AAPsych Corps for use with all Australian soldiers involved in overseas and combat related service.

Section C: Rates of PTSD

Pre-Vietnam Conflicts

Examples of soldiers exhibiting the symptoms of PTSD can be found as far back as the beginning of recorded history. Herodotus (484 B.C.) was probably the first chronicler of war related stress when he described psychogenic blindness in a soldier who fought in the Greek and Persian Wars (Parsons, 1988). Homer's "The Odyssey" and "The Iliad" tell of the lingering effects of battle on

Ulysses throughout the ten years it took him to find his way home; to a less than warm welcome (Penk and Robinowitz, 1987)! In more recent times, descriptions of persistent, adverse psychological reactions to combat trauma date back to the American Civil War (Foy et al., 1987).

Because formal categorization of the specific symptoms of PTSD only occurred in 1980, research within the DSM-III terms of reference has encountered some limitations. Studies of pre-Vietnam conflicts have had to be conducted, at best, just under thirty years after the conclusion of war. As a result sample sizes have been small; and the results to a large extent, anecdotal in nature (DeVance Hamilton 1987). Many potential subjects are no longer alive; and locating, and convincing those that are to participate has been difficult. Diagnostic categories used during that era classified casualties in such a way that collation is difficult today. Another interesting confounding variable has been proposed by Marshall (1990). He suggests that for a number of reasons, some veterans of WW II have perhaps incorrectly attributed certain physiological symptoms they experience to persistent occasional bouts of malaria although they often have little correlation with the classic clinical picture of malaria, but do fit an assessment of combat related stress.

Regardless of these problems however, the research that has been conducted indicates that previous wars, like Vietnam, have exacted their toll on combatants (Glass 1955; Archibald et al 1962; Archibald and Tuddenham 1965); and that symptoms can persist for up to forty years after cessation of hostilities (Zeiss and Dickman, 1989). Brockway (1988) warns that symptoms can also appear suddenly after more than forty years of healthy functioning. DeVance and Canteen (1987) conducted a preliminary study of US Navy veterans attending a reunion. 16% indicated that they had symptoms in keeping with a diagnosis of PTSD [See Note 4]. Elder and Clipp (1988) recently assessed a number of WW II and Korean War veterans, and found evidence of significant emotional problems persisting through to the time of the study. In one Australian study, 46% of a sample of WW II veterans were found to be at risk of a diagnosis of a psychiatric disorder (Tennant et al, 1986).

One group of WW II veterans that has been studied relatively intensively are those who became

prisoners of war.

Harman and Horowitz (1988) reported that a 1969 study demonstrated that 99 % of 226 Norwegian survivors of a German POW camp had psychiatric disturbances years after they had returned to normal life. Zeiss and Dickman (1989) found that 50% of the sample of WW II POWs exhibited serious difficulties with PTSD symptoms. No clear patterns emerged in their study of symptoms, but they said that the syndrome could best be described as a waxing and waning process over the forty year period.

A study of Australian POWs captured by the Japanese in 1942 determined that a significant number [71%] suffered some form of psychiatric disorder, when compared with a control group of non POW combatants [46%] (Tennant et al, 1986). They noted that while many of these symptoms were elements of PTSD, they were not clustered in a manner that allowed that diagnosis. As with other studies, the chronicity of the symptoms was typified by a waxing and waning of severity. Mortality rates among POWs have also been assessed as being significantly higher than for non-combatant POWs (Dent et al, 1989). They found that the difference was most pronounced in a period covering the first five to fourteen years following the end of the war.

The Vietnam Experience and Its Aftermath.

Between the end of the Vietnam War and the inclusion of PTSD in the DSM III, there was no official recognition of the problems facing veterans. This situation can be attributed to a number of factors, including the attitude of the community to the war and the combatants; and the continued belief that veterans exhibiting psychiatric symptoms had some form of previous pathology that was simply exacerbated by the war. This reluctance to confront the problem persisted in the face of some fairly convincing statistics. For example, Boman (1982) notes that in 1975:

- a. 30% of all male US Federal Prisoners were Vietnam Veterans,
- b. suicide rates among combat veterans was 23% higher than for the general population, and
- c. 100,000 veterans had died since repatriation.

