

**THE PSYCHOLOGICAL SEQUELAE
OF INVOLVEMENT IN COMBAT: A
PRELIMINARY INVESTIGATION**

THESIS

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by

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This thesis is dedicated to Lisa.

Abstract

The psychological sequelae of being involved in combat are only recently coming to be understood. Most of the available data are from research conducted on help-seeking Vietnam veterans in the United States, and very little work has been done in South Africa. There does not as yet appear to be any instrument designed specifically to detect combat-related psychopathologies amongst soldiers who are still in active service, either in the USA or in South Africa.

Combat involvement has been shown to lead to a high incidence of combat stress reaction. This in turn has shown that it can predispose sufferers to the development of a Post-traumatic Stress Disorder. It is thus expected that there would be significantly higher incidences of reported symptoms of stress disorders amongst soldiers exposed to high levels of combat as compared with a similar group of soldiers who had no combat involvement.

This study used a self-reporting questionnaire, developed in the USA but adapted for use in South Africa, to allow the soldiers in the study to rate the severity of various symptoms derived from the DSM-III criteria for Post-traumatic Stress Disorder. A Beck Depression Inventory was also administered to eliminate any persons who may have been exhibiting symptoms of depression, as this would have confounded the results. Both questionnaires were administered to serving members of the Permanent Force of the South African Defence Force, with one group being members of various high-combat units based in what was then South West Africa, and the other group being non-combat or Headquarters elements. As a precondition of the study, absolute confidentiality of the respondents and their units was maintained.

The study found the expected higher scores in the high-combat group, and also showed that the Keane questionnaire has a good coefficient alpha in South Africa. The study closes with several recommendations for further research, especially in the light of the new PTSD criteria in the DSM-III-R.

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Chapter One

The Concept of Traumatic Stress

The manner in which individuals perceive an objectively stressful situation can influence their reaction to that situation, and this leads to the more recent definition of stress as being:

An interaction between the person and the environment which is perceived as taxing or exceeding one's resources (Last & Hersen, 1988).

Individuals exposed to situations of extreme stress or trauma may suffer a diversity of negative short and long term consequences in terms of their physical and mental health, with the possibility that some may experience alterations in their basic character structure (Wilson, Harel, & Kahana, 1988).

Miller (1989) states that traumatic experiences can create anxiety, stress and tension of sufficient magnitude to impact severely on the psychosocial well-being of an individual.

The Response of the Individual to Trauma

According to Horowitz (1976), one of the most frequent observations made in clinical studies of people suffering from stress after having been exposed to trauma is of intrusive repetition in thought, emotion and behaviour. This intrusion is

often combined with related but antithetical responses such as ideational denial, emotional numbness and behavioural listlessness.

Van der Kolk has defined the response to psychological trauma as "phasic reliving and denial, with alternating intrusive and numbing responses" (1987). The intrusive responses are defined as hyper-reactivity, explosive aggressive outbursts, exaggerated startle responses, intrusive recollections such as nightmares and flashbacks, and re-enactment of situations reminiscent of the trauma. The numbing response, however, is defined as emotional constriction, social isolation, retreat from family obligations, anhedonia and a sense of estrangement.

DeFazio (in Figley, 1978) has listed some general characteristics of psychopathologies that result from exposure to trauma. These include instability, regressiveness, delayed onset of symptoms, guilt and traumatic nightmares.

Considerable debate has centred around the question whether certain persons are more disposed towards suffering stress than others, in response to a given traumatic event. Kobasa (1979) suggests there may be a "hardy" personality that is more able to cope with stress, and Spielberger and Saranson (1975 p. 46), who postulated that the ability to tolerate stress "may be partly a hereditary potentiality", also support the idea that the vulnerability of individuals before the stressful event will

act in disposing them towards experiencing stress (the Stress Evaporation Model).

The opposing (and more popular) perspective suggests that anyone exposed to a severe stressor could be expected to develop symptoms of stress (the Residual Stress Perspective). This is discussed later.

The Concept of Universal Stressors

Last and Hersen (1988) have stated that the only situations that appear to be universal stressors are extreme life-threatening events. These include man-made disasters such as wars and usually involve five common elements (Wilson, Harel, & Kahana, 1988), which may render "... environments universally stressful and serve to reduce individual differences in responses" (p. 59).

These are:

1. The total life experience is disrupted.
2. The new environment is extremely hostile, threatening and dangerous.
3. Opportunities to remove or act on the stressor environment are severely limited.
4. There is no predictable end to the experience.
5. The pain and suffering associated with the experience appear to be meaningless and without rational explanation.

Although overwhelming life events that can cause stress reactions are many, including earthquakes, wars, avalanches and mudslides, rapes and assaults, experiencing or seeing violence and death, and hosts of others, the one stressful event that has probably been researched the most is the involvement of an individual in combat. The history of the world is littered with conflicts and wars of various sizes and intensities and, in some countries, whole populations have been exposed to the horrors of warfare. It is this area that is the focus of this study.

Chapter Two

Problems Associated with the Experience of Combat

Although descriptions of, and information about, a clinical syndrome resulting from involvement in combat has existed since biblical times and, according to Veith (1965, as cited in Figley, 1988) the origins of hysterical reactions can be traced back to the earliest Egyptian military writings of 1900 BC, combat psychiatry in general and the diagnosis of combat-related Post-traumatic Stress Disorders in particular are of recent origin. Prior to World War I, psychological casualties resulting from war were seen as being weak, or lacking in discipline (Figley, 1978). The condition earned such names as "Soldier's Heart" (Horowitz, 1976) or "Irritable Heart" (Scrignar, 1988).

The First World War saw the emergence of one of the earliest psychopathologies seen as being related to involvement in combat. This was called "shell shock", and was believed to be the result of some kind of brain damage from the air blasts caused by high explosive shells. Since the start of the First World War, the large numbers of people treated for combat-related stress disorders has helped in the development of detailed and accurate symptomatology. Freud (1919, as cited in Figley, 1978 p. 25) regarded "war neurosis" as resulting from an ego conflict between the soldier's former peaceful ego and the newly acquired militaristic one, which is life threatening. Since that time, many data have been collected and various

syndromes or constellations of symptoms have been isolated.

According to Yager, Laufer and Gallops (1984), violent experiences in war were associated with a variety of behavioural and emotional problems. They used a sample of men who were of military age during the Vietnam war ($n = 1342$) and, controlling for pre-service background factors, found that:

combat exposure showed an association with ... symptoms of traumatic stress (p. 327).

Similar findings were reported by Elder and Clipp (cited in Wilson, Harel, & Kahana, 1988) who studied veterans of World War II that had been exposed to heavy combat. This sample was described as running a high risk of experiencing emotional and behavioural problems after the war, and their postwar experiences were marked by combinations of anger, irritability, anxiety, sleep disturbances and depression. Even in later life (after age 55), some of these men had stress symptoms such as flashbacks or nightmares, painful intrusive memories and feelings of guilt at surviving.

Further corroborative evidence has been supplied by Hocking (1970, as cited in Wilson et al., 1988), among many others.

Although most of the definitive research into psychological disorders resulting from exposure to war-related stressors has been conducted on the American veterans of the Vietnam conflict, there appears to be no reason to believe that the disorders are unique to, or inordinately common among, Vietnam veterans (Thienes-Hontos, Watson, & Kucala, 1982). The young soldiers that were involved in the Vietnam conflict were, however, exposed to a variety of extreme stressors, for a tour of duty that lasted approximately 12 months (Mullis, 1984). These stressors gave rise to a host of psychological disorders amongst those who experienced them, including a cluster of symptoms that did not fit into any of the then-recognised classifications. Modlin (1967) coined the descriptive term "post-accident anxiety syndrome" to describe the psychological disorders arising from exposure of the individual to an extreme stressor, and this clarified the concept of the syndrome which would come to be described as Post-traumatic Stress Disorder in the 1980 edition of the DSM-III (Scrignar, 1988).

Still more work of relevance has been done by several Israeli researchers, such as Bar-On (1983), Gal and Manning (1987), Solomon, Oppenheimer and Noy (1986) and Solomon, Weisenberg, Schwarzwald and Mikulincer (1987). It appeared that in some soldiers exposed to heavy combat there was an initial "Combat Stress Reaction", defined as being:

marked by a sense of inadequacy in coping with a real and acute threat to life. The soldier experiences a feeling of loss of control accompanied by an overwhelming anxiety and a marked decline in functioning (Solomon et al., 1987).

This same study found that some 59% of soldiers with combat stress reaction went on to develop a more serious condition, described as Post-traumatic Stress Disorder (PTSD), as compared with 16% of soldiers without combat stress reaction who developed PTSD (Solomon et al., 1987). A very clear link was thus established between combat exposure and development of combat stress reaction, and also between suffering from combat stress reaction and a predisposition to the development of PTSD.

The symptomatology and etiology of these Post-traumatic Stress Disorders is considered in the next chapter.

Chapter Three

The Development of the Concept of Post-traumatic Stress Disorders

The American Psychological Association (APA) outlined in 1980 for the first time some diagnostic criteria for, and a description of, a "Post-traumatic Stress Disorder" consisting of a unitary syndrome comprised of three symptom clusters. The first symptom cluster includes all those symptoms related to the re-experiencing of the traumatic event, the second cluster includes symptoms of reduction in involvement in interpersonal relationships and lessened responsiveness and the third cluster includes assorted symptoms such as survival guilt, exaggerated startle response, sleep disturbances, avoidance of activities that provoke remembering the traumatic event, memory disturbances and concentration difficulties (Glover, 1988). There are of course other context-specific symptoms that the clinician may note, since for example the stress reactions provoked by exposure to combat can be said to "... vary phenomenologically from war to war" (Bar-On, 1983).

The onset of PTSD is defined as delayed if the onset of symptoms is at least six months after the trauma (DSM-III-R, 1987). If symptoms occur within the first six months, the condition is described as being acute. If the symptoms persist for longer than six months, the disorder is classified as chronic.

The Formation of Post-traumatic Stress Disorder

Although there are many types of extreme trauma that can result in the formation of PTSD, the exposure of the individual to the specific stressors found in combat has been most extensively researched. It has also recently been proposed (Glover, 1988) that combat-related PTSD may be a separate entity composed of as many as four syndromes.

There is a vast amount of information, based on observation, description and explanation of combat-related psychological disorders that arose during and after World Wars I and II. This information is, however, mainly centred around uncontrolled case studies (Foy, Carroll, & Donahoe, 1987) and shows a distinct bias towards etiological models that favour individual personality and premilitary adjustment, rather than the severity of the trauma itself. It was only after the Vietnam War that better controlled studies changed this emphasis, allowing a greater concentration on traumatic variables rather than predisposition.

Wilson and Krauss (1985 as cited in Wilson, Harel, & Kahana, 1988 p.84) made a systematic study of Vietnam veterans both with and without PTSD. They found that the best predictor of PTSD in Vietnam veterans was the extent of combat involvement, subjectively experienced exposure to injury and death, and psychological isolation on returning home from the war. Using multiple regression analysis of the best predictors of seven symptoms of PTSD, Wilson and Krauss found that exposure to scenes of injury and/or death as well as psychological isolation on returning home from the war were able to account for the greatest proportion of variance in the subsequent appearance of the 'intrusive imagery' symptom of PTSD. Psychological isolation, but not injury and death, was the best predictor of the other six symptoms of PTSD, thus indicating that the intrusive imagery is often a specific stress response.

