

Battlefield Trauma
(Exposure, Psychiatric Diagnosis and Outcomes)

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Doctor of Philosophy

By

ROBERT ANDREW COXON

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The University of Adelaide, Australia

Centre for Military and Veterans' Health
School of Population Health and Clinical Practice
Faculty of Health Sciences

Picture 1



1969-70

Central Conference Area for 6 Platoon B Company 9 Royal Australian Regiment in the 1st ATF
TAOR

(Notice the Human Skull on the spike in the foreground and the sleeping accommodation in the
backdrop behind the Australian Soldiers)

CHAPTER 1

Oh memories! Treasures in darkness born!
Murky horizon of our ancient dreams!
Dear brilliance of a past that brightly beams!
Casting a radiance on things dead and gone!
Victor Hugo (Maurois1956).

INTRODUCTION

Introduction

Examining the multifaceted aspects of the impact on military personnel of battlefield trauma exposure is of intense research interest today and provided the impetus for this study. Included in this examination is the detailed 'in battlefield' psychiatric diagnosis of psychologically affected military personnel which is the special aspect of the rarity of this research data. Tracing the long-term impact of the 1969-70 specific battlefield trauma exposures on these veterans' lives; while comparing them with a matched case control group of contemporaneous veterans; also adds a distinctive quality to this study.

The original research selection process utilised throughout this study is embedded in the identification and utilisation of a significant population set. The rare population set are 119 Australian Vietnam battlefield combatants (Experimental group), that were deployed in the Australian Tactical Area of Operational Responsibility (TAOR) during 1969-70. These 119 Vietnam veterans were exposed to battlefield trauma experiences and were subsequently diagnosed during 1969-70 in the battlefield by an Australian military psychiatrist. His clinical notes which contained his 'in battlefield' diagnoses of these Vietnam veterans was utilised as the original source data.

Original source data information obtained from 1942-1952 hospital files of World War II veterans discussed in recent research provides an excellent example of the accurate pristine information into the early recognition of the representations and subsequent onset tempo and course of Post-traumatic stress disorder (PTSD) symptoms that can be derived from historical clinical data (Burges-Watson & Daniels 2008).

Definitions

Those definitions that are particularly relevant to this research are described below.

Gross stress reaction (GSR)

In the post-World War II period, there was an acceptance of the importance of extreme stress as a determinant of acute symptoms. One result of this was the inclusion of ‘Gross Stress Reaction (GSR)’ in *Diagnostic and Statistical Manual Of Mental Disorders, First Edition- DSM-I* (American Psychiatric Association 1952). However, a separate category was needed to account for the chronic disorder and this remained elusive. Interest in social psychiatry blossomed during this period and led to the development of crisis theory and interventions. The description of these reactions remained a mixture of symptomatic and psychodynamic concepts (Jones & Wessely 2005). This was not an era of phenomenological precision due to the pre-eminence of psychoanalytic ideas where defence and conflict were the organising principles of observation. There was also a growing interest in the life events literature during this period. Unfortunately, however, this failed to acknowledge the aetiological difference between horrific, life-threatening stresses other, everyday stresses such as financial and relationship interactions and issues.

This led to a shift to the idea that acute disturbances in function could follow events other than combat or exposure to battlefield scenarios.

Transient situational disturbance (TSD)

In DSM-II (American Psychiatric Association 1968), a shift towards the inclusion of less severe events was reflected in the category 'transient situational disturbance' (TSD). This diagnosis was used to describe acute symptomatic distress following a range of adverse traumatic events. More prolonged disorders were categorised as anxiety or depressive neurological disorders. Consequently, the type or nature of the traumatic experience becomes significant in the context of diagnoses which are made by observing the respective symptoms. Yet it is interesting to consider (WHY?) that in the 16 year interval between the publication of DSM-I and DSM-II, there was a proportionally greater number of worldwide traumatic events that were the focus of both national and international attention: the Korean and Vietnam Wars; Colonial Wars and revolutions; the assassination of John F. Kennedy; civil violence in Northern Ireland; wars in the Middle East; major natural disasters in many parts of the world and recognition of the prevalence of childhood sexual abuse. Than those major events (WWI and WWII) that preceded in the period from 1900-1952 were being investigated, researched and published in medical and scientific journals (Kardiner's book on *Traumatic Neurosis of War* (1941, 1959). And yet the DSM-II equivalent of PTSD contained a mere three examples of "adjustment reaction to adult life": (1) an unwanted pregnancy accompanied by depression and hostility; (2) a frightened soldier in combat; and (3) a prisoner facing execution in a death penalty case. These and other unidentified threats to self could be dealt with utilizing an

all encompassing diagnosis of TSD. The simplicity and inadequacy of the diagnosis TSD requires attention to inquire as to why there was not a more adequate and complete delineation of the various types of trauma; their common effects on psychological functioning and the known clinical features associated with such stressful life experiences with obvious eclectic trauma exposed populations. At one level, it is apparent that the committee who drew up the revised DSM-II category implicitly understood that certain types of events were more likely than others to be associated with difficulties adjusting to live after exposure to traumatic events. And yet it was apparent, as suggested earlier, that Freud understood in 1917 (Freud 1966), 70 years before *Diagnostic and Statistical Manual Of Mental Disorders, Third Edition-Revised* DSM-III-R, the core system clusters of PTSD that are currently accepted by most professionals who work with traumatized clients today (Wilson 1994).

The prolonged maladaptive reactions to trauma, manifested by a veteran, can often be caused directly by the reality of battlefield traumatic exposure (Wilson 1994). Veterans involved in this study were diagnosed in 1969-70 as suffering from the DSM-II diagnosis of TSD in association with other psychiatric disorders. The symptoms of TSD are manifested by either impairment in social or occupational functioning or by symptoms (depression, anxiety and/or drug abuse) that are in excess of a normal and expected reaction to the battlefield traumatic exposure. It was traditionally considered that the pre-morbid traits and psychodynamics of the veteran determined the response to the battlefield stressor events. The exceptional feature of TSD is that it occurs within a short

time after exposure or onset of the stressor-battlefield trauma exposure and is transient with regard to the individual's symptom expression and impairment (Wilson 1994).

Combat fatigue

The United States military psychiatric fraternity embraced this diagnostic term to replace the diagnostic term 'Combat Fatigue' during the Vietnam War between 1961 and 1975 (Swank & Marchand 1946). This term was intended to clearly identify the medical state of a combatant who had been exposed to battlefield trauma and who had previously had a satisfactory military service record. That is, those combatants who were subsequently plagued by the excruciating stress of extended combat pressure in physical circumstances of conspicuous fatigue; sleep deprivation and irregular and inadequate food intake (Glass 1973).

Acute stress reactions (ASR)

Unfortunately, post-traumatic illnesses which include ASR and the subsequent onset of PTSD are presumed to be any psychiatric disorder that may arise following exposure to a traumatic stressor. To date, there is very limited literature on these identifiable ASR disorders and the causal link that may exist between certain ASR and the onset of an ASD or PTSD. Regrettably, the theoretical and pragmatic dominance of PTSD has captured the diagnostic process. In an ironic way this has mitigated the acute and chronic reactions to traumatic stress and the way in which its severity and causal links have been viewed historically. This may also affect the efficacy of how ASR or PTSD reactions are treated (Solomon et al. 1992). After detailed examination of the cases involved in this

research it became obvious that a range of psychiatric disorders—other than the immediate assumption diagnosis of PTSD— is apparent in the veteran population.

Adversity and exposure to trauma events are also seen to be significant and important aetiological factors across the spectrum of disorders from schizophrenia to major depressive disorder to panic disorder (Dohrenwend 2000). The significant and important aetiological role of traumatic events in relation to identifiable ASR and the onset of PTSD have been largely passed over. In general population samples there are literature to suggest that these traumatic events, followed by specific ASR, are significant in relation to the onset of other psychiatric disorders (McFarlane 2000b). However, the state of knowledge in this domain is so meagre that it is impossible to derive any precise conclusions about the exact role or significance of these traumatic events and the onset of particular ASR. In 1998, Grayson et al. studied a group of Australian veterans; members of this group had high combat exposure but did not develop an ASR or PTSD. Grayson et al. (1998) found that this subgroup of veterans had a greater risk of developing a range of other psychiatric disorders within five years of returning from the Vietnam War. This suggests that combat can play a non-specific role in the aetiology of other psychiatric disorders (Orcutt et al. 2002). Researchers also found that soldiers, as distinct from officers, find it very difficult to genuinely describe their battlefield experience. Their social, emotional and professional poverty through their interlocutory may really restrict their ability to present an understanding of what they have lived through. They cannot put their respective realities into a perspective that they can cope with (Hackworth & Sherman 1989). This is an aspect has not been borne out by this research. In many

diagnostic settings the severity of combat exposure is not accepted as the primary trigger for the onset of ASR and PTSD. Rather, the role of genetic factors is perceived to be of greater, if not sole, significance in an individual's immediate and ongoing reaction to the battlefield. Thus, there is no scientific or clinical consensus about the links or relevance of traumatic stress or ASR to other psychiatric disorders. Therefore, the proposition that traumatic stress, ASR and PTSD are in some way linked and that the co-morbid conditions exist creates a postulate that, for now, is opinion rather than fact. No system of treatment regime or health care, established by the theoretical or practical knowledge has also accepted such relationships exist and consequently have been unable to substantially modifying clinical practice to fit the co-morbid conditions.