Zeiss and Dickman (1989) claimed that the rate of PTSD for Vietnam Veterans was between 15 and 30%. Raphael and Middleton (1988) placed the upper limit at 35%. Card (1987) found that 19% of all Vietnam veterans in one study still displayed symptoms of PTSD in 1983. Kulka et al (1988) estimated that 15% or 480,000 U.S. male veterans were experiencing full PTSD symptomatology, with a further 11% experiencing partial PTSD; a total of 830,000 individuals. They also suggested that female Vietnam veterans appeared to be having greater difficulties with readjustment than males. Spiller (1988) noted that there are some authorities who believe that between 70 and 80% of all American Vietnam veterans will suffer some form of PTSD during the course of their lives.

In Australia, the Vietnam Veterans Counselling Service has seen 6500 veterans [approximately 13%] for counselling (Marshall, 1990). This figure includes counselling for a variety of problems, in addition to PTSD; but does not include those who have been treated by other services, or who continue to deal with their symptoms without seeking help.

Post-Combat Social Ramifications

A number of studies have identified a significant link between PTSD and post military psychosocial adjustment (Foy, Carroll et al, 1987; and Long et al, 1989). PTSD symptomatology has been found to be significantly associated with social isolation and reduced emotional and social support (Keane et al, 1985).

Table 2 lists the percentages of presenting problems dealt with by the Australian Vietnam Veterans Counselling Service, as reported by a Committee of Evaluation in 1985 (Marshall, 1986).

Card (1987) found that PTSD was associated significantly with divorced, separated and single marital status. They noted that there was no way of determining from their data whether PTSD led to marital breakup, or whether being single heightened the symptoms of the disorder. In another study, examining IDF soldiers who fought in the war in Lebanon, married CSR casualties had a significantly

higher number of PTSD symptoms than unmarried CSR casualties (Solomon, Z. et al., 1987). The reason for these contradictory findings has yet to be explained.

Table 2

VVCS Committee of Evaluation Estimate of Presenting Problems

Presenting Problem	%	Presenting Problem	%
Service Related Medical	34	Employment Related	21
Relationship - Spouse	34	Violent Behaviour	19
Depressed State	26	Herbicide Exposure	18
Irritability - Moodiness	26	Financial	17
Anxiety - Fears	24	Relationship	17

PTSD has also been correlated with missed days of work, relatively heavy drug consumption, relatively more frequent arrests, the seeking of professional help, and hospitalization for non medical problems. A slight relationship has also been identified with low academic achievement, but no correlation was established with with employment attainment (Card, 1987).

In conclusion, given the limited data available, it is reasonable to assume that the incidence of PTSD among Vietnam Veterans is not significantly greater than for previous wars. This assumption is supported by professionals currently working with Vietnam Veterans (e.g. Marshall, 1990). The majority of research suggests a PTSD rate of somewhere between 15 and 35% regardless of which war is examined. Even if the lower limits are considered, it is quite clear that a large number of veterans have suffered persistent psychological disturbance as a result of service to their country, and that these symptoms have significant ramifications in other aspects of their life.

Section D: Treatment

Marshall (1986) identified a number of treatment needs for PTSD clients. They include:

- a. Re-experiencing the traumatic event, either imaginally or with the assistance of cues, preferably with someone who has been through the process themselves.

- d. Identifying the emotional content of those memories, and their impact on the person now.
- e. Examination and acceptance of the facts associated with the event and its impact.
- f. Examination of how the event has affected their value system, and the formulation of judgments about its impact.
- g. Examination of the changes that have occurred to their self image as a result of the experience.
- h. The development of a positive self image that includes their experience.
- i. The management of specific problems arising out of the PTSD experience.

He argues that skills from a wide range of therapy approaches can be successfully utilized to satisfy these needs.

In a review of the literature, Fairbank and Nicholson (1987) considered three major approaches to the treatment of PTSD: psychodynamic, behavioural and biochemical.

Psychodynamic

They note that there is no one psychodynamic approach to PTSD treatment. What exists are a number of approaches that can be broadly described as belonging to this therapeutic tradition. Early models of trauma assumed that reactions were caused by energy overload which led to "binding", "discharging" or "abreacting" as the Ego sought to re-establish homeostasis. Recently however, information overload has replaced energy overload as the precipitating dynamic. In order to adjust, it is argued that the individual has to reconcile the traumatic event with the internalized schemata of his self concept and world model. Emotions are held to be reactions to inconsistencies between these two components. The actual intervention techniques vary according to the presenting symptoms, but the goal of therapy is always the integration of the traumatic experience, usually by way of a process of therapeutic revivification.