According to Wilson et al. (1988), the older veteran population will number about 9 million by the year 2000. Work done on this population has been detailed and thorough, and has pointed out the need for attention to be paid to veterans in all stages of their lives. As aging and its attendant social losses increase, and the older individual is faced with the imminent loss of structure that his job gives him, in many cases nightmares about traumatic events from World War II may resume after years of symptom-free existence. Earlier work done by van der Kolk and Blitz (1981 as cited in Wilson et al. 1988 p. 137) found that about half the combat veterans from World War II who were of

retirement age and who participated in the survey, had a recurrence of nightmares and intrusive recollections.

Although the Stress Evaporation Model (mentioned earlier) has several distinguished proponents, the more generally accepted theory seems to be that, although individuals adjust differently to differing levels of stress, exposure to extreme stress will result in the formation of characteristic symptoms in almost everyone (Hocking, 1970 as cited in Wilson et al., 1988 p. 85). This is known as the Residual Stress Perspective, and some corroborating research is presented below.

The Residual Stress Perspective

Figley (1978) and Wilson (1978) (as cited in Gallers, Foy, Donahoe, & Goldfarb, 1988) both present similar views on the causal link between events and psychopathologies. In these, exposure to a severe stressor is considered as the primary event, meaning that all individuals could be expected to experience psychological distress after this exposure.

In work done on veterans with PTSD (PTSD-positive) and veterans without PTSD (PTSD-negative), Gallers et al. (1988 p. 190) found there to be no significant difference in premilitary adjustment between the groups.

Hearst and Newman (1988 p. 179) performed a study on deaths occurring among men of similar ages, with the difference between the groups being that one group consisted of persons who had been randomly selected by the Draft Board to serve in Vietnam, while the other had not. They looked at deaths through suicide and traffic accidents as being related to certain behaviours, and stated that:

military service during the Vietnam era caused profound and lasting psychological problems for some of the men involved, and that increased death by suicide and traffic accidents... is one expression of these problems.

Further support for the Residual Stress Perspective to which this study adheres, can be found in the theories of anxiety.

Anxiety as Trait and as State

PTSD is an anxiety disorder and, to this end, the research conducted into the difference between State Anxiety and Trait Anxiety has bearing on the Residual Stress Perspective. State Anxiety, initially pointed out in 1961 by Cattell and Scheier and in 1966 and 1983 by Spielberger (as cited in Elkind & DeVito, 1989) has been defined as a "... transitory emotional condition with psychological and physiological components". The psychological component of State Anxiety is characterised by

subjective, conscious feelings of tension and apprehension, while the physiological component is defined by activation or arousal of the autonomic nervous system (Elkind & DeVito, 1989).

Trait Anxiety is seen as being a

... relatively stable personality characteristic indicating anxiety proneness, and may reflect individual differences in the frequency and intensity of anxiety states" (Elkind & DeVito, 1989 p. 181)

The level of trait anxiety influences the intensity of state anxiety experienced in ego-threatening situations (ones posing a threat to self-esteem), but this has not been found to be significant in cases where actual physical threat or danger is posed to the individual (ibid., p.182). In other words, a predisposition towards anxiety, or an anxious personality type, does not necessarily mean that the individual will be more likely to develop an anxiety disorder under conditions where his life or bodily integrity is in danger. This would appear to refute the Stress Evaporation Model.

The generally accepted opinion then, and the perspective which is used in this study, is that the kinds of overwhelming stressors encountered in combat are such that they can be

expected to cause psychological problems in almost anyone exposed to them. This is supported by Solomon (1987), who noted that neither she nor her co-workers support the idea of a fundamental personality-based disposition to combat reaction, suggesting that:

the individual soldier's personal characteristics are probably of less importance than external environmental factors in explaining the combat-reaction syndrome (Solomon, Weisenberg, Schwarzwald, & Mikulincer, 1987 p. 11).

After this brief exploration of the concept of combat-related Post-traumatic Stress Disorders, it is necessary to review the various methods by which PTSD is diagnosed and assessed. Although several interesting theories and approaches have been propounded in the field of PTSD (for example, the Information Processing Approach, by Litz and Keane in 1989, or the Four Syndrome Model for PTSD by Glover in 1988), they are considered to be not really germane to this study. The goal of locating and testing a simple psychometric instrument that may give early warning of high combat stress, or of predisposition to the formation of a PTSD, requires a survey of the most commonly used methods of PTSD assessment in international psychology.

Chapter Four

Assessment Strategies for Combat-related Post-Traumatic Stress Disorder

Currently, most assessment strategies for PTSD in Vietnam combat veterans rely on structured interview procedures, checklists on post-military adjustment problems and standardised psychological test instruments. According to Penk and Robinowitz (1987) none of our psychological tests measures real life trauma. They go on to state that

We were all trained to assess fantasy - Rorschachs, Thematic Apperception Tests, Sentence Completions. But who among us was trained to evaluate the dimensions of real-life trauma: How do we differentiate its frequency, its intensity, its severity? There are no taxonomies of trauma in our psychologies of fantasy. Our training focuses more on fantasy than on reality. We continue to know more about the effects of fantasy on behavior than we know about the effects of reality (Penk & Robinowitz, 1987 p. 4).

Prior to 1990, no scale existed for use on Vietnam veterans still in service and no scale to subtype PTSD had been developed (Keane, personal communication, 1990). One of the most urgent needs in the field of Post-traumatic Stress studies is for an assessment instrument that is reliable, valid and user-friendly

(Figley, 1988). In terms of combat-related PTSD, an instrument that is short and easy to administer in the field would be indispensable. Another requirement for such an ideal PTSD measuring instrument is that it should have the ability to discriminate highly between PTSD and other psychological disorders, as very little work has been done on the comparison of combat-related PTSD with major depression or with generalised anxiety disorder. These two categories are mentioned as having considerable phenomenological overlap with PTSD (Goodwin & Guze, 1984 as cited in Keane et al., 1987 p. 34). The area needs to be researched thoroughly before we can say with any degree of confidence that PTSD can be delimited and distinguished from other homogenous psychiatric groups. In the study which is the subject of this thesis, the Beck Depression Inventory was co-administered to the subjects in an attempt to rule out any depressed subjects as showing high PTSD symptom scores.

Further to the above, it now seems apparent that more than one subtype of PTSD may well exist (Glover, 1988), and any instrument developed in the future should be designed with this in mind.

The Multimethod Assessment of PTSD

There are, according to Keane, Wolfe and Taylor (1987, p. 36) two basic goals in the comprehensive assessment of PTSD. These are, firstly, the identification of symptoms and experiences

that would qualify for the PTSD diagnosis and, secondly, determination of the presence of any coexisting psychological disorders. In order to reach these goals, a multimethod approach to assessment is needed, including structured interview techniques, psychometric assessment, psychophysiological and behavioural assessment.

Although a multimethod or multiaxial approach to assessment is desirable, psychophysiological measures are expensive, time consuming and may precipitate serious episodes in PTSD subjects. In the field, the obvious answer for an initial screening would still be a short and robust psychometric instrument. This could then be followed at a later stage by further tests and structured interviews. It would also be necessary to introduce at the screening stage a differentiation between those subjects who have had exposure to combat, and those who have not, since the role of combat exposure is assumed to be central in the development of combat-related PTSD (Keane, Fairbank, Caddell, Zimering, Taylor, & Mora, 1989 p. 53). The idea of such a differentiation is further supported by the work of Wilson and Krauss (1985, in Wilson, Harel, & Kahana, 1988 p. 84), who found that the best predictor of post-traumatic stress disorders in Vietnam veterans was the extent of combat involvement, followed by subjectively experienced exposure to death and injury. This would also assist in screening out factitious PTSD cases.

South African Approaches to Combat-related Disorders

Our war in Angola and Namibia, which involved at least 50000 South Africans, ended in April this year - its emotional consequences could continue to haunt us for longer than we care to think (Barron, 1989).

The various manifestations of combat-related PTSD in the South African Defence Force are popularly known in South African slang as being "bossies" and since 1986, the SADF has been using various diagnostic and therapeutic regimens for the victims, mainly conducted at 1 Military Hospital in Voortrekkerhoogte, Pretoria. Further to this, at the beginning of 1988 the SADF introduced stress reduction programmes whereby the returning combatants are allowed a 3-day break involving group discussions, with groups led by various qualified persons such as medical doctors, psychologists, social workers and ministers of religion (Morgan, 1988).

A policy document has recently been formulated to guide the functioning of clinical psychologists during operations in the SADF (Olwagen and Jansen, personal communications, 1989). This policy document was drawn up in response to the realisation of the need and value of psychological support for combat troops during the SADF "Operation Modulêr" in 1987 (Carnie, 1989).

Diagnosis and Treatment of Combat-related PTSD in the SADF

At the time of writing of this policy document, the SADF was actively deployed along the border of Namibia (then South West Africa) with Angola. Soldiers were generally based in the extreme north of Sector 10 (northern S.W.A. around Oshakati and Ondangwa) and deployed north to the Angolan border, and often beyond.

) Should a South African soldier exhibit signs of combat stress, he is usually debriefed, rested and recycled back to the operational area as soon as possible. It is only at the "Fourth Line" (see Appendix D) of treatment for the most traumatised soldiers that detailed history-taking, psychometric evaluation, premorbid personality evaluation and evaluation of the trauma can take place. Here, the most likely instruments used are the Beck Depression Inventory and the Horowitz Impact of Life Events Scale, as well as the SCID interview. There is, however, no available test that can be used in the First or Second Lines for early screening of PTSD and combat stress cases from other psychopathologies and from malingering. It is argued that

a modified form of the Mississippi Scale (Keane, Caddell and Taylor, 1987) could fulfil this function, and it is partially to this end that the study reported in this thesis was launched. Such an instrument, once properly adapted for use on soldiers currently in service, translated and properly validated on South African populations, would greatly assist the front line psychologists in their task.

Chapter Five

The Construction and Validation of the Mississippi Scale for Combat-related Post-traumatic Stress Disorders

The Mississippi Scale for combat-related PTSD (M-PTSD) was developed and validated by Keane, Caddell, and Taylor in 1986. This Mississippi Scale is a 35-item self-report inventory which samples the core symptoms and associated features of PTSD as outlined in the DSM-III. The scale uses a 5-point Likert scale, allowing the respondent to estimate symptoms from not at all to very much so. It is claimed to be more sensitive than other instruments, which simply separate patients into PTSD or non-PTSD groups (Keane, Caddell, & Taylor, 1988).

The items used in the Mississippi Scale were initially generated by a team of five clinical psychologists, all of whom had considerable experience in working with PTSD cases. These workers generated an initial pool of 200 items, each reflecting the characteristics defined by DSM-III as critical for making a PTSD diagnosis. Items on substance abuse, depression and suicidal tendencies were added, since these are frequently associated with Vietnam veterans (Keane, Caddell, & Taylor, 1988 p. 86). The team of workers eventually reduced the item pool to 35 items, by consensus on each item considered. The items were each designed to be rated on a 5-point scale, giving a total score ranging from 35 to 175.

Studies in Reliability and Validity of the Mississippi Scale

The original research was performed on Vietnam Veterans seeking help from various Veteran Outreach Centres (Vet Centres) in the United States (Keane, Caddell, & Taylor, 1988). The centres were located in large, medium and small cities located in the northeast and southeast United States and the sample size amounted to 362 veterans.

Each help-seeking veteran completed the Mississippi scale, a demographic questionnaire and the Combat Exposure scale, developed by Keane et al. in 1985. The results of the analyses conducted are summarised hereunder:

1. Internal consistency

The data were subjected to multivariate analyses and the coefficient alpha was found to be ,94 - thus indicating a high measure of internal consistency for the scale as a whole.