Acute stress disorders (ASD)

This diagnostic term was adopted in 1994 and is included in *Diagnostic and Statistical Manual Of Mental Disorders, Fourth Edition (DSM-IV)* (American Psychiatric Association 1994 & 1996). Also treatment guidelines have been presented by the American Psychiatric Association for patients suffering from ASD and PTSD in the *Practise Guidelines for the treatment of ASD and PTSD* (2004). The term ASD was coined to bridge the gap between the 1987 definition of PTSD in the (DSM-III-R) (American Psychiatric Association 1987). In that definition, the American Psychiatric Association considered that for a PTSD diagnosis it was necessary for the symptoms to have existed for at least one month after exposure to a traumatic event. Interestingly, it was also created to provide researchers with the diagnostic boundary to examine the relationship between short-term stress reactions following trauma and the appropriateness

and onset of PTSD (Jones & Wessely 2005 and Solomon & Canino 1990). It is also acknowledged that ASD sufferers have an extremely poor long-term diagnostic prognosis (Classen et al. 1998). The majority, between 72 and 89 per cent, go on to develop PTSD (Brewin et al. 1999 and Bryant & Harvey 1998).

The definitive difference between an ASD and PTSD is that an ASD emphasises the dissociative symptoms in re-experiencing the traumatic event. These include numbing, detachment, psychic daze, de-realisation, depersonalisation and dissociative amnesia especially directly after the traumatic event (Koopman et al. 1996). However, with PTSD the symptoms presented in the re-experiencing behaviour include images, thoughts, dreams and flashbacks (Jones & Wessely 2005).

Post traumatic stress disorders (PTSD)

This diagnostic term was originally referred to as Post Vietnam Syndrome. However, shortly after the war it was acknowledged as being inappropriate because it was not a phenomenon exclusive to military combatants in battlefield scenarios. Researchers and consulting psychiatrists found that civilian sufferers were identified with the same symptoms after being exposed to traumatic events such as fires and car accidents. PTSD was formally defined in 1980 in the *Diagnostic and Statistical Manual Of Mental Disorders, Third Edition*, (DSM-III) (American Psychiatric Association 1980). The association specified four basic criteria that must be satisfied for a diagnosis of PTSD.

They are the:

- ‘existence of a recognisable stressor that would evoke significant symptoms of distress in almost anyone’
- re-experiencing symptoms
- avoidance behaviour and feelings
- arousal symptoms and behaviour (Jones & Wessely 2005).

The essential feature of the diagnostic criteria for PTSD is the development of characteristic symptoms following exposure to a psychologically traumatic event. It should be acknowledged though, that these criteria do not assert that everyone who experiences significant symptoms of distress, evoked by a recognizable stressor (exposure), will necessarily develop PTSD. Additional symptoms, that may be associated with PTSD, are depression, anxiety, increased irritability and impulsive behaviour (Kulka et al. 1990). The disorder can occur at any age, including during childhood, and impairment can be either mild or affect nearly every aspect of a person’s functioning.

Two subtypes are specified:

- acute PTSD—the symptoms begin within six months of the trauma and do not last more than six months
- chronic or delayed PTSD—the symptoms either last six months or more or develop more than six months after the trauma.

Psychiatrists and psychologists acknowledge that pre-existing psychopathology (Solomon et al. 1988), or the flooding of traumatic experiences, may predispose an individual to developing the disorder (Duckworth 1987).

In the military determination the criteria can be separated into a series of categories. Initially, these must include the traumatic event/s, the identification of an episode of combat, battlefield exposure or a major potential threat of attack to which the military personnel were exposed. The next element is the capacity to identify the individuals who were exposed across a range of thresholds. This is very difficult to do in some instances. However, when possible, essential security analysis and clearance enables the questioning of individuals exposed by the appropriate health support service staff found in all echelons of the battlefield (especially in Vietnam). This identification also requires an intelligence-gathering exercise to establish the nature of threats, direct or indirect, to which individuals were exposed. Establishing these threat risk situations enables the development of appropriate continuous measures of the intensity and severity of battlefield trauma exposure/s.

Accountable operation reports reflect the tactical manoeuvres and logistic support costs of combat or what researchers may utilise to determine the intensity and severity of battlefield trauma exposure/s. Although a veteran may view the (combat) battlefield trauma exposure differently, in a psychological sense, to what is described in clinical operational reports. A 1980s study of Vietnam combat veterans examined the criteria for PTSD. The veterans were examined to determine whether the criteria for PTSD reflected

an underlying and identifiable symptom structure or were simply an arbitrary grouping of symptoms. A factor analysis of their responses was based on them rating their battlefield experience. The resulting psychological outcome broadly supported the PTSD criteria sets. The primary difference between the symptom groupings the veterans established in their ratings, and those in DSM–III, was the relative importance given to some of the elements. In the veteran factor structure, symptom clusters comprising a depressive reaction were a major component, as were anger and hostility. In DSM–III, symptom clusters, depression, irritability and aggressiveness are considered to be associated features of PTSD, rather than cardinal features described (Silver & Iacono 1984).

PTSD is a recognised medical condition which has been acknowledged also in the *International Classification of Diseases 10th revision* - ICD–10 World Health Organization (1992 and 1993) and the DSM–IV (American Psychiatric Association 1996). It was initially acknowledged as an operational diagnosis in DSM–III. It was then revised and reissued as (DSM-III-R) and DSM–IV published in 1987 and 1994 respectively. The disorder was first included in the *International Classification of Diseases* system in 1992. An extensive and varied range of trauma management professionals now accepts PTSD as a diagnosis. The validity and reliability of the DSM-III-R criteria for the diagnosis of PTSD has also been examined (Kessler et al. 1994; Solomon & Canino 1990 and Davidson et al. 1989a). This increased awareness and acceptance has emphasised the essential and practical value of identifying the disorder accurately and thereby encouraging optimism for its successful treatment. Given this, it should also be acknowledged that overuse, or the cliché of PTSD, can be detrimental if

researchers and treating professionals accept that it is an adequate description of the totality of psychological disorders manifested after battlefield trauma exposure/s.

The diagnosis of PTSD may merely be scratching the surface of the plethora of causes and outcomes that need further research. This is especially the case given the distinctive nature of battlefield trauma exposure/s and the effects it can have on volunteer and conscripted participants. For example, battlefield exposure may affect combatants before disembarkation, immediately in the battlefield and later when they return to the relative safety of home and try to resume a normal life. Currently there are two different diagnostic systems: DSM–IV and the 11th revision of the *International Classification of Diseases* (World Health Organization 1995). The provision of precise definitions has enabled a great deal of research to be conducted. Epidemiological and phenomenological research has made a central contribution and has enabled these definitions and the boundaries to be tested. The definition of PTSD provides a benchmark and an impetus for this and future research. This is particularly so because it has enabled an exploration of people’s reactions to these explicit type of events in the battlefield. These current definition criteria are based on the stressors and the symptom clusters that are associated with PTSD and discussed in Chapter 2.

Delayed onset of PTSD

Many early studies in this field supported alternative propositions to explain the symptoms of PTSD. These included that the traumatic battlefield exposure victims were malingering to gain financial compensation (Atkinson et al. 1982) or that the symptoms

reflected other types of post-combat psychopathology such as alcohol abuse (Atkinson et al. 1982 and Sparr & Pankratz 1983). Other researchers suggested that the presentation of PTSD symptoms were not delayed, nor that their detection or acknowledgement was delayed. They suggest that clinicians failed to recognise the disorder and, consequently, failed to diagnose it (Pary et al. 1986). Some have even suggested that immediate combat stress reaction symptoms may be masked by the high levels of alcohol and drug use common in the military, both during and after deployment (Kofoed et al. 1993 and McFall et al. 1992).

DSM-IV describes delayed onset as an indicator for PTSD indicating “that at least 6 months have passed between the traumatic event and the onset of the symptoms”, this criteria has remained consistent since its introduction in DSM-III. The concept of delayed PTSD was proposed to explain this pattern of morbidity which has come under closer scrutiny (Herrmann & Eryavec 1994). This scrutiny showed that many of these individuals have moderate or, even on occasions, high levels of morbidity which then subsides only to re-emerge later (Keehn et al. 1974). The retrospective recalls of the initial degrees of symptomatic distress are often modified by the current state of the veteran. Individual circumstances can also mollify the symptomatic distress experienced by a veteran. These circumstances include a veteran’s support infrastructure on his return from the battlefield and/or the clandestine way in which he may hide the potentially personally damaging, and career-damaging, revelation of his suffering.

Australian and United States veterans from the Vietnam War have had proportionally similar levels of PTSD and similar individual traumatic battlefield exposure experiences. These combine to provide the evidence for the relevance of PTSD as a core example of psychosomatic medicine (Lamprecht & Sack 2002 and Sim 1969). However, various studies have confirmed the fluctuating and capricious nature of PTSD and its' delayed onset (Grieger et al. 2006 and Solomon & Mikulincer 2006).