To achieve this Horowitz (1986) suggests the following sequence:

- b. The creation of a safe and communicative relationship
- c. Reappraisal by the patient of the traumatic events. This allows the individual to effect a revision of his inner schemata and the external world, which in turn allows him to begin making new decisions and engage in adaptive action.
- d. The repetition and deepening of this process as the patient achieves new levels of awareness.
- e. The formulation of a plan of separation from therapy.

Behavioural

With this approach, the role of both classical and operant conditioning in the development of PTSD are emphasized (e.g. Foy et al, 1987).

Fairbank and Nicholson (1987) have identified two broad categories of behavioural intervention. The first is based on exposure therapies such as overt and covert systematic desensitization and flooding. These utilize the memories of trauma as their primary target, and seek to reduce conditioned arousal to them by controlled exposure to stimuli associated with them. The second approach involves the development of stress management and relaxation strategies that focus on the control of symptoms. Boman (1985) cautions that the use of the latter strategies on their own, while tackling some of the discomforting symptoms of PTSD, may actually retard the ability of the veteran to come to grips with his combat experiences during the therapy process.

Biochemical

There have been a number of studies demonstrating that exposure to stress inducing environments can cause alterations to the Central Nervous System (e.g. Buckley, 1972).

Biochemical strategies for the treatment of PTSD have recently focused on the association between norepinephrine [noradrenaline] levels and exposure to trauma. Noradrenaline, and its derivative adrenaline, are neurotransmitters involved in the physiological mechanisms of arousal. They are discharged in emergency situations, and have been described as the "preparation for flight or fight"

(Cannon, cited in Ganong, 1983). They facilitate such changes as increases in blood pressure and heart rate, constriction of blood vessels in the skin [to help reduce bleeding], elevation of blood glucose and free fatty acid levels [increasing available energy], dilation of pupils [which improves visual acuity], and reduction of thresholds in the reticular formation of the brain [increasing the alert, aroused state] (Ganong, 1983).

Laboratory studies have demonstrated that profound depletion of noradrenaline occurs following exposure to significant prolonged or inescapable stress (Fairbanks and Nicholson, 1987). It is believed to be linked to the behavioural phenomenon of "learned helplessness" observed in animals exposed to such conditions. It has also been hypothesized that chronic noradrenaline depletion can lead to "adrenergic hyperactivity". Severe depletion of noradrenaline, caused by exposure to prolonged stress, leads to a "default" state of tonic underactivity of noradrenaline mediated behaviour. In this state an individual becomes susceptible to overactivation following transitory stimulation. It is argued that this sensitivity could account for the seemingly contradictory behavioural patterns of decreased motivation and lethargy occurring in conjunction with the hyperactive symptomatology of PTSD (e.g. the exaggerated startle response, intrusive thoughts, nightmares and uncontrollable anger).

A number of studies (reviewed in Fairbank and Nicholson, 1987) have recently investigated the efficacy of the monoamine oxidase inhibitor [MAOI] Phenelzine as a therapeutic intervention for PTSD. Monoamine oxidase catalyzes the breakdown of reabsorbed noradrenaline in the adrenergic neurons. Phenelzine inhibits this process and therefore increases the concentration of noradrenaline available for synaptic transmission (Wood, 1982). This has the effect of counteracting the depletion of noradrenaline caused by the trauma experience.

Salter (1989) has approached the problem from another angle, and suggests that supplementing soldier's diets with the amino acid tyrosine while in combat environments. Tyrosine is a precursor of noradrenaline, and is found in a wide range of common foods. At dietary levels it is safe and non-toxic. He suggested that while in combat, soldiers' dietary intake is reduced,

particularly in high stress situations. Intake of food containing tyrosine therefore declines, creating a situation whereby reserves of noradrenaline, in addition to being depleted by the direct action of responses to stress, are further limited by reductions in the amino acids they are derived from. He suggested that some form of tyrosine supplement, either as a tablet or fortified drink, would greatly enhance a soldier's ability to cope with stress.

It is worth considering that often the only treatment required by a combat stress casualty is rest and food. Given the opportunity to re-establish food reserves, including tyrosine, many soldiers will be ready to return to combat within 24 to 48 hours following onset of stress symptoms.