2. Factor analysis

The Mississippi scale generated six factors on principal components analysis, with varimax rotation of eigenvalues equal to or greater than 1,00. In order for an item to

define a factor, it had to load on that factor with correlation of ,50 or greater. In this instance, 11 items did not load on any of the six factors (Keane, Caddell, & Taylor, 1988 p. 87).

Factor One, (nine items), was concerned with intrusive memories and depressive symptomatology. Factor Two, (five items), focused on interpersonal problems with adjustment, while Factor Three (three items) showed lability of affect and memory. Factors Four and Five were both defined by three items each and were concerned with ruminative features of PTSD and other interpersonal difficulties. Factor Six had two items, concerned with sleep problems.

3. Descriptive Statistics

The mean score on the Mississippi scale was 104,5 with a standard deviation of 26,2. It should, however, be borne in mind that the sample used represented individuals with a broad range of problems, including financial difficulties, vocational problems and many other types of psychological and physical disorders as well as the possible presence of PTSD.

4. Correlation Data

A Pearson product-moment correlation statistic was calculated between the Mississippi scale and the Combat Exposure Scale. The value of this statistic was $r = ,25$

($p < .001$). No significant correlations were found between age or educational attainment and the scores on the PTSD scale (Keane et al., 1988). This suggests that the scores on the PTSD scale were, in part, a function of the amount of combat that the subject had been exposed to.

5. Test-retest Reliability

A Pearson product-moment correlation was used to calculate test-retest reliability at .97 ($p < .0001$).

6. Degrees of Association Between Mississippi Scale Score and PTSD Diagnosis

Using three distinct groups of Vietnam-era veterans in a further study, Keane et al. (1988 p. 89) found that the PTSD group scored significantly higher on the Mississippi scale than a psychiatric group, (with $t(58) = 9,2$ $p < .0001$) which in turn scored marginally higher than a well-adjusted group (with $t(60) = 1,9$ $p < .10$).

Diagnostic accuracy of the Mississippi scale was calculated by initially selecting a cutoff score of 107. This resulted in a high sensitivity, since 93% of PTSD cases were correctly classified by the instrument, as well as a high specificity, since 89% of patients without PTSD were correctly classified. The predictive value of a positive test was 80%, meaning that, when the Mississippi scale said that a patient had PTSD, it was correct 80% of the time. The

predictive value of a negative test was 97%, while the overall efficiency of the test was 90%.

One of the claimed advantages of the Mississippi scale is its possible sensitivity to therapeutic interventions. Because the scale permits a wide range of scores, and because the items are summed to provide a continuous measure of PTSD symptom severity, the scale should be sensitive to subtle changes in the complex of symptoms during therapy.

Keane and his co-workers (Keane et al. 1988 p. 89) do, however, encourage the use of the Mississippi scale as part of a multimethod assessment and not as a stand-alone measure. In terms of this study, it is also recommended that further work be done in order to establish the above measures for South African use of the instrument. In summary, however, the Mississippi scale is the instrument of choice of the Veterans' Administration and could easily be adapted for use in South Africa. It was thus that the instrument was chosen for this preliminary study into combat-related psychopathologies in the SADF.

Chapter Six

Methodology of the Study

One of the main problems facing the South African Defence Force psychologist who is in the front line of battle is a lack of time to conduct detailed psychodiagnostic procedures. Patients may present with various symptoms which may be related to any one of a number of pathologies (such as Generalised Anxiety Disorder, Post-traumatic Stress Disorder, Substance Abuse, Organic Disorders, Personality Disorders or Psychotic Disorders such as schizoaffective disorders, bipolar disorder or schizophrenia) and the therapist is hard pressed to make a correct diagnosis and recommendation for treatment. Another problem involves the detection of malingerers who are merely faking the symptoms in order to be removed from the battle zone.

Given the unconventional nature of the SADF operations to date, most combat units spend almost all of their time actively involved in operations and very little time stationary or in a base camp. This further compounds the problem facing the psychologist, since he may have extremely limited access to the troops during their brief rest periods or times of resupply. What is needed (among other instruments) is a short, simple questionnaire that can correctly classify soldiers reporting for help into those with and those without PTSD, thus allowing the PTSD cases to immediately begin the various phases of debriefing and removal to the specialised centres set aside for treatment of PTSD.

The other psychiatric cases are handled differently and will usually be evacuated to Pretoria (See Appendix D).

The initial stages of the literature search revealed that there was apparently no PTSD-diagnostic questionnaire designed for use on persons who were still serving in the military (Keane, personal communication, 1990). This meant that either an existing instrument would have to be modified or a new one developed. With the constraints placed on time by the political developments that were taking place in South West Africa (now Namibia), any testing of members of combat units of the South African Defence Force had to be conducted almost immediately. To this end, the Keane M-PTSD scale was modified (see Appendix B) and translated for use on the mainly Afrikaans-speaking members of certain elite battalions based near the Angolan border with Namibia. This was done with the co-operation of Dr. Terence M. Keane, Director of the National Centre for PTSD at the Boston Veterans Administration Medical Centre in New England. The Beck Depression Inventory, currently part of the assessment battery used by the SADF to diagnose PTSD, was also administered, in order to rule out of the study any persons suffering from depression.

The present diagnostic instruments used by the SADF are, as stated earlier, the Horowitz Impact of Life Events Scale and the Beck Depression Inventory. It is apparent that neither of these is specifically designed to detect PTSD and that an urgent need exists for a better method. This was sufficient grounds for motivating the study and the usual tight security restrictions were relaxed to allow the research to be done. This took place in March 1989 for the high-combat sample and later that year for the non-combat sample. The imminent recovery to South Africa and redeployment of the troops in SWA added urgency to the study, since the opportunity to test soldiers in their original units and in the same area they had been living in for several years would have been lost.

Sampling and Administration of the Modified Mississippi Scale

Once again, the restrictions made on the time available for the study meant that rigorous sampling techniques were not able to be used. The two groups compared were defined as "High-combat" and "Non-combat" respectively, where the High-combat group had to satisfy the following criteria:

1. The respondents had to be white Permanent Force members of certain elite combat battalions or units (these may not be named as a precondition of this study).

2. The respondents had to have spent a minimum of two years in the operational area and had to have been involved in at least two direct contacts (firefights) with the enemy.

3. The respondents had to voluntarily complete the questionnaire while in the Operations Centre of the battalion.

4. In order to avoid the possibility of symptoms of acute PTSD surfacing, the respondents could not have been involved in combat for the last six months.

The Non-combat group (control group) had to satisfy the following criteria:

1. The respondents had to be white Permanent Force members of certain non-combat units (not named as a precondition of this study), and had to match as nearly as possible the High-combat sample in terms of age and length of service.

2. The respondents had to have never been involved in any form of contact or combat with the enemy, and had to have spent less than two years in any operational area.

3. The respondents had to voluntarily complete the questionnaire in the Headquarters of their unit.

Both groups of respondents were provided with the questionnaire and it was reiterated that their participation was fully voluntary and that their anonymity would be respected. The instructions for the completion of the questionnaire were explained in both English and Afrikaans, together with the rationale for the study, and each respondent received a questionnaire in the language of his choice.

Access to other elite units (such as the "Koevoet" Battalion of the South African Police) was unfortunately prohibited and the final High-combat sample was made up of 89 men with an average age of 31,00 years ($SD = 8,51$). This compared relatively favourably (given the limitations of the available personnel) with the details of the control (Non-combat) group, which comprised 37 men with an average age of 28,34 years ($SD = 6,06$).

Modification of the Mississippi Scale

Initial observations made it clear that 10 of the 35 items would have to be reworded so as to make them applicable to soldiers who were still in service, as distinct from the help-seeking veterans for whom Keane designed his instrument. This was done while maintaining the initial sense of the item in relation to the DSM-III criteria for PTSD. The items altered were as follows:

Item 2, initially reading "I do not feel guilt over things that I did in the military", was changed to read "I do not feel guilt over things that I have done in the military".

Item 4, initially reading "If something happens that reminds me of the military, I become very distressed and upset", was changed to read "If I am reminded of things that have happened to me in the military, I become very distressed and upset".

Item 8, initially reading "When I think of some of the things that I did in the military, I wish I were dead", was changed to read "When I think of some of the things that I have done in the military, I wish I were dead".

Item 12, initially reading "I wonder why I am still alive when others died in the military", was changed to read "I wonder why I am still alive when others have died in the military".

Item 13, initially reading "Being in certain situations makes me feel as though I am back in the military", was changed to read "Being in certain situations makes me feel as though I am back in the combat area".

Item 19, initially reading "I have found it easy to keep a job since my separation from the military", was changed to read "I will find it easy to adapt to civilian life once I leave the military".

Item 21, initially reading "I have cried for no good reason", was changed to read "I cry for no good reason".

Item 28, initially reading "I feel there are certain things that I did in the military that I can never tell anyone, because no one would ever understand", was changed to read "I feel that there are certain things that I have done in the military that I can never tell anyone, because no one would ever understand".

Item 33, initially reading "I try to stay away from anything that will remind me of things that happened while I was in the military", was changed to read "I try to stay away from anything that will remind me of things that have happened while I have been in the military".

Item 34, initially reading "My memory is as good as it ever was", was changed to read "My memory is as good as it was before I joined the military".

Most of these alterations to Keane's Mississippi scale simply involved a change of tense, making the items more applicable to serving members of the SADF. The modified questionnaire (Appendix B) was then translated into Afrikaans (Appendix C).

Chapter Seven

Results of the Modified Mississippi Scale

The completed questionnaires were encoded for computer data capture and then entered onto the mainframe computer at the Military Psychological Institute in Pretoria. The resulting data file was processed using the Statistical Package for the Social Sciences (SPSS-X).

Initial descriptive data analysis yielded the information that the High-combat group (N = 89) had a mean age of 29,96 years (SD = 7,98) and a mean length of service in the operational area (Northern S.W.A. and Angola) of 3,73 years (SD = 2,85), with a mean total military service of 9,01 years (SD = 6,14).

The Non-combat group (N = 37) had a mean age of 30,00 years (SD = 6,90) and a mean length of service in the operational area of 0,63 years (SD = 0,90) - it being usual procedure for most SADF members to spend at least some time in S.W.A. The Non-combat group had a mean total military service of 6,41 years (SD = 5,14).

As discussed earlier, the High-combat (HC) group had to have been involved in at least two major combat experiences, with the proviso that no combat experiences could have occurred in the six months prior to the administration of the questionnaire. The

Non-combat (NC) group, however, were selected as having never had any form of contact with enemy forces, including even exposure to the sight of dead soldiers of either side.

The next step in the data analysis was to determine the mean scores on the Modified Mississippi Scale for each of the two groups tested. The results obtained were, as expected, visibly different, with the HC group yielding a mean score of 64,34 (SD = 13,35). Two candidates from the HC group scored over 100, and could almost certainly be diagnosed as suffering from PTSD, according to the criteria established by Keane et al. (1987).

The NC group showed a mean score of 48,35 (SD = 6,31). This is not much higher than the minimum score possible of 35.

The third step in the data analysis was aimed at determining whether or not there was a significant difference between the mean scores of the two groups (High-combat and Non-combat). To this end, both a t-test and an Analysis of Variance (ANOVA) were done and the results were as follows:

Test for Significance of Difference between Mean Scores

According to Ferguson (1987 p. 244), the significance of the differences between the means of two groups can be tested using either the t test or the ANOVA, since where $k = 2$, it can be shown that the square root of F is equal to t.

Since the groups have different standard deviations and numbers of respondents, the standard t-test is not sufficiently robust for use here. When the larger sample has the larger variance, this ordinary t-test will yield too few significant results (Ferguson, 1989 p. 183).