Alternatively, there has been some limited controversy over delayed onset PTSD prevalence and even its existence (Andrews et al. 2007). Numerous studies have investigated the condition in samples of combat veterans and civilians, with no consensus emerging as to its prevalence. Reported rates have varied between 0 per cent and 68 per cent of PTSD cases, and some authors have even expressed skepticism about whether the condition exists at all (Bryant & Harvey 2002). Although this skepticism is founded on the definitional issues predominantly (Andrews et al. 2007).

Appreciating the scepticism and reserving it under consideration; a search of the literature confirmed that the prevalence of delayed onset PTSD has been reported in a variety of trauma populations not just combat veterans. Two studies of motor vehicle accidents, for example, reported prevalence rates of delayed PTSD to range from 13 per cent nine months after the accident (Epstein 1993), to 32 per cent one year after the accident (Mayou et al. 1993). Buckley et al. (1996), in a sample of 158 motor vehicle accident victims reported 7 per cent of the sample to fit criteria for delayed onset PTSD at 1 year. All of these subjects met criteria for non adaptive behaviour symptoms for inclusion in

sub syndrome identification of possible PTSD at initial assessment (3 days after the accident), with the average interval from accident to developing full PTSD being 8.5 months (Buckley et al. 1996). Ehlers et al. (1998) found that 6.3 per cent of motor vehicle accident victims who did not meet criteria for PTSD at 3 months reported PTSD at 1 year (34 of 549 or 6.2 per cent). Bryant and Harvey (2002) reported that only 5 per cent of motor vehicle accident survivors did not satisfy PTSD criteria 6 months the vehicle accident, yet they did met the criteria 2 years after the accident.

McFarlane (1988) reported 20 per cent (63 of 315) fire fighters exposed to the Ash Wednesday Bushfires in South Australia in 1983, experienced delayed onset PTSD. Of these 63 individuals, 27 per cent met the sub-syndromal condition and were symptomatic at 11 months but not at 29 months, and 56 per cent only became symptomatic by 29 months, with the remaining 13 per cent being sub-syndromal and PTSD symptomatic on both occasions. This indicates that the majority of the delayed onset cases emerged in the second year after the disaster, and that only 48 per cent of the cases that had emerged at 11 months remained chronic.

Studies with other trauma populations have shown a range of prevalence rates. Group studies reporting the onset of full PTSD symptom manifestations delayed by at Least 6 months after trauma exposure: Epstein (1993) accidental injury ($n=15$), 9 months 0per cent (0/6); Buckley et al. (1996) motor vehicle accident ($n=107$), 12 months 10per cent (7/69); Sungur & Kaya (2001) riot/fire ($n=79$), 18 months 21per cent (8/39); Bryant & Harvey (2002) motor vehicle accident ($n=103$), 2 years 18per cent (5/28); Southwick et

al. (1995) war, military ($n=62$), 2 years 50per cent (4/8); Yule et al. (2000) shipping disaster ($n=217$), 4–7 years 10per cent (11/110); Watson et al. (1988) war, military ($n=63$), 18 years 49per cent (31/63) and Engdahl et al. (1998) war, military POW (262) 50 years 1.4per cent (2/140).

Then a follow up analysis of other research populations has shown the following delayed onset of PTSD at least one year after the detailed trauma exposure: Koren et al. (2001) motor vehicle accident ($n=58$) 1 to 3 years 10per cent (2/21); North et al. (2002) mass shooting ($n=116$) 1 to 3 years 9per cent (4/44); Mayou et al. (1997) motor vehicle accident ($n=111$) 1 to 5 years 36per cent (8/22); Solomon & Mikulincer (2006) war, military (non clinical sample) ($n=83$) 1 year after 20 years after 63per cent (20/32) and (25per cent 2 years); Bremner et al. (1996) war, military ($n=61$) 2 years after combat tour 24 years 23per cent (14/61); Op den Velde et al. (1993) war, resistance fighters ($n=147$) 5 years after war 40 years 68per cent (84/123). The interesting observation from research trauma exposed populations is that the highest representations of delayed onset PTSD are for those that have been exposed to combat related traumas.

Military and civilian psychiatrists today routinely ask their patients if they had experienced a violent event in which they perceived that their life was threatened. This question was not often asked of veterans in Australia on their return from the Vietnam War during 1960's and 70's— even in hospitals that dealt with Veterans psychological illnesses specifically. Rather veterans were confronted with protests, a community that shunned them and a Korea and World War II veteran population that did not often

recognise Vietnam Veterans as war veterans. Vietnam was regarded by many during that time as a police action. When it is asked of Veterans today, an affirmative response immediately alerts the questioner to the possible presence of the early onset of the constant symptoms of PTSD. Which if not diagnosed and left untreated will produce long term significant impairment in the sufferer? Then questions asked about sleep, dreaming and nightmares, as well as dream content, will usually and quickly uncover the constant frightening repetition of the traumatic event/s. Questions about the content of daydreams generally uncover the intrusive rethinking of the terror-ridden experience. This is often associated with startling fantasies, flashbacks of the experiences and suicidal plans—even if these are only fantasised about, they are important. These developed PTSD pathways become more evident the more analysis is done. The astute examiner will detect the various attempts at restitution of personality function in the use of whatever personality assets or defences the victim employs and has available to him or her to deal with this type of recollection and mourning (Smaldino 1991).

Delayed onset PTSD is accepted as a valid diagnosis provided that there is a latency period of at least 6 months before the onset of PTSD symptoms as described in DSM-IV. Any individual therefore, who has an onset of symptoms of PTSD prior to this point, even if they do not recognize the relevance or cause of these symptoms, cannot be supported as having a truly delayed onset (Andrews et al. 2007). Retrospective studies of delayed onset PTSD quite often assess lifetime episodes with standardized clinical interviews (as was done in part in this research) to track the path from combat through to the possible onset of post trauma symptom manifestations over time.

Much of the recent research that has examined this problem of latent re-emergence has been based on relatively short exposure to civilian trauma. It included victims of motor vehicle accidents and other brief exposures such as natural disasters—for example, floods (Norris et al. 1994) and bush fires (McFarlane 1984). These studies have suggested that the severity of the acute symptoms is a strong predictor of longer-term adaptation or presentation of delayed onset PTSD especially with seriously injured victims (Schnyder et al. 2001). There is recent research that examines the delayed onset PTSD by providing a systematic review of the relevant evidence relating the prevalence of delayed onset PTSD in a variety of trauma exposed populations, especially research outcomes other groups such as combat veterans (Andrews et al. 2007).

There have been surprisingly few longitudinal studies of combat veterans beginning in the immediate aftermath of the event, especially identifying the possible predictors of the immediate and delayed onset of PTSD symptoms (Solomon et al. 1991 a & b).

Epidemiological studies of Vietnam veterans such as the Australian Vietnam Veterans Health Study (AVVHS) did not begin to provide statistical data until the latter part of the 20th century. This was well after the Vietnam War concluded for Australia in 1972.

One group that has conducted such studies is the Israeli Defence Force. This research examined the rates of delayed onset PTSD amongst those who had reported symptoms of ASD some time after the battlefield exposure. It then compared these results with those combat veterans who had similar levels of battlefield exposure (Solomon et al. 1987b).

This study established that high rates of PTSD occurred amongst those with ASD. However, the majority of individuals who developed late-onset PTSD never had an ASD reaction or reported such a reaction. This reaction is supported by the outcome of this research. Further investigation of this relationship in other populations is of critical interest to those planning preventive strategies. It is also useful for those developing conceptual identification and treatment models of delayed onset PTSD in combat veterans.

Another area of critical interest is the comparison of the range and nature of ASD symptom cluster reactions with traumatic battlefield situations and the risk of psychopathology (O'Toole et al. 1999 and Miller et al. 1992). These reactions include dissociation, intrusive re-experiencing, and hyper-arousal and avoidance behaviour. The reaction to traumatic battlefield situations includes functional interruption of memory, flashbacks and anger (Zimering et al. 1998). These ASD reactions may identify the initial aetiological indicators of an individual's vulnerability to the onset of PTSD (Solomon et al. 1996).

To date, delayed or late onset PTSD is accepted as a valid diagnosis provided that there is a latency period of at least six months before the onset of the symptoms (American Psychiatric Association 1994). Any veteran who presents with symptoms before this time is not recognised, or supported, as having a truly delayed onset of PTSD. Consequently, this type of research is extremely relevant in ascertaining the development pathways of this disorder.

Justification of the research

In 1969, an Australian Army psychiatrist kept a detailed record of 119 servicemen who presented for assessment. A variable range of conditions was diagnosed at the time utilising the *Diagnostic and Statistical Manual of Mental Disorders, Second Edition*, (DSM-II). However, the fact of their presentation is indicative of some form of acute psychiatric disorder emerging in the combat environment in Vietnam as a consequence of battlefield trauma exposure. A case control population was identified by matching information about those individuals seen by the Army psychiatrist with personnel attached to the same units and corresponding sub-units with closely case controlled demographic variables. The following information was collected for both groups:

- service regimental numbers
- ages
- surnames
- enlistment entry—type and state of enlistment
- corps and employment classifications
- combat exposure.