The problem with biochemical approaches, as with some behavioural interventions, is the fact that while they may act upon symptoms of PTSD, they do not necessarily facilitate a cognitive or emotional process that will bring about successful internalization of the traumatic experience. They may only serve to mask the deeper psychological inconsistencies. In the studies reviewed by Fairbanks and Nicholson most of the successful interventions, including those purported to be of a behavioural or biochemical nature, included some form of psychotherapy that focused specifically on the traumatic experience. They concluded that the single most important factor appeared to be the direct therapeutic exposure of the traumatic event itself. In the final analysis, PTSD symptoms are likely to persist until such time as the traumatic experience has been successfully and comfortably integrated into the individual's world and self models.

Section E: Summary

It will be clear from the above review that there are many facets to the experience of combat, and its relationship to CSR and PTSD. The combat variable is the produce of a complex interaction between the individual and his environment (Zeiss and Dickman, 1989), and the role that each of these elements plays in the aetiology of PTSD has yet to be clearly defined. Prior to the inclusion of PTSD in the DSM-III, the primary factor was deemed to be an individual's pre-service morbidity. Since 1980, the focus has shifted to an investigation of the combat experience itself.

As knowledge in that area has been extended it has become clear that combat represents a complex multidimensional variable. There is still a long way to go before it will be fully defined.

Notwithstanding the current emphasis of the environmental aspects of combat stress, it is also clear that soldiers do react differently to battle conditions and experiences. An understanding of the relationship between PTSD and pre-service psychological adjustment has been hampered by the problems associated with retrospective analysis of incomplete data, over long periods of time. It would therefore be of value to establish a comprehensive data bank of quantifiable measures of psychological adjustment for all service personnel in Australia. This could be achieved by the inclusion of appropriate psychological tests for all avenues of entry into the Services. In the event of mobilization longitudinal studies could be conducted that would provide clinicians and researchers alike with a greater understanding of the genesis of PTSD.

Stress in combat would appear to produce two reactions, an acute "in situ" response known as a Combat Stress Reaction, and the delayed, persistent syndrome of Posttraumatic Stress Disorder. The relationship between these two remains unclear at the present time. It is worth noting that CSR rates appear to involve between 25 to 30% of total casualties, while PTSD affects between 15 to 30% of all combatants. One of the clinical features of PTSD is that of initial denial and numbing. These two factors could account for the discrepancy between the incidence rates of the two reactions. It is possible that if soldiers in the combat zone were encouraged to ventilate anxiety and fear more openly, within the context of a formal CSR management programme, there would be less risk of PTSD later in their lives. This is the premise upon which the process of "critical incident debriefing" for trauma inducing disasters within the civilian community is based and it would appear to equally as pertinent to the management of combat stress within a military context.

In future wars it will be inevitable that soldiers will experience greater stress than has been the case in the past (Weick, 1985). It is probable that they will experience so much strain that they will breakdown in greater numbers than previously, regardless of whether they come into direct contact with the enemy or not (Keegan (1976), cited in Weick, 1985). It therefore follows that

PTSD and CSR rates would be expected to be high, unless comprehensive programmes have been established to offer effective stress management. Servicemen and women are the Services' most important asset. In a combat environment they are called upon to make enormous sacrifices in the performance of their duty. It is often easy to overlook, or ignore, the impact of those sacrifices on them as individuals. There is a obligation owed in return to ensure that the cost [both physical and psychological] of those sacrifices is minimized to the greatest possible extent once their duty is done.

It behoves us not to forget the lessons so painfully learned in the past by our predecessors.

Bibliography

Notes.

1. The figure refers to the percentage of Total Casualties that were diagnosed as CSR. Price (1984) actually cited 2% however, in a footnote to Price's article; COL P. Abraham L/RAMC indicated that the statistics available to Price when he wrote his article were incorrect, and that the true estimate was four times Price's figure. These are still quite low in comparison with other theatres of combat.
2. These principles give rise to the useful training mnemonic IMPRESS.
3. Elder and Clipp (1988) utilized data collected by the Institute of Human Development, University of California to obtain adolescent scores on the Californian Q-Sort for their study. It should also be noted that the sample size for the comparison referred to here was particularly small i.e. Total N = 22.
4. The study referred to here was a preliminary study, and utilized a very small sample i.e. 32 respondents. The important point about the report is however, that the authors identified this ratio in a study of people at a reunion. They were not from a clinical population that had sought assistance through one of the counselling agencies - which is the case with many of the other studies. In such a situation, the ratio detected is of some interest.

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