Since the populations have different variances, a t-prime value can be calculated. Using the method suggested by Cochran and Cox (1957, as cited in Ferguson, 1989 p. 182) to determine t-prime (Ferguson, 1989 p. 182), it was calculated that, for significance at the 0,001 level, a t-prime value of more than 3,43 was required. On calculation, the actual t-prime value obtained was 9,14, meaning that the difference between means was highly significant.

The significance of the results was confirmed by ANOVA, which gave a t value calculated for separate variance of 9.11, at a significance level of $p > ,001$ (2-tailed).

Reliability Analysis

An alpha value of ,86 was obtained for the modified Mississippi scale as a whole. This is lower than that obtained by Keane et al. (,94) but shows a relatively high internal consistency for the modified questionnaire.

Factor Analysis of the Data

Initially, a varimax principal components factor analysis with no factors specified was performed on the whole sample. The varimax converged in 19 iterations and produced 10 factors.

A cutoff eigenvalue of 1,00 was selected for rotation, in order for the technique to conform closely with that used by Keane, Caddell and Taylor (1988, p. 87) in their study of this scale. This rotation produced six factors, which was the same finding as that obtained by Keane et al.

For a factor to be defined, the items had to load on it with correlations of ,50 or greater (Kim & Mueller, 1978 in Keane et al., 1988 p. 87). Relying on this method, it was found that a total of 15 items did not load on any factor. This left a total of 20 items which loaded onto the six factors in the following manner.

Table of Factor Loadings for Whole Sample

FACTOR NUMBER	ITEMS LOADING (.50 OR MORE)
1	3; 5; 27; 31
2	11; 19; 24; 25; 30
3	18; 21; 32
4	1; 4; 17; 33
5	16; 29; 35
6	13

Principal-components analysis with varimax rotation (N = 125).

Factor Analysis Splitting Groups by Combat

A principal-components factor analysis was performed individually on each group, revealing different structures for the High-combat group (N = 89) and the Non-combat group (N = 37). The following results were obtained:

Analysis of Non-combat Group

Principal-components (PC) analysis of the non-combat group extracted 11 factors, with eigenvalues ranging from 1,117 to 4,881. A varimax rotation was attempted, but failed to converge after 24 iterations (convergence = ,0004). It was thus impossible to describe the factors obtained. The sample was, in any case, far too small for effective analysis in this manner (See Discussion).

Analysis of High-combat Group

PC analysis of the high-combat group extracted 11 factors, of which eight had eigenvalues of 1,000 or greater. The eigenvalues ranged from 1,085 to 7,367 and a varimax rotation converged in 22 iterations, providing a rotated factor matrix from which descriptions of the factors could be obtained.

Factor Structure Obtained from High-combat Sample

FACTOR	ITEMS LOADING (.,50 OR MORE)
1	4; 7; 15; 32; 33
2	5; 9; 14; 28
3	3; 31; 35
4	6; 21
5	23; 29
6	22; 30
7	13
8	11; 17; 24

Comparison of Factor Descriptions

FACTOR	KEANE'S DESCRIPTION	SADF FACTOR DESCRIPTION
1	Intrusive memories and depressive symptoms	Intrusive thoughts, avoidance and depression
2	Interpersonal adjustment problems	Interpersonal problems and realistic dreams
3	Lability of affect and of memory	Lability of affect and inability to express feelings
4	Ruminative features and interpersonal difficulties	Emotional Lability
5	Ruminative features and interpersonal difficulties	Substance abuse and being frightened of urges
6	Sleep problems	Anti-social attitudes
7	No factor obtained	Reliving or flashback
8	No factor obtained	Sleep problems and loss of enjoyment

The comparison was done between the factors obtained by Keane, Caddell and Taylor (1988 p. 87) and those obtained in this study from varimax rotation of a principal-components analysis of the data from the High-combat group.

Results of the Beck Depression Inventory

The highest score recorded on the BDI was 3, with most respondents scoring 0 or 1. The most common question that was answered was that they had tried to lose weight, and had lost more than two kilograms (Item 19, BDI). In short, no significant responses were recorded and no member of the group was anywhere near a score indicating depression.

Chapter Eight

Factor Structure of the High-combat Group

The PC analysis of the scores from the high-combat group (N=89) was subjected to a varimax rotation, producing eight factors above eigenvalue 1,00. Items loading on these factors with correlations of greater than ,50 were used to describe the factors.

Factor One - Avoidance/Nightmares/Exhaustion

This factor was described by items concerning the avoidance of thoughts concerning combat events (4 and 33), nightmares about events in the military (7), being scared to go to sleep (32) and the feeling that one cannot go on (15).

Factor Two - Violent/Unfeeling/Isolated/Reliving

This factor was described by items concerning people being scared of one (5), appearing not to have feelings (9), having done things that one cannot tell anybody (28) and experiencing shockingly realistic dreams (14).

Factor Three - Aggressive/Inexpressive

This factor was described by items concerning being aggressive and short-tempered (3 and 31) and with being unable to express feelings (35).

Factor Four - Emotional Lability

This factor was described by an item about crying for no good reason (21) and by a strong negative correlation of $-.72$ on item 6, which involved being able to get close to people emotionally.

Factor Five - Substance Abuse/Urges

Items loading on this factor were concerned with abuse of drugs and alcohol to assist forgetting (29) and with being scared of one's urges (23).

Factor Six - Antisocial

This factor was described by an item concerning feeling uncomfortable in a crowd (22), and by one concerning not enjoying the company of others (30).

Factor Seven - Flashback

This factor was described by one item, which involved feeling exactly as though one was back in combat (13).

Factor Eight - Sleep Disturbances/Anhedonia

This factor was described by items concerning sleep disturbances (11 and 24) and with a loss of enjoyment in previously enjoyable activities (17).

Discussion of the Factor Analysis of the HC Group

The derived clinical description that we can obtain of the high-scoring subjects in the high-combat group is one of people who are continually troubled by intrusive thoughts and dreams, who avoid interpersonal contact and also anything that may remind them of certain events, who are emotionally labile, aggressive and violent, who have difficulty in expressing their emotions or talking about the traumatic events, who abuse drugs and alcohol in an attempt to forget, who suffer from sleep disturbances and who have lost enjoyment in their activities.

This picture is emphasised if the top two scoring cases are considered. Although only two members of the high-combat group scored over 100, with only one that would have been classified as PTSD-positive under the norms established in the United States, the clinical picture that they presented was very similar to that above. In addition to scoring highly on the above items, the two members also scored highly (4 or 5) on items concerning feeling guilty about past actions (2) - although this item is a possible source of error, discussed later - and exaggerated startle response (25). The member scoring 107 in total also had an individual high score on item 27, which was concerned with not being gentle or easy-going.

The member scoring a total of 102 had individual high scores on two other items, the first of which concerned real and frightening daydreams (18). The other item stated that "Nobody understands how I feel, not even my family" (26).

Overall, however, the basic symptom cluster remains the same across the group, and those members scoring towards the pathological levels display the same symptoms, except more so.

The above groups of high-scoring symptoms can be compared with those obtained by Solomon et al (1987, p. 452). Their work listed the percentages of soldiers reporting various symptoms and it is interesting to note that both Solomon's "soldiers with Combat Stress who developed PTSD" and her "soldiers without Combat Stress who developed PTSD" groups showed high incidences of the following symptoms:

Recurrent scenes and thoughts

Recurrent dreams and nightmares

Lack of interest

Hypersensitivity

Sleep difficulties

Memory difficulties

Avoidance and

Intensification of symptoms

An interesting comparison of the frequently-reported symptoms in this study can be made with those that Hillel Glover (1988) claims are descriptive of a discrete syndrome of PTSD. It is his contention that the range of symptoms which have been reported indicate that PTSD is either "... a single disorder with heterogeneous manifestations, or that more than one diagnostic type of this disorder exists" (p. 59). He lists four possible syndromes, of which one, the "Combat Fear Syndrome" is remarkably similar to the constellation of symptoms reported by the HC group in this study. His description of the people fitting into this category is summarised below:

1. Symptoms of Distress

Glover notes that this group of combat veterans are predominantly prone to anxiety-related symptoms, such as irritability, tension, nervousness, emotional lability, insomnia, worry, exaggerated startle response often accompanied by fear, and social anxieties. The most disturbed veterans also "... experience frequent nightmares and flashbacks of combat, panic attacks, phobias, feelings of physical vulnerability, and fears of attack" (Glover, 1988 p. 63).

Other symptoms presenting in this group of veterans include memory and concentration span impairment and psychophysiological illnesses such as ulcers, hypertension and headaches (Glover, 1988 p. 64).

2. Interpersonal Relationships

These veterans tend to avoid and withdraw from the demands and the stimulations of social interaction. Involvement in family decision-making takes the form of simply going along passively, or trying to take control of the decision-making process, allowing the disturbed veteran to make an effort to anticipate and control any undetermined factor or event in advance (Glover, 1988 p. 64).

3. Aggression

Aggressive outbursts may be violent and explosive and are more likely to occur when the veteran feels that he is physically threatened, or when he feels that any social event or task exceeds his abilities to cope. A frequent concern of this category of veteran is their difficulty in controlling these outbursts (Glover, 1988 p. 65).

4. Self-concept

There appears to be a markedly diminished expectation of self-efficacy across a wide range of everyday tasks and activities (Glover, 1988 p. 65). These veterans are easily frustrated and tend to abandon projects in despair, becoming apprehensive when they face mundane tasks and not gaining confidence even when they manage to complete the tasks.

5. Dreams

Combat dreams involving the veteran in either fight or flight are well known, as is the fact that the veterans recall feelings of extreme fear whenever these dreams are remembered. Dreams of combat are known to increase in frequency whenever a veteran has to contend with additional stresses in his life, even if these stresses do not involve any physical threat and need not provoke a significant increase in the veteran's irritability or rage (Holloway and Ursano, 1984 as quoted in Glover, 1988 p. 65).

Other research has been done in order to identify empirically what dimensions could be used to identify possible subtypes of combat-related PTSD. Those that have so far been tentatively identified are activity-passivity in combat exposure, presence-absence of participation in atrocities, preparedness for combat situations, suddenness and expectation effects for

traumatic events, and duration of trauma or exposure to life-threatening events (Denny, Robinowitz, & Penk, 1987 p. 58).

Whether the syndromes proposed by Glover as existing in help-seeking Vietnam veterans are relevant to serving members of high-combat units in South Africa is a question that will have to be answered by another and more detailed study.

Methodological Problems of the Study1. Use of the Mississippi Scale

The main methodological flaw of this study was that the Mississippi Scale questionnaire, originally developed for use on help-seeking Vietnam veterans in the USA, could only be used on apparently stable serving members of the South African Defence Force. The chief reason for this was the paradoxical nature of PTSD in the South African Defence Force, since no diagnosed PTSD cases were available at 1 Military Hospital for validation of this instrument, and there is some serious doubt as to the efficacy of the diagnostic strategies in use at the time of the study. This means that there may well be many undiagnosed PTSD sufferers, both inside the SADF and amongst the National Servicemen who have already left service, but that they are likely to remain so until some valid and reliable instrument is developed to assess the condition. In that sense, the use of the Mississippi Scale without co-administration of the DSM-III-R Structured Clinical Interview or other proven diagnostic measure for PTSD makes it almost impossible for criterion-related validation to be performed.