The matched case control-Control group comprised at least two personnel for every one of the Experimental group who matched and served in the same unit or sub-unit as these ‘case’ servicemen—that is, the Experimental group participants. However, those in the Control group did not present with an acute psychiatric problem during their tour of duty

in Vietnam in 1969-70. After obtaining the research participants' consent, I analysed their reactions to their respective experiences in Vietnam. The aim of this analysis was to ascertain whether these Control group individuals have presented with delayed onset PTSD symptoms since their period of deployment.

These cohort populations provide a rare opportunity to examine psychological and physical outcomes from the initial battlefield diagnosis with a long-term perspective rather than from the immediate, or short-term, diagnostic timeframe. They also provide an opportunity to understand how military personnel adapt to exposure to traumatic battlefield events over a long period. Examining the records of those who present with symptoms of acute battlefield stress reactions-combat fatigue informs knowledge about the development of symptom-specific identification, therapy and prospective treatment programs for PTSD.

Purpose of the research

This research quantitatively analyses, and qualitatively describes, the relationship between battlefield trauma and the contributory relationship between exposure to such trauma and subsequent disruptions to veterans' psychological and physical health (Litz et al. 1992). Battlefield trauma is defined as combat, wounding, witnessing the wounding or death of fellow soldiers, enemies and civilians and mutilation from small arms fire, aerial bombardment and mine explosions. The research also seeks to confirm the memory recollections of research participants as reported in 1969-70 and recalled in 2006-07. The experiences recorded in 1969-70 of the 119 Experimental group participants were used as

a start point for this research. The longitudinal outcomes of the Experimental group were then compared with those of 275 case control selected Control group participants.

In conclusion this study initially examined the original data collected in Vietnam during 1969–70 of a cohort of 119 servicemen who presented with various physical and psychological combat fatigue symptoms. This group became the initial Experimental group. These original data were documented in the clinical diary records of an army psychiatrist on deployment in Vietnam during 1969–70. I then examined the effect of the initial trauma exposure and the projected longitudinal course of veterans' symptoms and compared their current psychological status with their original assessment. Following that, I compared these statistical outcomes with the Experimental and Control group's current 2006-07 situations.

Research hypothesis

This research became the system whereby results from the following *Research null hypothesis* were examined and an answer to the subsequent *Research question*, confined by specific parameters, was sought.

The research null hypothesis is that:

- *There would be no significant difference in the health and wellbeing outcomes of an Experimental group and Control group that experienced the same traumatic battlefield events during the same tour of duty in Vietnam.*

Initially, I examined the role of an in-battlefield diagnosis of those of the Experimental group that presented with TSD and other psychiatric disturbances during the war deployment. The subsequent examination was devised to analyse if these in battlefield psychiatric initial diagnoses are accurate indicators of a lifetime psychiatric morbidity in Vietnam War veterans. Then I compared the Experimental group with the carefully case controlled group of Vietnam War veterans. This Control group of veterans spent the same amount of time, and were exposed to the same traumatic battlefield events, as the Experimental group. However, they did not present with psychiatric difficulties during 1969-70.

There are two veteran research population groups comprising those who:

- presented with TSD and other psychiatric disturbances during the war deployment and those that
- did not present with the same symptoms but are involved in the current research.

Between 1969–70 and 2006–07 there would be both an onset and greater prevalence of the whole range of psychiatric disorders in both groups. Given these examination observations:

- there would not be a significant difference between the Experimental and Control group participants' frequency and intensity of PTSD symptom clusters.
- both the Experimental and Control group participants would register high levels of severe combat exposure

- the measured level of PTSD for both Experimental and Control group participants would warrant a PTSD diagnosis
- the quality of dyads of both the Experimental and Control group participants would have been affected
- the presence and severity of depressive symptom clusters would be high and affect both the Experimental and Control group participants' sense of self, especially over time (Roemer et al. 1998)
- the general health and wellbeing of both the Experimental and Control group participants would decline

Research question

The resulting research question became apparent:

- *Does battlefield trauma exposure have any long-term, pernicious effects on the psychological and physical wellbeing of the TAOR Vietnam War Australian military personnel diagnosed in 1969-70 as military psychiatric patients compared with other Australian military personnel with the same battlefield exposure experiences?*

Research study parameters

The broad research study boundaries to this investigation are as follows.

Experimental and Control group participation criteria

The Experimental and Control groups were case controlled in the following areas:

- gender
- age
- unit affiliation
- military employment classification
- rank
- time deployed in the tactical area of operational responsibility
- combat exposure.

This study's Experimental group were treated for a variety of trauma exposed psychiatric reactions that presented mostly with a 1969-70 contemporary diagnosis of Transient Situational Disturbance (TSD) in conjunction with other psychiatric disturbances dealing with adult adjustment issues in the battlefield during their tour of duty in Vietnam. This data became the foundation for the research (see Table 1). The subsequent evolutionary case control paired selection process of the Control group participants began for this study with identifying various distinct variables within the Experimental group. These variables included military service affiliation (Navy; Army and Air Force), then the identical corps (eg: Infantry), unit (eg: Battalion), sub unit (eg: Company, Platoon and Section). The Control group participants were also case controlled with Experimental group participants TAOR job responsibilities in 1969-70 (Tabulated data: Chapter 4). Finally the case control process was honed by matching surnames, length of military service, dates of birth, states of enlistment, length of time in the TAOR, types of military indoctrination and prior military service experience (volunteer or conscript). The case

controlled paired ratio for the 1969-70 periods was at least two and in most cases three Control group participants to ever one Experimental group participant. The 2006-07 invitation response research study group conformed to all of these strict matching and subsequent selection process.

Table 1: DSM-II diagnosis status of Experimental group participants treated by a military psychiatrist in 1969–70

DSM-II diagnosis status	Frequency	%
TSD - depressive features	19	15.97
TSD - Anxiety symptoms and obsessive	27	22.69
TSD - Hysterical Neurosis, Dissociative Conversion Type	9	7.56
Border line TSD - Anxiety Symptoms	2	1.68
TSD - Alcoholic Addiction	23	19.33
TSD - Personality Disorder - sociopath	1	0.84
TSD - Social Maladjustment with manifest Psychiatric disorder	7	5.88
TSD - Anankastic Personality	4	3.36
TSD - Social malady instinct (associated with excessive drinking)	1	0.84
Other psychiatric disorders (incl: Hypochondria cal neurosis)	11	9.24
Hypochondria cal neurosis and Paedophilia	1	0.84
NIL psychiatric	14	11.76

Research variables

The selected variables were chosen specifically to reduce the chance of co-linearity while preserving the significance of the predictor indicators of interest as far as was practicable. This research examined the following nominal variables as prospective latent indicators of group vulnerability to TSD and other psychiatric symptom reactions with the corresponding onset development of PTSD:

- severity of traumatic battlefield exposure
- age

- gender
- Job and Corps allocation
- military employment classification—Combat Fighting Force or Combat Support Force
- time deployed in the tactical area of operational responsibility
- rank
- type of enlistment—volunteer or conscript.

Thesis structure

This chapter provides a basic milieu for this research into the impact of traumatic battlefield exposure, the accuracy of TAOR Diagnosis, symptoms, and long-term outcomes for Vietnam veterans who presented initially with psychiatric symptoms of TSD and subsequently onset rates of PTSD. The research null hypothesis was to discover if there are any long-term pernicious effects of battlefield exposure. I did this by examining the 1969-70 medical records detailing the psychological and physical wellbeing of Australian TAOR military psychiatric patients and comparing them with carefully matched 1969-70 Australian military personnel who were also confronted with the same battlefield exposure experiences that were in 1969-70 from a casual non medical observation point 'symptom free'.

The methodology is essentially a longitudinal retrospective case control matched paired measurement. It comprised initial evaluation of diagnostic diary entries from 1969-70.

Then in 2006-07 the completion of a psychometric questionnaire by the veteran and an extensive telephone interview which was conducted after the completion of the psychometric questionnaire. This was followed by data analysis and the collection of quantitative and qualitative information. Basic research methods were outlined and justified and important research parameters identified. My research findings represent a detailed description of the theoretical propositions and empirical evidence that has preceded and supported this study in other research endeavours.

The thesis is organised into seven chapters and Appendix A. Chapter 2 reviews the relevant literature on the nature of trauma; the history behind psychological classifications germane to the prevalence, diagnosis and course of PTSD, identifying PTSD; this also includes the evolution of pathological grief, post-traumatic sensitisation and then an examination of the military perspective. The literature review extends to the aetiology and symptoms of PTSD, the changing emphasis through the Diagnostic and Statistical Manuals of Mental Disorders as the category of PTSD develops. It then examines the literature appropriate to veterans and their historical experiences in combat and Vietnam battlefields. Finally the context of combat is observed with a focus on the reactions to stress, the significance of retrospective validity and effective treatment regimes and timing. A presentation of individual vulnerability predictors of the onset of PTSD concludes this chapter with a brief look into the possibility of screening for PTSD.

The study design and research methods utilised in this thesis are described through Chapter 3. Chapter 4 begins by unfolding the selection process implemented to delineate

the matched case control sample in terms demographic categorical or continuous variables and analysing the instrument administration results comparing Experimental and matched case Control populations for 1969-70 and 2006-07. Further, this chapter includes anecdotal observations made from the respective research results. Through Chapter 5 the primary focus is on the research instrument administration results. It further investigates the relationship between military rank and service affiliation, enlistment distribution, DSM-II initial diagnosis comparison, comparative age of research participants, Australian state of enlistment distribution, military corps and job allocations while in Vietnam, psychiatric treatment timing, marital status, DSM-IV symptom variation in 2006-07, Incapacity diagnosis variation, traumatic event variation and finally the research participants respective military pension status. Chapter 6 is a presentation of the limitations (especially where $n < 10$) of this research related to the historical evolution of specific diagnosis for battlefield exposure reactions. This chapter continues to describe the strengths of this research while relating the effects of the battlefield on combatants and the battlefield PTSD outcomes for the specific research populations involved. It concludes by discussing the implications of this research for the military while appreciating the inherent dangers of being in a battlefield for vulnerable personnel. Chapter 7 is devoted to recommendations for future research; specific to investigating the implications of the outcomes of this research and what may be possible with more de-identified data from the Department of Veterans' Affairs. It also proposes other future research that may be significant with the changing emphasis on committing Australian citizens to conflicts around the world and the possibility of earlier identification of 'high risk' individuals. An introduction of Appendix A is included here to provide an initial

insight invitation to view the qualitative responses of these distinctive research participants. It does not provide any statistical significance to the outcomes yet at the same time it does provide another perspective of the effect that battlefield traumatic exposure can have on seasoned soldiers and conscripts.

Picture 2



1969-70
Central Conference Area for 6 Platoon B Company 9 Royal Australian Regiment in the 1st ATF
TAOR
(This is a magnification of the area around the makeshift conference table).

Chapter 2

‘Trudging haunted acres from Anzio to Bunker Hill and Cassino, and from Wissembourg to Yorktown and Zorndorf – the more I am struck by the fact that the human being is the Central Weapon of WAR.’ (Holmes 2003)

LITERATURE REVIEW

Introduction

The review of the literature relevant to this study commenced with an assessment of the nature of trauma research. This assessment then continued with an examination of the history of psychological classifications of trauma, the significance of psychiatric disorders and the evolving criteria for a diagnosis of PTSD. This appraisal then went on to look at the co-morbidity manifestations of exposure to trauma while describing the aetiology and symptoms of generic stress, ASD and PTSD. Then consideration of the evolution of diagnostic instruments since the 1960s was presented in conjunction with the recorded historical social experiences in Vietnam during 1969-70 coupled with the context of combat activities and the issue of symptom presentation with regard to the on location diagnostic evaluation during the same period. Next an evaluation was undertaken dealing specifically with the validity and deficiencies of longitudinal research with specific attention directed towards: treatment timing (temporary versus permanent treatment outcomes) and the fluctuating states of mind of military personnel. It then explores the distinct military perspectives and the associated military conventions over the past 35 years. This evaluation of the literature was done in context and in concert with the associated general observations about battlefield exposure of Australian military units and the associated risks for those who may be exposed to trauma. The conclusion of this

chapter looks at the prior experience, training and possible protection available to potential military personnel in the future and the potential value of screening for PTSD.

It is in this context that the hand to hand struggle in all its horror and frightfulness; enemies trampling each other underfoot, killing one another on piles of bleeding corpses, felling their foes with their rifle butts, crushing skulls, ripping bellies open with sword and bayonet. No quarter is given; it is sheer pure butchery; a death struggle between savage beasts, maddened with blood lust and fury. Even, the wounded fight to the last gasps, with or without weapons. With their bare hands they seize their enemies' throats and tear at them with their teeth (Dunant 1947).

Too frequently the haunted suffering experienced by soldiers exposed to battlefield trauma fails to metamorphose into coping mechanisms that would afford them a better sense of reality. Rather, victims are plunged into the baneful depths of despair where they learn nothing new and where they are subject to illusions of doom and hopelessness. Initially, examinations of the more theoretical areas of the general history of post-traumatic syndromes and aetiological models indicate that there are several kinds of specific strains in a battlefield zone. These examinations integrate the role of the environment with the onset of ASD and the subsequent development of PTSD (Friedman 2006a). They also provide a foundation for reviewing other literature about battlefield exposure and its ongoing pernicious effects on individual sufferers that is pertinent to this area of research.

Research of this type is rare. It constitutes a field of critical interest in mapping the patterns of symptom manifestation, Transient Situation Disturbance (TSD) or more recently PTSD diagnosis to specific trauma stimuli and the aetiological role that individual vulnerability may have to the onset of PTSD (Solomon et al. 1996).

Therefore, the specific area of research in a war environment is of significant interest. To date, few descriptive treatises on the specific nature of stress reactions—as diagnosed in the battlefield—and the onset of PTSD have been undertaken (Solomon et al. 1993).

Apart from the Israeli studies, the research about the London Blitz (Rachman 1990) and the study of the students in Beirut (Saigh 1984) indicate the functional role of fear stress reactions. These are the only other systematic research projects that explore the identification of exclusive stress reactions and their specific relationship to the unique combat scenario exposures. These are not longitudinal studies. One recent longitudinal study was conducted into PTSD symptoms in the files of Australian servicemen hospitalized in 1942-1952 (Burgess-Watson & Daniels 2008). Other studies have looked at the relationship of response rates to stress reactions (Weisaeth 1989b). For example, events such as researching the PTSD symptoms in survivors of terrorist attacks (Shalev 1992); or the stressors present as a result of a factory explosion and the subsequent late onset of PTSD (Weisaeth 1989c). Also PTSD symptomology presented specifically in European war veterans (Orner 1992).

An examination of other literature sources has presented epidemiological studies of large-scale population samples in Australia and China following earthquakes. There are also studies of Gulf War I veterans and the civilian population in Kuwait following the Iraqi occupation in the early 1990s (Leetz et al. 1993). These literature sources also presented studies exploring the longitudinal course of PTSD in World War II veterans and the reactivation of PTSD in later life (Macleod 1991 and 1994). More recently these literature sources also refer to studies by the United States Department of Defense and the United Kingdom Department of Defence on their force's reactions to their respective deployments to Iraq and Afghanistan. These studies are interested in the early identification of the onset of an ASD and the subsequent development of PTSD. They also produce a series of observations about the importance of memory deficits. A specific focus is the accurate identification of the traumatic battlefield event that initiated the onset of the ASD or PTSD. These disorders, in turn, accelerate the ageing process and deficiencies in the memory of older combat veterans (Golier et al. 2006).

The nature of trauma

The nature and enduring ramifications of single or multiple exposures to expected and unexpected traumatic events still require robust examination. Research evidence suggests that a single exposure to a traumatic event may result in a causal link to the increased risk of exposure to additional traumatic events later in life. There is minimal understanding available through research about the individual psychological mechanisms responsible for this phenomenon. The results of a large-scale longitudinal survey suggest that women

who have a history of rape or aggravated assault are approximately twice as likely to experience another assault as those without such a history (Kilpatrick et al. 1997).

A possible psychological method through which this vulnerability operates is the individual's response to the initial traumatic event. The personal experience of PTSD symptom clusters is quite common following traumatic experience exposure. Numerous longitudinal studies have established that 30 per cent of individuals meet the full criteria for PTSD one month following traumatic experience exposure (Shalev et al. 1998a). However, higher diagnostic rates have been reported among women assessed within one month of a sexual assault (Rothbaum et al. 1992). It may be that the experience of PTSD symptoms—both immediate and delayed onset—uniquely contributes to the development of a vulnerability to future exposure (Solomon et al. 1991 a & b). For example, through deficits in self-protective behaviours, by developing a persona of false bravado or for those around them the typical victim personality develops (Orcutt et al. 2002).

Traumatic events disrupt an individual's external and internal reality. The magnitude or intensity of a traumatic experience is that it has to manifest particular attributes of severity and intensity to rob the exposed individual of an innate sense of safety. An actual or threatened death—or serious injuries to the individual's sense of physical integrity—are the most significant indicators of the severity and intensity of the traumatic experience. These would all influence the longitudinal course of trauma experiences (McFarlane 1996).

The resulting personal response to the trauma is that of acute fear, helplessness and/or horror (Litz & Orsillo 2004). Consequently, individuals' ideals and beliefs about safety, control and freedom from pain are undermined. Because these events have the capacity to kill, maim, brutalise and damage property, the external reality is of danger. Examples of such events are natural disasters, rape, assault, motor vehicle accidents, predatory violence and, obviously, wars.

The victim is powerless to change the course of the events as they unfold. These events bring to the individual an internal reality of fear, horror and lack of control (Lewis & Rosenblum 1974). Often the individual is left trapped more by the memory of their own perceptions and feelings of helplessness than by the experience of what has occurred (Litz & Orsillo 2004). This leads to a sense of fragmentation as well as a constant traumatic state continually being triggered by the memories that often become the subtle reminders of the initial event (Otto 2000) especially those memories of Vietnam (Tennant et al. 1990).

These are the extreme events for which previous life experience, knowledge and training do little to equip people with the psychological arsenal to protect their sense of self (Shalev et al. 2000b). A common emotional response denominator presented by many battlefield-exposed participants is the sustained anticipatory anxiety about a broad range of potential threats. This can be manifested in a domestic environment as hyper-vigilance,

over-protective parenting, not allowing others to drive the car, or even keeping a loaded firearm in the house (Friedman 2006a).