2. Assessment of Combat Exposure

Use of qualitative and quantitative measures of combat exposure of the high-combat group would have been more methodologically correct than simply using respondents for the High-combat group who had been involved in at least 2 major direct contacts with the enemy, and who had spent at least 2 years in the operational area. The respondents in the HC group, as became apparent in later conversation with them, were undoubtedly veterans of many firefights and skirmishes, although there is no empirical data available to support this impression. There is, of course, a tremendous number of variables involved in a "direct contact"; variables such as being exposed to hostile fire, firing on the enemy oneself, seeing enemy or own forces dead and wounded, being wounded, and even such factors as the duration and intensity of the contact. A measure such as the Combat Exposure Scale developed by Keane would have been useful. This was not considered because of time constraints, and also since the information required (details of combat experiences) was classified. The soldiers were quite simply not allowed to give details of this kind.

3. Statistical Analysis Methods

The use of far larger samples for both HC and NC groups, and the subsequent increase in value of the factor analysis would have been ideal. As it was, the instruments were administered to the

maximum possible number of High-combat respondents given the severe restrictions on the study. Factor analysis of the small NC sample obtained may well have been misleading.

4. Single Administration of Questionnaire

Due to the nature of the sample, no test-retest statistics could be calculated, since the experiment was conducted on a one-off basis. The subjects of the study are not available for further research at this time, as their units have been disbanded or incorporated into other units throughout the country. Access to them would be impossible to achieve, especially since the author of the study has left the SADF.

5. Response Bias

Self-report inventories are especially subject to malingering or faking (Anastasi, 1982 p. 520). Response set formation can contaminate even basic research, with the results of investigations open to being influenced by such conditions as the subject's perceptions of what the experimenter expects, the desire to protect one's own image, and the wish to please or frustrate the experimenter. In this instance, the high-combat sample was composed of soldiers who were hostile to any outsider and were not inclined to place confidence in strangers. Bearing these facts in mind, the significance of the higher mean score on the modified Mississippi Scale of this group is high indeed.

6. Lack of Reliability and Validity Information

The most obvious method of determining the reliability of test scores is to repeat the test on a second occasion (Anastasi, 1982). In this study, this was not possible. The extreme limitations on time imposed by the rate of political change in Namibia and the stringent security restrictions permitted only a single session with the soldiers. Shortly after this study was conducted, the various members of the unit were recovered back to South Africa and their present whereabouts is classified.

For the same reasons, and also because no real psychometric instrument specific to the diagnosis of PTSD was available, the calculation of Alternate Forms Reliability was also impossible.

In the case of an instrument such as the modified Mississippi Scale, where the respondent receives a different numerical score depending on whether he checks always, mostly, sometimes, rarely or never, a generalized formula has been derived (Anastasi, 1982). This is known as coefficient alpha and was calculated at ,86 for the whole group, which compares favourably with that of ,94 obtained by Keane et al., (Keane, Caddell, & Taylor, 1988).

The ideal situation would have seen use of the multimethod assessment techniques, combining the modified Mississippi scale with a measure of combat exposure, the Horowitz and Beck scales

already in use by the SADF, and a comprehensive psychophysiological assessment.

6.1 Co-administration of the Beck Depression Inventory

With the co-administration of the Beck Depression interview showing that none of the subjects suffered from depression, an interesting example of discriminant validation was obtained. Although the BDI is currently a part of the diagnostic battery used for PTSD within the SADF, it showed that there was no depression associated with the cluster of symptoms reported by either group.

7. Problematic Items

As already mentioned, two of the items showed zero variance throughout the entire sample. These should perhaps be reworded in any future adaptation of the Keane scale, since they contributed nothing to the development of any symptom pictures.

Item 2 may also have been a source of error. It was a reversed item, and could perhaps be misread by respondents who are in a hurry. This should also be reworded in order to be more straightforward.

The Nature of the Disorder - Some Current Approaches

According to Kreitler and Kreitler (1988), one of the most salient features of Post-traumatic Stress Disorder is its relation to anxiety. This anxiety is not only one of the most major symptoms of PTSD, but also seems to be involved in its generation (Kreitler & Kreitler, 1988 p. 36). Anxiety usually occurs in the exposure of the subject to the traumatizing stressor and this anxiety has been credited with an important function in the development of short- and long-term psychopathologies. The anxiety may be considered from any one of a number of theoretical perspectives, each giving rise to its own particular answer.

For instance, the behavioural approach would suggest that the anxiety evoked by the trauma becomes conditioned to a wide range of stimuli that are involved in the trauma situation. This conditioned response of being anxious may then be generalized to similar stimuli and the subjects, in order to avoid the threatening situations, may try to minimize contact with these cues and thus suffer from increasingly constricted lives (Kreitler & Kreitler, 1988 p. 36).

A psychoanalytic approach to this would point out that the anxiety evoked by some external danger could become associatively linked with inner dangers concerning loss of control over forbidden impulses, especially in a situation where

the opportunities for action or defence are limited. In this instance, the reaction to the anxiety may be very intense and may lead to the use of a variety of defence mechanisms and even to disorganization and breakdown (Kreitler & Kreitler, 1988).

The cognitively oriented approach suggests that the anxiety in response to the trauma signals a breakdown in the attitudes and beliefs that could help the individual to go on functioning; a serious disorientation following the shattering of one's basic assumptions of invulnerability and blanket immunity and of the basic denial of danger. This anxiety will decrease only when the individual can assimilate the trauma cognitively, endow it with meaning or embed it in his cognitive orientation (Kreitler & Kreitler, 1988 p. 37).

All the above ways of viewing PTSD have one thing in common, however. This is the overall consensus that anxiety plays a major role in forming concepts about the nature, origin and treatment of PTSD. There is likewise agreement that trauma results from an interaction between situational and personality factors (Kreitler & Kreitler, 1988). There is much evidence to support the idea that there is some specific type of information processing necessary for an individual to turn a disturbing event into "stress", or a noxious phenomenon into a "trauma" (Kreitler & Kreitler, 1988 p. 38). This implies that there is a trauma-predisposing way of perceiving, which in turn has

led to some confusion on the role of the individual in this process. Kreitler and Kreitler (1988) point out that the area seems to contain three major unresolved issues

- a) A particular perception of the input that promotes the traumatic input.
- b) Personality factors, including traits and cognitive functions, that predispose towards the trauma, and
- c) The critical role of anxiety in the constitution and generation of trauma.

The Behavioural Approach to PTSD - Mowrer's Two-Factor Learning Theory.

According to Keane and his fellow workers, (Keane, Fairbank, Caddell, Zimering & Bender, 1985) Mowrer's two-factor learning theory offers the basic framework that they use to conceptualize PTSD. The first factor in this theory emphasises the importance of both classical (Pavlovian) conditioning and instrumental learning in the development of psychopathology. The classical conditioning involves learning by association, pairing a physiological response with a formerly neutral stimulus. It is also possible (aversive conditioning) for the organism to learn to associate a negative physiological response with a stimulus.

The second factor in Mowrer's theory is that an organism will behave in whatever way necessary to avoid an aversive stimulus (instrumental learning). When aversive conditioning occurs, the

organism is conditioned to avoid the neutral stimulus as well as the actual aversive stimulus, with responding remaining strong even after extinction of the pairing of the conditioned stimulus and the aversive unconditioned stimulus (Keane et al., 1985 p. 262). The analogy holds true for human psychopathology when it refers to problems that are characterized by avoidant behaviour.

Individuals who have experienced a life-threatening trauma become conditioned to the many stimuli present during the event. Other people present, the place, the time of day and even cognitions can become associated with the anxiety experienced during the event and thus are able to evoke very high levels of arousal (Keane et al., 1985 p. 263).

In fact, it has been noted (Keane et al., 1985) that almost any salient dimensions or stimuli present during the traumatic event may evoke physiological and psychological responses similar to those experienced at the time. These cues may

further condition other similar or associated cues to evoke the same physiological response. This process is called higher order conditioning (Brown, 1961, as cited in Keane et al., 1985).

It would seem pertinent to enquire why extinction does not occur

over time; why the individual is capable of frequently reliving the event in the form of intrusive dreams or thoughts and memories. The hallmark symptom of PTSD can be considered to be the recollection or reliving of the traumatic event in the form of nightmares or flashbacks or intrusive thoughts, yet this is in contradiction with what we know of behavioural theory.

Behavioural theory indicates that exposure to the whole memory would promote extinction and thus allow adaptation and recovery, but studies have shown (Keane et al., 1985) that individuals with chronic PTSD become increasingly disturbed with time. One theory proposes that the veteran will try to avoid recollection since the memories are highly aversive and anxiety-provoking. The military environment itself socially reinforces emotions of aggression and hostility (which compete with anxiety), while condemning or punishing experiences that allow exposure to the traumatic memories. There is thus little exposure to these memories immediately after the trauma and consequently consolidation of the memory is not as good as it should be.

Another factor in reducing exposure to the elements of traumatic memories is a process called "affective state dependent retention" (Bower, 1981, as cited in Keane et al., 1985). This assumes that the traumatic event was accompanied by extreme and sustained levels of psychological and physiological arousal, thus allowing memory storage of the event in a physiological state that is "... markedly different from that in which the

memory review will occur" (Keane et al., 1985 p. 266). This will interfere with recollection of the specific cues of the event, meaning that those vital elements of the memory that should be exposed in order to assist with the reduction of anxiety are only accessible when the veteran is in this hyperaroused state. Memories stored when the subject is in one affective state can best be recollected only when that state is simulated (Keane et al., 1985, p. 266). This has led the Veterans' Administration to investigate the use of implosive therapy (flooding) in treatment of combat-related PTSD, and initial reports would appear to substantiate the claims for success that this methodology has.

Other behavioural changes and modifications prevalent in veterans suffering from PTSD include sleep and appetite disturbance, coping strategies to cover intrusive dreams, very rare use of discussion of the trauma with friends, an exaggerated startle response including not only response to noise, but also to unexpected bodily contact, alcohol and substance abuse to alleviate symptoms, violent, aggressive or lead to destructive behaviour and strong reaction to questions regarding the use and ownership of weapons. All of these should be noted in fine detail in any assessment of the suspected sufferer.

Given the above variety of suggested approaches to the mechanisms by which combat-related PTSD can arise, it is no wonder that there is little concensus on the exact

psychodiagnostic regimen or set of instruments and methodologies that should be used in detecting this condition. The survey of the current literature in the field of combat-related PTSD, and the development of a clinical picture of significantly higher scores on a PTSD-symptom checklist (the Modified Mississippi Scale) in the high-combat South African sample used in this study can, however, provide some direction for future research towards better instruments, and also give some indications of the diagnostic methods that should be followed in the present.

Indications for Further Research on PTSD

The latest advances in PTSD research are beginning to show an evolution or change of research designs from

formistic and mechanistic stages characterised by single-category, single-cause and single-effect models to more contextual and organistic research designs that employ multi-category, multi-cause and multi-effect models (Denny, Robinowitz, & Penk, 1987 p. 61).

This change in methodology also requires problem-solving studies in such areas as measuring types of trauma and stressors; measuring PTSD symptoms and subtypes; measuring the dispositional characteristics of the subjects (such as race differences); measuring preexisting or concurrent psychiatric disorders; classifying personality styles; evaluating the stages

in the development of PTSD; evaluating current environmental stresses and interpersonal interactions and also determining what secondary gains (if any) the subject may make in displaying the symptoms (i.e. malingering, or civil law suits after accidents).

Diagnostic Recommendations

Since a strong link between combat exposure and development of this combat-related type of PTSD has been shown, use of a measure of this exposure would necessarily form part of early screening techniques. These could probably take place in the so-called "Second Line" of handling of casualties, namely at the command headquarters of the Task Force (See Appendix D). At this stage, concurrent administration of the Combat Exposure Scale (CES) and the Mississippi Scale (assuming that both have been modified for use in South Africa) could prove valuable in differential diagnosis of PTSD from a host of other disorders that may follow similar symptomatology. Such similar disorders include Generalised Anxiety Disorder, Organic Personality Syndrome, Panic Disorder, Depressive Disorders, Somatoform Disorders, Conversion Disorders, Hypochondriasis, Adjustment Disorders, Psychoactive Substance Abuse Disorders, Antisocial Personality Disorder, Fictitious Disorders and Malingering (Scrignar, 1988 p. 117ff.). Both instruments (the CES and the Mississippi Scale) are easily administered and marked and can be used in the field.

It is of course necessary that a structured clinical interview and a comprehensive history-taking session be conducted to assist the differential diagnosis. This would probably have to be delayed until the difficult cases reached the "Fourth Line".

It is probable that the combination of the above instruments, with a total administration time of less than 30 minutes, would assist the operational psychologist greatly in his task of making diagnostic evaluations under time pressure. Further work should be done to construct and validate specific instruments for use in South Africa, bearing in mind that recent evidence points towards the existence of subtypes of PTSD, which may produce different symptom clusters.

Whether or not our particular culture and situation have produced our own varieties of PTSD subtype is also a question that needs to be answered. It is certain that this study found a remarkable similarity between the reported symptoms of the soldiers exposed to combat, and Glover's "Combat Fear" subtype (Glover, 1988). It is also certain that the high combat sample failed to show any sign of depression, although they scored highly on a PTSD symptom checklist. This should indicate that the use of the Beck Depression Inventory as a diagnostic instrument for combat-related PTSD in South Africa should at least be re-evaluated, and that evaluation and differentiation of the symptom clusters presented should be conducted, with a view to development of appropriate diagnostic and treatment methodologies.

APPENDIX A

The Mississippi Scale for Combat-related PTSD, developed by Terence M. Keane, Juesta M. Caddell & Kathryn L. Taylor of the VA Medical Centre, Boston, Massachusetts 02130 and copyrighted in 1986.

Circle the number that best describes how you feel about each statement.

1. Before I entered the military, I had more close friends than I have now.

1	2	3	4	5
Not at all	Slightly	Somewhat	Very	Extremely
True	True	True	True	True

2. I do not feel guilt over things that I did in the military.

1	2	3	4	5
Never	Rarely	Sometimes	Usually	Always
True	True	True	True	True

3. If someone pushes me too far, I am likely to become violent.

1	2	3	4	5
Very	Unlikely	Somewhat	Very	Extremely
Unlikely		Unlikely	Likely	Likely

4. If something happens that reminds me of the military, I become very distressed and upset.

1	2	3	4	5
Never	Rarely	Sometimes	Frequently	Very
				Frequently

5. The people who know me best are afraid of me.

1	2	3	4	5
Never	Rarely	Sometimes	Frequently	Very
True	True	True	True	Frequently
				True

6. I am able to get emotionally close to others.

1	2	3	4	5
Never	Rarely	Sometimes	Frequently	Very
				Frequently

7. I have nightmares of experiences in the military that really happened.

1	2	3	4	5
Never	Rarely	Sometimes	Frequently	Very Frequently

8. When I think of some of the things that I did in the military, I wish I were dead.

1	2	3	4	5
Never True	Rarely True	Sometimes True	Frequently True	Very Frequently True

9. It seems as if I have no feelings.

1	2	3	4	5
Not at all True	Slightly True	Sometimes True	Frequently True	Very Frequently True

10. Lately, I have felt like killing myself.

1	2	3	4	5
Not at all True	Slightly True	Somewhat True	Very True	Extremely True

11. I fall asleep, stay asleep and awaken only when the alarm goes off.

1	2	3	4	5
Never	Rarely	Sometimes	Frequently	Very Frequently

12. I wonder why I am still alive when others died in the military.

1	2	3	4	5
Never	Rarely	Sometimes	Frequently	Very Frequently

13. Being in certain situations makes me feel as though I am back in the military.

1	2	3	4	5
Never	Rarely	Sometimes	Frequently	Very Frequently

14. My dreams at night are so real that I waken in a cold sweat and force myself to stay awake.

1	2	3	4	5
Never	Rarely	Sometimes	Frequently	Very Frequently

15. I feel like I cannot go on.

1	2	3	4	5
Not at all True	Slightly True	Somewhat True	Very True	Extremely True

16. I do not laugh or cry at the same things other people do.

1	2	3	4	5
Not at all True	Slightly True	Somewhat True	Very True	Extremely True

17. I still enjoy doing many of the things that I used to enjoy.

1	2	3	4	5
Never True	Rarely True	Sometimes True	Very True	Always True

18. Daydreams are very real and frightening.

1	2	3	4	5
Never True	Rarely True	Sometimes True	Frequently True	Very Frequently True

19. I have found it easy to keep a job since my separation from the military.

1	2	3	4	5
Not at all True	Slightly True	Somewhat True	Very True	Extremely True

20 I have trouble concentrating on tasks.

1	2	3	4	5
Never True	Rarely True	Sometimes True	Frequently True	Very Frequently True

21. I have cried for no good reason.

1	2	3	4	5
Never	Rarely	Sometimes	Frequently	Very Frequently

22. I enjoy the company of others.

1	2	3	4	5
Never	Rarely	Sometimes	Frequently	Very Frequently

23. I am frightened by my urges.

1	2	3	4	5
Never	Rarely	Sometimes	Frequently	Very Frequently

24. I fall asleep easily at night.

1	2	3	4	5
Never	Rarely	Sometimes	Frequently	Very Frequently

25. Unexpected noises make me jump.

1	2	3	4	5
Never	Rarely	Sometimes	Frequently	Very Frequently

26. No one understands how I feel, not even my family.

1	2	3	4	5
Not at all True	Slightly True	Somewhat True	Very True	Extremely True

27. I am an easy-going, even-tempered person.

1	2	3	4	5
Never	Rarely	Sometimes	Usually	Very Much So

28. I feel that there are certain things that I did in the military that I can never tell anyone, because no one would ever understand.

1	2	3	4	5
Not at all	Slightly	Somewhat	True	Very
True	True	True		True

29. There have been times when I have used alcohol (or other drugs) to help me sleep or to make me forget about things that happened while I was in the service.

1	2	3	4	5
Never	Infrequently	Sometimes	Frequently	Very
				Frequently

30. I feel comfortable when I am in a crowd.

1	2	3	4	5
Never	Rarely	Sometimes	Usually	Always

31. I lose my cool and explode over minor everyday things.

1	2	3	4	5
Never	Rarely	Sometimes	Frequently	Very
				Frequently

32. I am afraid to go to sleep at night.

1	2	3	4	5
Never	Rarely	Sometimes	Frequently	Almost
				Always

33. I try to stay away from anything that will remind me of things which happened while I was in the military.

1	2	3	4	5
Never	Rarely	Sometimes	Frequently	Almost
				Always

34. My memory is as good as it ever was .

1	2	3	4	5
Not at all	Slightly	Somewhat	True	Very
True	True	True		True

35. I have a hard time expressing my feelings, even to the people I care about.

1	2	3	4	5
Not at all	Rarely	Sometimes	Frequently	Almost
True	True	True	True	Always
				True

APPENDIX B

Circle the number that best describes how you feel about each statement.

1. Before I entered the military, I had more close friends than I have now.

1	2	3	4	5
Not at all	Slightly	Somewhat	Very	Extremely
True	True	True	True	True

2. I do not feel guilt over things I have done in the military.

1	2	3	4	5
Never	Rarely	Sometimes	Usually	Always
True	True	True	True	True

3. If someone pushes me too far, I am likely to become violent.

1	2	3	4	5
Very	Unlikely	Somewhat	Very	Extremely
Unlikely		Unlikely	Likely	Likely

4. If I am reminded of things that have happened to me in the military, I become very distressed and upset.

1	2	3	4	5
Never	Rarely	Sometimes	Frequently	Very
				Frequently

5. The people who know me best are afraid of me.

1	2	3	4	5
Never	Rarely	Sometimes	Frequently	Very
True	True	True	True	Frequently
				True

6. I am able to get emotionally close to others.

1	2	3	4	5
Never	Rarely	Sometimes	Frequently	Very
				Frequently

7. I have nightmares of experiences in the military that really happened.

1	2	3	4	5
Never	Rarely	Sometimes	Frequently	Very Frequently

8. When I think of some of the things that I have done in the military, I wish I were dead.

1	2	3	4	5
Never True	Rarely True	Sometimes True	Frequently True	Very Frequently True

9. It seems as if I have no feelings.

1	2	3	4	5
Not at all True	Slightly True	Sometimes True	Frequently True	Very Frequently True

10. Lately, I have felt like killing myself.

1	2	3	4	5
Not at all True	Slightly True	Somewhat True	Very True	Extremely True

11. I fall asleep, stay asleep and awaken only when the alarm goes off.

1	2	3	4	5
Never	Rarely	Sometimes	Frequently	Very Frequently

12. I wonder why I am still alive when others have died in the military.

1	2	3	4	5
Never	Rarely	Sometimes	Frequently	Very Frequently

13. Being in certain situations makes me feel as though I am back in the combat area.

1	2	3	4	5
Never	Rarely	Sometimes	Frequently	Very Frequently

14. My dreams at night are so real that I waken in a cold sweat and force myself to stay awake.

1	2	3	4	5
Never	Rarely	Sometimes	Frequently	Very Frequently

15. I feel like I cannot go on.

1	2	3	4	5
Not at all) True	Slightly True	Somewhat True	Very True	Extremely True

16. I do not laugh or cry at the same things other people do.

1	2	3	4	5
Not at all True	Slightly True	Somewhat True	Very True	Extremely True

17. I still enjoy doing many of the things that I used to enjoy.

1	2	3	4	5
Never True	Rarely True	Sometimes True	Very True	Always True

18. Daydreams are very real and frightening.

1	2	3	4	5
Never True	Rarely True	Sometimes True	Frequently True	Very Frequently True

19. I will find it easy to adapt to civilian life once I leave the military.

1	2	3	4	5
Not at all True	Slightly True	Somewhat True	Very True	Extremely True

20 I have trouble concentrating on tasks.

1	2	3	4	5
Never	Rarely	Sometimes	Frequently	Very
True	True	True	True	Frequently
				True

21. I cry for no good reason.

1	2	3	4	5
Never	Rarely	Sometimes	Frequently	Very
				Frequently

22. I enjoy the company of others.

1	2	3	4	5
Never	Rarely	Sometimes	Frequently	Very
				Frequently

23. I am frightened by my urges.

1	2	3	4	5
Never	Rarely	Sometimes	Frequently	Very
				Frequently

24. I fall asleep easily at night.

1	2	3	4	5
Never	Rarely	Sometimes	Frequently	Very
				Frequently

25. Unexpected noises make me jump.

1	2	3	4	5
Never	Rarely	Sometimes	Frequently	Very
				Frequently

26. No one understands how I feel, not even my family.

1	2	3	4	5
Not at all	Slightly	Somewhat	Very	Extremely
True	True	True	True	True

27. I am an easy-going, even-tempered person.

1	2	3	4	5
Never	Rarely	Sometimes	Usually	Very Much
				So

28. I feel that there are certain things that I have done in the military that I can never tell anyone, because no one would ever understand.

1	2	3	4	5
Not at all	Slightly	Somewhat	True	Very
True	True	True		True

29. There have been times when I have used alcohol (or other drugs) to help me sleep or to make me forget about things that have happened to me in the military.