Such behaviour is explicable in classic psychological models such as the Pavlovian Fear Conditioning model (Kolb 1987) the Two Factor Theory model (Keane et al. 1985b) and the Emotional Processing theory model (Foa & Kozak 1986). There are also other models that have been developed through exhaustive longitudinal research. The traumatic stimulus, which is unconditioned, automatically induces unconditioned ASD or PTSD emotional responses. This stimulus could be the detonation of a roadside bomb, direct assault from enemy forces or a booby trap explosion.

These emotional responses can span from relatively minor to extremely intense sensations such as immediate horror, seeping helplessness and/or intense fear. The intensity of these emotional reactions provokes protective or avoidant behaviours that work to tone down the emotional impact of the traumatic battlefield stimulus. When soldiers return from the battlefield, stimuli reminiscent of traumatic battlefield events, now conditioned stimuli, can initiate similar conditioned responses which are exhibited as fear-induced protective and avoidant behaviours (Friedman 2006 a & b). These stimuli can include, but are not limited to, car accidents, home invasions and arguments with neighbours.

This type of fear conditioning can explain some behaviour such as intrusive recollections (Horowitz 1975)—for example, nightmares (Smaldino 1991) which are sometimes referred to as battle dreams in veterans (Shephard 2002). The distinctive aspect of these intrusive recollections is that they often occur night after night in the same sequence. Intrusive recollections of being out of control can trigger avoidant behaviours—such as always demanding to drive the car rather than being a passenger. Also hyper-vigilance behaviours—such as installing extensive home alarm systems and patrolling their homes late at night can occur as a consequence of intrusive recollections of battlefield traumatic exposure. Other behaviour patterns that do not conform to this conditioning are those of emotional numbing or constricted affect range. This constructs chasms that are often not breached between the battlefield-exposed veteran and his family and friends (Ruscio et al. 2002). Consequently, the battlefield-exposed veteran becomes more isolated and vulnerable in every aspect of his or her life. In some cases, the spiral of despair continues forever with no hope of a reprieve (Friedman 2006a).

It also has to be acknowledged that traumatic events have a range of practical effects as well. For some, these experiences only leave the scars of the shattered assumptions of safety and personal invulnerability—making them stronger. However, they may also inflict personal injuries that disable. This means that the experience is coloured with physical pain and suffering. If a relative is killed or a house destroyed, grief will further complicate the experience. This happens as the victim tries to avoid disturbing memories of the experience. He or she may also wish to retain memories of the lost person or home.

With certain traumas—such as domestic violence and rape—the intentional cruelty of the perpetrator can radically disturb the victim’s sense of trust. Relationships become a constant reminder of the danger and risk experienced.

The loss of personal autonomy in war—both in military service and during the experience of occupation—can reframe an individual’s sense of self-effectiveness. Societies have a range of traditions and institutions that attempt to protect against these events or to create philosophies to deal with the aftermath of war and battlefield exposure. Understanding the criterion of the stressors and the associated reaction to these innumerable experiences is an individual’s psychological challenge. It is also an impost on the psychological social support civilian frameworks needed to support those exposed to battlefield trauma (Shalev et al. 2000b).

The nature of traumatic reactions

The investigation, or attribution, of the nature, aetiology and longitudinal course of ASD and PTSD identified in victims of trauma is often restricted to identifying the outward manifestations. Although, the nature, aetiology and longitudinal course of ASD and PTSD can haunt the secluded periods of ageing sufferers such as the German war artist Otto Dix. Dix as a young man didn’t notice that he was badly affected as a consequence of his exposure to traumatic battlefield events. For at least ten years after his WWI experiences in the battlefield trenches he kept having nightmares in which he had to

crawl through ruined houses, along passages that he could hardly get through, always feeling that he was suffocating. (Osborne 1996).

These nightmarish, hallucinatory qualities not only pervade Otto Dix's artwork, they are commonplace in the horrific detailed accounts of the aetiology and longitudinal symptoms of many who have experienced battle and the subsequent delayed contemplative confrontation of the horror (Roberts 1999). These include:

- depression—distancing and anxiety
- a prevalent mental disorder
- loneliness—Fatigue and guilt—a significant and ever-increasing social problem
- health problems which result in an extreme vulnerability to a range of acute and chronic and minor and major somatic conditions
- loss of self control
- varying degrees of disorientation resulting in PTSD which is the sequel of the spectrum of the earlier mentioned ASD reactions (Solomon et al. 1996).

Specific ASD manifestations are diagnosed in the tactical area of operational responsibility when the traumatic event is experienced. Until now, however, it has not been possible to connect the maze of specific and non-specific ASD reactions and the

onset of PTSD. It is important to look at the coping strategies employed in these salient human conditions in modern society. They are also useful illustrations of adaptive versus maladaptive coping abilities in varying degrees in all victims exposed to traumatic events (Zeidner & Endler 1996).

The examination of the aetiology and symptoms of PTSD assumes that there is a single syndrome that is relatively uniform. Such an assumption is critical to applying the generalizations derived from scientific research to specific clinical cases. This process of applying generalizations is a central evaluation method used to examine individual plaintiffs in a medico-legal situation or battlefield exposed veterans seeking compensation. However, there are many sources of error in adopting this method of appraisal. One of the most important is virtually being forced into making prognostic predictions of the acute or chronic nature of the syndrome.

There is often the presumption that there are few differences between those with the acute and chronic forms of ASD or PTSD. However, different aetiological processes may be occurring in these distinct forms of ASD and PTSD. Other research has highlighted that the longitudinal course of PTSD has multiple variations. For example, Blank has suggested that these need to be distinguished from the acute, delayed, chronic, intermittent, residual, and reactivated patterns of the current accepted diagnostic regimen (Blank 1993). Blank's research also implied that the available data indicated a need for

the establishment of a Post-Traumatic Stress Syndrome where full diagnostic criteria are not met.

Reflections on the shifts in the nature of the diagnostic criteria indicate how the course of PTSD influences its clinical manifestations. There has been a series of alterations to the diagnostic criteria between editions of the diagnostic and statistical manual. These reflect how the perceived symptoms of PTSD have changed with the course of research discovery.

The original criteria were substantially based on the observations made in research published during the Second World War of chronic, suffering World War I veterans (Kardiner 1941). This body of research indicated that the disorder had much in common with schizophrenia—particularly the constriction of affect and withdrawal. Kardiner (1941) also observed a deterioration that is not dissimilar to that in schizophrenia.

The changes in DSM–IV (American Psychiatric Association 1994) were largely to accommodate the findings of studies conducted after DSM–III–R was published. Consequently, these criteria place greater emphasis on the role of acute traumatic memories and dissociation (van der Kolk & Fisler 1995). These amendments were made because the amount of information about acute reactions to stress increased considerably.

The definition of ASD also reflects this shift in focus. Longitudinal studies have provided valuable information about how the sensitivity and specific nature of symptoms change with time (Spiegel & Cardena 1991). Research conducted by Solomon (1987) found that the prominence of intrusive symptoms in Israeli servicemen decreased over a two-year period. Blank's research confirmed that avoidance symptoms increased (Blank 1993).

One consequence of these changes in emphasis is that the individual criteria may have different predictive ability at different times (Ullman & Filipas 2001). For example, in the early aftermath of a trauma, the re-experiencing of memories is common in those who do not have PTSD. This suggests that these symptoms are low in potency at this time. Twenty years later, these phenomena will be very uncommon in the individual who does not have PTSD. Thus, the potency of the specificity of this symptom is increasing in this period.

Currently the diagnostic criteria are ranked as either present or absent with no attention to frequency or intensity. The intensity and frequency of PTSD phenomena is not defined in DSM-IV (American Psychiatric Association 1994). This means that shifts in the frequency and intensity of the criteria over time do not occur and are not fully considered. This question is not omitted because it is inconsequential. Rather, the introduction of intensity and frequency ratings in instruments used in research such as the CAPS-1 has been done with little or no examination of the impact on the thresholds for diagnosis (Blake et al. 1995 and Blake et al. 1990).

There is no empirical research to support the choice of the thresholds used in such research instruments. The danger is that such arbitrary introduction of the quantification of symptom clusters can lead to major biases in the literature that are never made unequivocal. Consequently, the versatility of the individual criteria may vary significantly. This depends on the individual's initial reaction to the traumatic event and the subsequent duration, or onset, of more severe psychological reactions.

Civilian - trauma exposure

Death and taxes are inevitable experiences in a person's day-to-day life and have always been companions of the human experience, regardless of society's social structure or epoch. With varying degrees of effectiveness, people learn to cope or adapt to life's exposure to the stresses of different types of traumas. Some people claim that their development as an individual is inextricably linked to how they cope or adapt after an exposure to a hideous, fearful situations and/or dramatic anxious experiences associated with waiting for something traumatic to happen.

Throughout history, societies and individuals have been confronted with a variety of trauma exposure fears. Many are based on myths, superstitions or religious beliefs. These and other trauma exposure fears are often regarded as real threats to persons or property. A measure of success or progress, which has often been touted, is the demonstrated ability to insulate oneself from both environmental and psycho-social threats.

Environmental threats are the cold, the dark and the rain; while psychosocial threats are confrontation, failure and weakness. When the elimination, modification or insulation from these trauma exposure fears was not possible, civilizations and individuals had to learn to adapt. Those that did not, suffered.