1	2	3	4	5
Never	Infrequently	Sometimes	Frequently	Very
				Frequently

30. I feel comfortable when I am in a crowd.

1	2	3	4	5
Never	Rarely	Sometimes	Usually	Always

31. I lose my cool and explode over minor everyday things.

1	2	3	4	5
Never	Rarely	Sometimes	Frequently	Very
				Frequently

32. I am afraid to go to sleep at night.

1	2	3	4	5
Never	Rarely	Sometimes	Frequently	Almost
				Always

33. I try to stay away from everything that will remind me of things that have happened while I have been in the military.

1	2	3	4	5
Never	Rarely	Sometimes	Frequently	Almost
				Always

34. My memory is as good as it was before I joined the military.

1	2	3	4	5
Not at all	Slightly	Somewhat	True	Very
True	True	True		True

35. I have a hard time expressing my feelings, even to the people I care about.

1	2	3	4	5
Not at all	Rarely	Sometimes	Frequently	Almost
True	True	True	True	Always
				True

APPENDIX C

Omkring die nommer wat die beste beskrywing bied vir u gevoel t.o.v. elke stelling.

1. Voordat ek die weermag betree het, het ek meer vriende gehad as nou.

1	2	3	4	5
Glad nie	Redelik	Deels	Baie	Uitermate
waar nie	waar	waar	waar	waar

2. Ek voel nie skuldig oor dinge wat ek in die weermag gedoen het nie.

1	2	3	4	5
Nie waar	Selde	Soms	Gewoonlik	Altyd
nie	waar	waar	waar	waar

3. Indien iemand my te ver dryf, is ek geneig om gewelddadig te raak.

1	2	3	4	5
Baie	Onwaarskynlik	Somtyds	Waarskynlik	Baie
Onwaarskynlik		waar		Waarskynlik

4. Indien ek herinner word aan dinge wat met my in die weermag gebeur het, raak ek baie ontsteld en mismoenig.

1	2	3	4	5
Nooit	Selde	Soms	Gereeld	Baie gereeld

5. Die mense wat my goed ken is bang vir my.

1	2	3	4	5
Nie waar	Selde	Soms	Gereeld	Baie gereeld
nie	waar	waar	waar	waar

6. Ek kan emosioneel baie naby mense kom.

1	2	3	4	5
Nooit	Selde	Soms	Gereeld	Baie gereeld

7. Ek het nagmerries oor dinge wat in die weermag met my gebeur het.

1	2	3	4	5
Nooit	Selde	Soms	Gereeld	Baie gereeld

8. As ek terugdink aan sekere dinge wat ek in die weermag gedoen het, wens ek ek was liewers dood.

1	2	3	4	5
Nie waar nie	Selde waar	Soms waar	Gereeld waar	Baie gereeld waar

9. Dit lyk of ek nie gevoelens het nie.

1	2	3	4	5
Glad nie waar nie	Redelik waar	Deels waar	Baie waar	Uitermate waar

10. In die laaste tyd voel dit of ek kan selfmoord pleeg.

1	2	3	4	5
Glad nie waar nie	Redelik waar	Deels waar	Baie waar	Uitermate waar

11. Ek raak aan die slaap, bly slaap en word slegs wakker as die wakker afgaan.

1	2	3	4	5
Nooit	Selde	Soms	Gereeld	Baie gereeld

12. Ek wonder hoekom ek nog leef terwyl ander in die weermag dood is.

1	2	3	4	5
Nooit	Selde	Soms	Gereeld	Baie gereeld

13. Binne sekere situasies voel dit komplete asof ek terug is in die vegsituasie.

1	2	3	4	5
Nooit	Selde	Soms	Gereeld	Baie gereeld

14. My drome is soms so lewensgetrou dat ek in 'n koue sweet wakker word en myself dan forseer om wakker te bly.

1	2	3	4	5
Nooit	Selde	Soms	Gereeld	Baie gereeld

15. Dit voel asof ek kan nie aangaan nie.

1	2	3	4	5
Glad nie waar nie	Redelik waar	Deels waar	Baie waar	Uitermate waar

16. Ek lag en huil nie oor dieselfde dinge as andere nie.

1	2	3	4	5
Glad nie waar nie	Redelik waar	Deels waar	Baie waar	Uitermate waar

17. Ek geniet nog baie dinge wat ek voorheen ook geniet het om te doen.

1	2	3	4	5
Nie waar nie	Selde waar	Soms waar	Gereeld waar	Baie gereeld waar

18. Dagdrome is baie eg en vreesaanjaend.

1	2	3	4	5
Nie waar nie	Selde waar	Soms waar	Gereeld waar	Baie gereeld waar

19. Ek sal maklik aanpas in die siviele lewe as ek die weermag verlaat.

1	2	3	4	5
Glad nie waar nie	Redelik waar	Deels waar	Baie waar	Uitermate waar

20. Ek het probleme met konsentrasie tydens take.

1	2	3	4	5
Nie waar nie	Selde waar	Soms waar	Gereeld waar	Baie gereeld waar

21. Ek huil sonder 'n goeie rede nie.

1	2	3	4	5
Nooit	Selde	Soms	Gereeld	Baie gereeld

22. Ek geniet die teenwoordigheid van andere.

1	2	3	4	5
Nooit	Selde	Soms	Gereeld	Baie gereeld

23. Ek is bang vir my drange.

1	2	3	4	5
Nooit	Selde	Soms	Gereeld	Baie gereeld

24. Ek raak snags maklik aan die slaap.

1	2	3	4	5
Nooit	Selde	Soms	Gereeld	Baie gereeld

25. Onverwagte geluide laat my skrik.

1	2	3	4	5
Nooit	Selde	Soms	Gereeld	Baie gereeld

26. Niemand verstaan hoe ek voel nie, nie eers my familie nie.

1	2	3	4	5
Glad nie waar nie	Redelik waar	Deels waar	Baie waar	Uitermate waar

27. Ek is 'n rustige, gemaklike persoon.

1	2	3	4	5
Nooit	Selde	Soms	Gereeld	Baie gereeld

28. Ek voel dat ek sekere dinge in die weermag gedoen het wat ek vir niemand kan vertel nie, want hulle sal nie verstaan nie.

1	2	3	4	5
Glad nie waar nie	Redelik waar	Deels waar	Baie waar	Uitermate waar

29. Daar was 'n tyd toe ek alkohol (of andere dwelms) moes gebruik om my te laat slaap a.g.v. dinge wat ek in die weermag gedoen het.

1	2	3	4	5
Nooit	Selde	Soms	Gereeld	Baie gereeld

30. Ek voel tuis binne 'n skare mense.

1	2	3	4	5
Nooit	Selde	Soms	Gewoonlik	Altyd

31. Ek verloor my humeur a.g.v. nietige klein dingetjies.

1	2	3	4	5
Nooit	Selde	Soms	Gereeld	Baie gereeld

32. Ek is snags bang om te gaan slaap.

1	2	3	4	5
Nooit	Selde	Soms	Gereeld	Feitlik Altyd

33. Ek vermy alles wat my moontlik kan herinner aan die tyd toe ek in die vegsituasie was.

1	2	3	4	5
Nooit	Selde	Soms	Gereeld	Feitlik Altyd

34. My geheue is net so goed soos voor my toetrede tot die weermag.

1	2	3	4	5
Glad nie waar nie	Selde waar	Soms waar	Gereeld waar	Amper altyd waar

35. Ek kan my gevoelens nie uitdruk nie, selfs nie aan die wat ek lief het nie.

1	2	3	4	5
Glad nie waar nie	Selde waar	Soms waar	Gereeld waar	Amper altyd waar

APPENDIX "D"

SADF Policy on Operational Psychologists

At the time of writing of this document, the SADF was still actively deployed along the border of Namibia (then South West Africa) with Angola, and several broad concepts were formulated to assist in the formation of parameters of action for the psychologist. These were as follows:

-) 1. The war is of indeterminate duration and may continue indefinitely.
2. The war is not recognised as such by the world, but rather seen as a 'regional conflict'.
3. The conflict is of a low intensity.
4. The conventional war abilities of the troops may serve as a psychological aid, but in this instance the SADF is involved more in a revolutionary or guerilla war.

Carnie (1989) states that, within this type of conflict, it is necessary to define the types of stressor that the soldier may come into contact with. In order to do this, the main possible conflict scenarios must first be defined. These are :

1. Conventional Operations.
2. Defensive and Counterinsurgency Operations.
3. Withdrawal Phase of Operations.

The precombat factors and possible stressors that may influence the morale, motivation and general psychological well-being of the troops are varied and include the following:

1. Primary Group Membership - the cohesion and group orientation of the primary group has an effect on loyalty of the soldiers to each other and this is of cardinal importance in the prevention of stress.

2. Esprit de Corps - loyalty to the interests of the Battalion or Regiment is also seen (Carnie, 1989 p. 9) as providing psychological support in times of stress.

3. Manpower Allocation - well planned and meaningful troop rotation that strikes a balance between individual and organisational needs is vital. According to Carnie,

"Tydens die ommruiling van mannekrag is dit veral die gebrek aan onmiddellike ondersteuningsisteme wat aanleiding gee tot die ontwikkeling van post-traumatische stres en afname in motivering" (Carnie, 1989).

4. Training - Correct and realistic training not only ensures the accuracy of preconceptions about conventional warfare, but also contributes to the building up of confidence in the troops and a reduction in the fear of the unknown. The soldiers should be psychically as well as physically fit.

5. Discipline - In stressful situations, discipline contributes to a reduction in anxiety, since it leads to group support, which results in security.

6. Ideology - soldiers that are ideologically motivated are usually more resistant to the lowering of morale and motivation that is common in protracted and static conventional operations.

7. Recognition - some level of recognition is always necessary for the achievements and personal sacrifices that take place during military operations. This has a positive effect on motivation.

8. Preconceptions of Combat - the pictures that a soldier has of combat, and the associated risks thereof, influence his motivation. Although modern soldiers are often to some extent conditioned by the media in terms of the general conditions of battle, the realisation of the feelings of isolation that are experienced is often shocking.

Factors influencing Morale and Motivation during Combat Operations

Carnie (1989, p. 11) lists a series of factors that may influence the morale and motivation of the soldier during combat, and may lead to the formation of stress response syndromes. These include the following:

1. Fatigue.
2. Sleep deprivation.
3. Protracted and variable-intensity nature of modern warfare.
4. Climate.
5. Terrain.
6. Food and water.
7. Rest and recuperation facilities.
8. Tactics of the conflict.
9. Operational goals.
10. Boredom during static periods of the operation.
11. Enemy weapons and tactics.
12. Success of the operation.
13. Failure of an operation.
14. Losses and casualties.
15. Behaviour of own forces under combat conditions.

The policy document spells out three different lines, or stages of involvement of psychologists in the support of the combat

divisions. These are summarised hereunder, in order to give some insight into the handling of combat-related psychopathologies within the SADF. The material provided has been abridged to remove the various other tasks required of operational psychologists that have little bearing on PTSD.

First-Line Involvement of the Psychologist.

This service is rendered to the Headquarter element in the combat area and involves, inter alia, the provision of information to the military command structures concerning expected reactions of the troops to traumatic stressors and the principles of stress management; the making of recommendations about the disposition of troops who have been rendered dysfunctional as a result of psychological factors; first-line consultation with troops who have developed psychopathologies and, most importantly in terms of this study, the control and implementation of the 72-hour psychological support system for soldiers who display symptoms of posttraumatic stress disorders. This system, known as SPIE, is used to rotate the affected troops back to the front line as soon as practically possible, and differs from the various treatment regimens used at the Second and Third Lines (which are described later).

The SPIE System of Handling First-Line PTSD Casualties.

The stress reduction techniques used here must follow the SPIE guidelines and are designed to render the soldier fit for return to the combat as quickly as possible. The guidelines used are as follows (Carnie, 1989 p. 27):

1. Simplicity (S) - the handling of the patient should be practical and pragmatic, and should not rely on lengthy psycho-diagnostic or psychotherapeutic techniques.