Samuel Pepys wrote about the Great Fire of London—an indescribably horrid and malicious fire disaster that occurred in 1666. He described responses indistinguishable from some of those of combat fatigue and that of Post Traumatic Stress Disorder (PTSD) and delayed onset PTSD in battlefield veterans in some of the survivors of the 1666 fire. He wrote, ‘So great was our fear, it was enough to put us out of our wits. Afterwards, news of a chimney fire some distance away put me into much fear and trouble’ (Daly 1983). Pepys is describing the initial sensory imprint of a stress reaction following exposure and the subsequent flashback recollection of the Great Fire evoked by an insignificant trigger. These indicate clearly what is understood today as the onset and delayed onset of PTSD symptoms.

Charles Dickens also described the characteristic features of stress reactions and the development of PTSD symptoms in him. This happened as a consequence of him being involved in a train crash in Staplehurst in Kent in 1865. He wrote, ‘Two to three hours work amongst the dead and dying surrounded by terrific sights...I am not quite right within...but believe to be an effect of the railway shaking’ (Trimble 1981). Dickens was both a survivor and a rescue worker who suffered. Dickens experience highlights the

similar invasive thoughts and feelings often expressed by rescue workers who are traumatised because of their professional involvement in critical incidents (Trimble 1981).

Initially, these tragedies described by Pepys and Dickens are manifested in the form of stress reactions that quite often dissipate in a civilian context. That is not to say that they are dissolved to the point of not even being remembered, rather it is a single distinctive exposure rather than an incessant, continual bombardment of attacks on the individuals sense of physical and psychological safety.

Seyle, in research published in 1950, suggests that effective adaptation to trauma exposure fears could be considered a hallmark of a successful life. It is worthy to note that alternative opinions exist. One is that our capacity to cope with trauma exposure fear and the associated stress depends on our ability to draw happiness from aesthetic objects or material goods. This seems critically dependent on our first satisfying a more important range of emotional or psychological needs. These include the need for understanding, for love, expression and respect (De Botton 2002).

In an interview about his work *Die Krieg*, Otto Dix explained why as a civilian he volunteered for service in the German army in World War I. He explains that he felt that as an individual man and artist he experienced in the battlefield someone beside him suddenly falling over dead, noting; the bullet has hit him squarely. He explained he had to

experience that quite directly. Perhaps he was an inquisitive person? Yet he had to see it all for himself. He had to experience everything with his own eyes and other senses in order to confirm that the horrors of war are there. He experienced all the ghastly, bottomless depths of life for himself (Osborne 1996). It needs to be confirmed here that Otto Dix suffered badly, both physically and psychologically, as a consequence of his drive and curiosity (Biographical details of Otto Dix sourced from Harold Osborne 1996). Consequently, there is a critical question to be examined. That is; what particular features of reactions to individual one off civilian trauma exposure are particularly detrimental to an individual's long-term adaptation to life compared to the continual bombardment on an individual in the battlefield?

This bombardment on the physical and psychological sense of safety is ever present in the modern day battlefield and often interferes with the survival and recovery in combat veteran's behaviour on return to the relative safety of their civilian world. These combat stress reactions presented by these returning veterans include emotional distancing, anxiety, fatigue, guilt, loneliness, vulnerability, loss of self-control and varying degrees of disorientation (Solomon et al. 1996).

Experiences in catastrophic events during peacetime and operations other than war

In the past few years, there have been numerous accidents and hostile incidents including helicopter and plane crashes, serious training accidents, tsunamis and terrorist bombings.

They have demonstrated the value of crisis stress control for soldiers, their families, and civilians caught in the turmoil of peacetime operations and activities.

Military commanders and sub-unit leaders are aided by unit, regimental and brigade hospital mental health personnel, chaplains, and others. They all contribute in key functional roles to provide crisis stress control for many of the unfortunate victims of these tragic incidents. In peacetime, stress debriefing of critical incidents has been regarded as essential for military personnel and for civilian police, fire, and disaster relief staff (Solomon et al. 2000; Mitchell & Everly 1993 and Mitchell 1983). It has proved its value in preventing and treating disabling PTSD (Duckworth 1987). An historical group debriefing following combat exposure research summary was also provided by Shalev (1998b).

However, recent research has indicated that the timing of pre-deployment mental health briefings was irrelevant. This is because military personnel knew that they would be in the battlefield soon, personal stress levels would be high and the implementation of mental health advice would be low. Similarly, debriefing on return from the war zone would result in combatants having reduced stress levels because they are survivors.

Debriefing is still a controversial treatment option. Relatively recent research still proclaims the efficacy of debriefing treatment programs (Raphael & Wilson 2000). The question still remains; does debriefing work after experiencing a psychological traumatic event (Raphael et al. 1995)? Alternatively, other research has shown that debriefing as a

one-off session with a therapist or in a group setting a few days after the traumatic event, or on return from the TAOR can actually increase the risk of developing PTSD (Jhingan 2006). The World Health Organization has recently come down heavily against this treatment option.

Alternative trauma exposure outcomes

Interestingly, Proust suggests that we only become truly inquisitive, when we are distressed. As we suffer we think, and we do so because thinking helps us to place pain in context, it helps us to understand its origins, plot its dimensions and reconcile ourselves to its presence (De Botton 1998). The problem with knowledge is the innate conservatism of the users. At the moment grief changes into knowledge, it loses some of its rare power to acutely injure our hearts. The application of new knowledge is always constrained. Hence, with hindsight, it is very easy to underestimate the struggles of accepting a particular piece of knowledge. Therefore, it is essential that an historical context of exposure to a battlefield, or an extended period in a combat zone is explored continually. Especially considering the rapid change in technology and the varying frequencies and intensities of battlefield trauma exposures can change the context of the onset of reactions.

Historical definitions of traumatic syndromes

History has not consistently embraced an understanding of the effects of psychological trauma. The last three decades have been a period of intense interest that has led to a very

prolific research and changes in clinical practice. These have had a significant impact on psychiatry generally (van der Kolk et al. 1996a and van der Kolk 1987).

However, a similar period of focused attention occurred at the end of the 19th Century. This research summarized the field in 1890 and highlighted the broad interest in psychological trauma on both sides of the Atlantic. Based on the collective evidence, researchers at the time suggested that the term ‘traumatic neuro-logicals’ replace the range of other terms that were used. These included railway spine, hysteria and compensation neuro-logicals (Seguin 1890). It took 90 years for this recommendation to be accepted by the psychiatric profession and to be published in DSM–III (American Psychiatric Association 1980).

Before 1980, data collection about post-traumatic stress reactions was mainly guided by the investigator’s own theoretical persuasion. This inevitably meant that certain PTSD-related processes were likely to be ignored in any selected research. Since then, it has become increasingly common for PTSD assessments to be made routinely. This happens even when the disorder is not the central focus of a clinical diagnostic investigation. In a broad sense, these assessments confirm that many different types of stressors are capable of producing a psychological disorder that conforms to the PTSD criteria. Other research that has included a PTSD assessment demonstrates the diversity of stressors that have been considered when addressing the question of psychological trauma, not just in combat veterans (Wolfe & Keane 1993). These other stressors have included:

- childhood incest (Lindberg & Distad 1985)
- a cyclone (Fairley et al. 1986)
- severe burns (Blank & Perry 1984)
- a nuclear power station that has previously leaked radiation (Davidson & Baum 1986)
- earthquake (McFarlane & Cao 1991)
- an accidental fire disaster (Duckworth 1986)
- World War II POW camps (Kluznik et al. 1986)
- exposure to toxic substances (Schottenfeld & Cullen 1985)
- burglary, robbery and assault (Davis & Friedman 1985).

In any consideration of the historical definition of traumatic syndromes specifically related to combat, it is also important to assess the adequacy of previous conceptualizations of the psychiatric sequel of war and traumatic syndromes. It has long been argued that the definition of traumatic stress in the military amphitheatre has more relevance to the articles of war than to the clinical realities or an objective knowledge base. Traditionally, when ASR symptoms, if present, had subsided, the diagnoses of anxiety neuro-logicals or depressive neuro-logicals were then applied. The first two volumes of the American Psychiatric Association's diagnostic and statistical manuals were published in 1952 and 1968 respectively. They were largely based on Freud's notions about the aetiology of neuro-logicals being the consequence of libidinal trauma

in childhood. This was despite Freud thinking that traumatic neuro-logicals was quite distinct from the anxiety and depressive neuro-logicals. Interestingly, in his paper, *Beyond the Pleasure Principle*, Freud coined the term ‘the stimulus barrier’ to explain the onset of traumatic neuro-logicals (Freud 1922). He arrived at this diagnosis after examining numerous World War I veterans. The distinctiveness of the phenomenology of traumatic stress responses merits further examination. It is important because one of the consequences of inappropriate interruption of the sense of self in a battlefield is the effect on the psychological health of combatants. These inappropriate interruptions can be threats to an individual’s personal safety or sense of self-preservation. They can also act as a stimulus barrier in the combatant’s short- and long-term adaptation to post-exposure life. This encourages—and obviously invites interest and questions about the collective issue—about how these syndromes were described before the late 19th century.