2. Proximity (P) - the patients are handled in the immediate vicinity of the combat group, making possible visits from their own particular groups or command elements.

3. Immediacy (I) - removal of the patient to the treatment area must take place as soon as possible after identification of the problem.

4. Expectancy (E) - the only permitted expectancy must be the imminent return of the individual to the combat front.

The first-line treatment of combat-related psychopathologies in the SADF involves the medical personnel, leadership elements and

fellow soldiers of the sufferer, since they themselves

ook blootgestel was aan die gevaartoestande op die front en bewus is van die gewone ongeriewe van oorlog sowel as die normale klagtes en vrese van die medesoldate (Carnie, 1989 p. 27).

Although the stress reduction programme may differ from situation to situation, it is always run in accordance with the SPIE guidelines. Effective use of the stress reduction techniques will allow the soldier to be returned to the front, even though this may be difficult for him.

It is considered of the utmost importance that the soldier suffering from a psychopathology is still treated as a soldier, so as to allow his speedy return to combat. If, however, the 72-hour stress reduction programme is unsuccessful, the soldier is referred back to the Third Line for intensive therapy.

Second-Line Involvement of the Psychologist

This service is rendered to the Task Force Commander and members of the Joint Operations Centre and is removed from the First Line or combat area. The primary function of the psychologist in handling PTSD cases here is at the demobilisation or standing-down of the active troops, prior to their return either

to the combat zone or to the Base. Here, the "ontlonting" (literally, defusing) or debriefing can take place, allowing a full group therapy programme to be run on all soldiers exhibiting psychopathologies related to their recent involvement in combat. This programme is reproduced hereunder, translated from the original Afrikaans script that appeared in Carnie's document (Carnie, 1989 p. 31).

Guidelines for the "Defusing" Process

1. All soldiers showing signs of anxiety, fear, shock or frank PTSD are handled here.
2. The traumatic experiences are discussed in small group context.
3. The traumatic events are discussed in as much detail as possible - exactly as they were experienced.
4. Emotional reactions such as sorrow or aggression must be permitted and should be handled with understanding and empathy.
5. Repeated recounting of the activities around the traumatic event allows the fear and trauma which caused the shock and stress to be purified and lifted.

6. Throughout the process, the normality of the reactions or behaviours presented in a combat situation must be emphasised.

7. At no stage is the soldier allowed to take on the role of a patient. The soldier must be supported from the beginning in his attempts to accept responsibility for returning to a state of combat readiness.

8. It is necessary that the soldier be able to function as before. He must still adhere to the normal rules and regulations that apply to his fellow soldiers.

Third-Line Involvement of the Psychologist

This service is rendered at the Base Hospital, Morale/Motivation Centre or the Orientation/Debriefing Centre. Here the more serious and intractable psychopathologies are handled, with an emphasis on PTSD therapy according to the "IMPRESS A RAVEN" techniques and principles, which are detailed hereunder (Carnie, 1989):

1. Immediacy (I) - The PTSD casualties must be handled as soon as possible, allowing immediate feedback to the operational commanders. This applies equally to normal military casualties, allowing similar feedback on morale and motivation.

2. Military Milieu (M) - As far as is possible, all PTSD cases are expected to remain in uniform and to accomplish light duties around the base. This is in order that they should not see themselves as patients, but rather as soldiers.

3. Proximity (P) - Ideally, all treatment and therapy should begin at the front line of combat. It is, however, common that the Third Line is in fact the first place where the casualty can be handled. It is possible to maintain a sense of proximity to the combat by allowing other soldiers who have had similar experiences to assist in the interventions. The recovering casualties can also be used in turn to assist in the treatment of new casualties.

4. Rest and Replenishment (R) - This most important principle can already be commenced at the front line, where the casualties can be allowed sleep, food and drink. In any case, when the casualties arrive at the Third Line they are allowed time to rest and to replenish their psychic and physical resources.

5. Expectation (E) - In all PTSD cases, the eventual return of the soldier to the front must be held up to him as a goal. Other assisting casualties should always (in individual or group context) make the casualties aware of this goal.

6. Supervision (S) - The principle of supervision begins at the front line, where the First Line psychologist must ensure that PTSD casualties are not unnecessarily evacuated to Third Line treatment. This implies that the casualties must always be under control of someone, and that the normal command and control channels are followed. This will facilitate the casualty's return to combat.

7. Simplicity (S) - Practical and pragmatic principles of therapy must be followed. No detailed psychological history should be taken, since this will reinforce the idea of sickness or of being a patient. Expression of, and the continued reassurance of the normality of, reactions under difficult circumstances should be emphasised. This Third Line therapy typically takes about three to six days, whereafter the soldier can either be returned to combat or referred to the Fourth Line for intensive treatment.

8. Activity (A) - The practical principle of activity is valid here. Although the casualty is allowed some rest, he must still adhere to the normal requirements of the command structure in his area. He must be actively involved in individual and group therapy at scheduled times, and must also remain involved in the activities of his unit or of the base. This implies that he must still participate in inspections, parades and other military activities and also, wherever possible, in physical training and leisure

activities.

The RAVEN principles can be described schematically as follows (Carnie, 1989 p. 39):

1. Reaction (R) - Given the effect of war and of combat fatigue, it is expected that certain persons will exhibit unsuitable behaviours. These behaviours will correlate with the nature, duration and intensity of the military operation. Awareness of the realities of war (such as injury and death) can lead to combat fatigue and PTSD in some individuals.

2. Awareness (A) - The awareness of the possible occurrence of these reactions must not be limited to the command element, but must extend into the rank and file and into the "Buddy" system. This can be accomplished by educational programmes at first and third line. The individual will soon realise that his reactions to combat and his general behaviour are changing. He will start to wonder whether he is still "normal". If the support elements are aware of these possibilities, they can identify the cases before the soldiers develop the full-blown syndrome. Any awareness of possible psychopathologies or reactions must be accompanied by awareness that such reactions are normal, given the exceptionally high stress levels experienced in combat.

3. Ventilation (V) - Given the awareness of the likelihood of these psychological reactions occurring, a simple therapy regimen should be followed. Soldiers should be given the opportunity to "unload", by being allowed to talk repeatedly about their experiences and give free rein to their feelings and emotions. They must be able to cognitively restructure the events in individual or group therapy context. All reactions and forms of expression, both positive and negative, must be supported empathically and with understanding. In group context the soldiers can share their feelings with each other and receive support from one another.

4. Encouragement (E) - Bearing in mind the "Expectancy" requirements, the soldiers must be encouraged to express their feelings and to see why this is necessary. The soldiers must also be encouraged not to see themselves as abnormal, but rather to make use of their established coping mechanisms. They must positively reformulate their reactions and must be encouraged to evaluate themselves and their reactions positively, given the traumatic circumstances. The group can also be encouraged to assist its members in their recovery.

5. Normal Behaviour (N) - All the above principles and guidelines are designed to allow the soldier to return to normal functioning and to complete the cycle, so that he can

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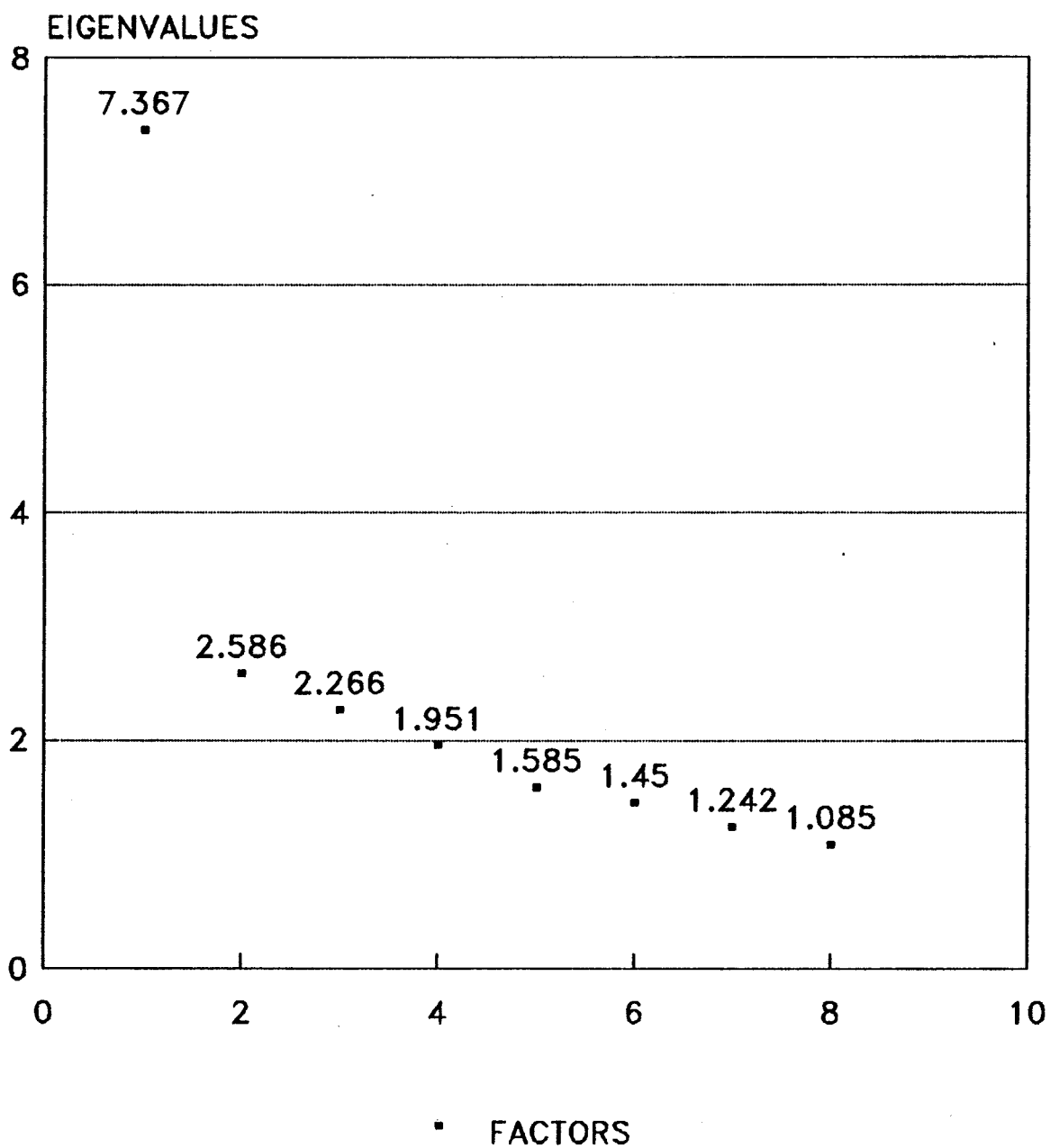
evaluate himself positively. As a result of these interventions, most PTSD casualties can recommend their own return to the combat zone and their reintegration into the original "Buddy system". Should the process not be sufficient, it can either be repeated in another 6-day cycle, or the soldier can be eventually referred to a military hospital.

It is only at the Fourth Line that detailed history-taking, psychometric evaluation, premorbid personality evaluation and evaluation of the trauma can take place. Here, as already discussed, the most likely instruments used are the Beck Depression Inventory and the Horowitz Impact of Life Events Scale, as well as the SCID interview.

As can be seen from the above lengthy list of activities, there is no available test that can be used in the First or Second Lines for early screening of PTSD cases from other psychopathologies and from malingering.

"APPENDIX E"

SCREE PLOT OF HIGH-COMBAT EIGENVALUES



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