The history of psychological classifications

Over time, much work has been done to identify psychological injury classifications that are now acknowledged as an immediate consequence of participation in, and exposure to, battle. These include psychological wounds such as Neurasthenia (Mott 1918), literature describing the American Civil War focused on the battle locations, operational and tactical manoeuvres, logistic expenditure and physical injuries and death (Storrick 1932), not the psychological injuries; abreaction (Freud 1966 coined in 1895); shell shock (Southward 1919; Carlyon 2006; Privy Council papers 1947 and Swank & Marchand 1946) and war neurosis (World War I); battle neurosis (British Army World War II);

combat exhaustion (US Army end of World War II and Korean War) and combat fatigue (US Army Vietnam War 1961-1975).

‘War neuroses’ is a generic term for all functional war syndromes (Jones & Wessely 2005; Sargant & Slater 1940; Salmon 1919 and Freud 1918 cited in 1957). Revolutionary research in 1922 on the neuroses of World War I veterans in (Kardiner 1941) ‘...had a major impact on the current formulation of PTSD diagnostic criteria’ (Pitman 1997).

Abram Kardiner trained in anthropology with Franz Boas at Columbia. He then studied psychiatry at Cornell in the United States and then in Vienna he had a personal analysis conducted by Freud. Kardiner returned to New York in 1922 where he ‘...began several years of clinical study and treatment of hospitalized veterans of World War I suffering from the so-called war neuroses’ (Kardiner 1941). In 1932 he wrote a paper called *The Bio-analysis of the Epileptic Reaction* where he used the concept of ‘reitschutz = inhibitory defense against outer stimuli’ (Manson 1986). Between 1933 and 1936 Kardiner taught a seminar at Columbia University with Ralph Linton and anthropologist Cora DuBois. They fundamentally transferred what psychiatrists knew in World War I to anthropologists and psychologists who would later work for the war effort in World War II. These included Ruth Benedict, Harry Stack Sullivan, Erich Fromm, Karen Horney, and Erik Erikson. While he was at the University of California–Berkeley, Erikson worked with World War II veterans at Mt Zion Hospital in California and at the San Francisco Psychoanalytic Institute (Coles 1970). Robert Cole described Erikson’s

work with the veterans of the Second World War who were destined to be short-lived conquerors. They came home safe but soon began to suffer continual anxiety and gloom, cutting headaches and episodes of forgetfulness. One after another they sought out hospital clinics, complaining of vague aches and pains or unsettled ‘nerves,’ a loss of sleep, a loss of appetite, a loss of interest in life: in sum, a loss of “themselves”.’ (Coles 1970)

Erikson listened to them; former soldiers in trouble. He tried to account for their heightened vulnerability, their susceptibility to almost anything; to what he called ‘the gradual grind of a million annoyances’ (Coles 1970). Erikson himself described the World War II veterans he worked with clinically in this way: Their struggle to gain access to the non-reversible escalator of free enterprise, their traumatized ego fights and flees an evil identity which includes elements of the crying baby, the bleeding woman, the submissive (black), the sexual sissy, the economic sucker, the mental moron; all prototypes, the mere allusion to which can bring these men close to homicidal or suicidal rage, ending up in varying degrees of irritability or apathy (Coles 1970).

Kardiner’s World War I work on ‘war neuroses’, and Erik Erikson’s clinical treatment of World War II veterans in California, raised an important question. Did not the United States military know about the phenomenon of PTSD symptom clusters—although not yet psychologically classified—before Vietnam? (Kulka et al. 1990) At the same time

another question lurks in the background: was it too expensive to formalise such recognition of battlefield trauma exposed veterans?

The descriptions of reactions of veterans and others who have been exposed to tremendous stress also appeared in the ninth edition of the *International Classification of Diseases* (ICD) (WHO 1968). These descriptions proved to be pivotal in the original psychological classification definition of PTSD. The disorder first appeared as a legitimate diagnosis in the *Diagnostic and Statistical Manual of Mental Disorders, Third edition* (DSM-III), American Psychiatric Association's (American Psychiatric Association 1980). In the *Diagnostic and Statistical Manual of Mental Disorders, Fourth edition* (DSM-IV), the diagnostic criteria table for PTSD clearly identifies three main symptom clusters: Hyper-arousal, avoidance/numbing and re-experiencing (American Psychiatric Association 1996).

Various clinicians and members of the general public associate the diagnosis of PTSD (PTSD: DSM-III: 1980) only with Vietnam combat veterans mainly due to it being originally termed Post-Vietnam Syndrome (Jones & Wessely 2005). These diagnoses do not convey the respective veterans' different acute reactions before the onset of what is now known to be PTSD. Rather, PTSD demonstrates that there are long-term consequences of participation in, and exposure to, the battlefield arena which manifests extraordinary trauma situations (Jones & Wessely 2005). An analysis of human behaviour on the battlefield should begin with an acknowledgement of the thought,

experience, and subsequent extraction from the battlefield arena. ASD: diagnostic category introduced in 1994 in DSM-IV and the onset of PTSD, occur at all levels of command and in all combat situations.

In current research, a factor analysis coupled with clinical experience now advocates for four discrete symptom clusters: avoidance, re-experiencing, hyper-arousal and numbing. It is imperative when employing this diagnostic tool during the initial psychiatric evaluation interview for a clinician to establish a history of the specific battlefield trauma exposure/s (Sim 1969). The clinician must then inquire about the respective symptoms contained within the PTSD diagnostic criteria table. This is done by applying the National Centre for PTSD four-item yes/no screening instrument—the Primary Care PTSD Screen. If a sufferer endorses at least three out of four items, then further diagnostic analysis needs to take place (Friedman 2006b). This is a post exposure endeavour to ensure that PTSD is not under diagnosed in a clinical setting (Zimmerman & Mattia 1999) on return from the battlefield. A similar system has been implemented for Australian military personnel returning to Australia from deployments overseas. In Australia military personnel complete the PCL-M and a list of possible traumatic experience exposures in conjunction with other activities.

Significantly, a defining difference between ASD and PTSD has been established. It is that ASD has a specific, distinctive symptom of dissociation. Either while experiencing, or after experiencing while having traumatic memories (van der Kolk & Fisler 1995), the

exposure/s to the traumatic event, the sufferer manifests at least three of the following dissociative symptoms:

- numbing/detachment or absence of emotional responsiveness
- being in a daze
- de-realisation
- depersonalization
- an inability to recollect an important aspect of the traumatic exposure (American Psychiatric Association 1996).

Diagnostic and Statistical Manual of Mental Disorders— DSM-I (1952) and DSM–II (1968)

In the *Diagnostic and Statistical Manual Of Mental Disorders, First Edition*, (DSM-I), transient situational personality disorders apparently did not include ASR that were of psychotic proportions. Initially it might be considered within considered academic parameters that Freud's conceptualization of traumatic neurosis dominated the then thinking in the medical-psychiatric profession from about 1895 to basically the end of the Vietnam War era for the United States (1962-1975). Freud's conceptualization of traumatic neurosis was basically re-written into the DSM-I (1952) diagnostic criteria for Gross Stress Reaction (GSR), the earliest DSM diagnostic category for what is today codified as PTSD in the DSM-III-R; 1987 (Wilson 1994). Then, from DSM-I (1952) to DSM-II (1968) clinical diagnostic changes began which on reflection are very puzzling (if not regressive) but at the same time identify the paucity of hard-headed thinking and

empirical inquiry about the human consequences of victimization and trauma reactions (Wilson 1994). After the DSM-II, once PTSD appeared in DSM-III, the direction of rapid knowledge accumulation and research proliferation was spectacular (Wilson 1989 and Wilson & Raphael 1993).

Yet still in DSM-I in 1952 a mental disorder specified that transient situational personality disorders general classification should be restricted to reactions which are more or less transient in character and which appear to be an acute symptom response to a situation without apparent underlying personality disturbance. The symptoms are the immediate means used by which the individual in his/her struggle to adjust to an overwhelming situation often experienced in combat which did not attract the same detrimental attention that GSR would. In the presence of good adaptive capacity, the decline of symptoms generally occurs when the situational stress diminishes. Persistent failure to resolve or adjust indicates a severe underlying disturbance and should be classified as transient situational personality disturbance. Transient situational disorders which cannot be given a definitive diagnosis because of their fluidity nature or because of the limitation of time permitted for their examination should be included in this general category (often the situation present for battlefield clinicians). The diagnosis of GSR was when an individual under conditions of great or unusual stress, a normal personality may utilize established patterns of reaction to deal with overwhelming fear. The patterns of such reactions differ from those of neurosis or psychosis chiefly with respect to clinical history, reversibility of reaction, and its transient character. When promptly and adequately treated, the condition may clear rapidly. It is also possible that the condition

may progress to one of the neurotic reactions. If the reaction persists, this term is to be regarded as a temporary diagnosis to be used only until a more definitive diagnosis can be established. This diagnosis is justified only in situations in which the individual has been exposed to severe physical demands or extreme emotional stress, such as in combat. In many instances this diagnosis applies to previously more or less "normal" persons who have experienced intolerable stress. The particular stress involved will be specified as (1) Combat or (2) civilian catastrophe (Wilson 1994).

The DSM-I (1952) category of GSR had diagnostic features which in many ways parallel the later DSM-III (1980) criteria for PTSD. The recognition in DSM-I that in "conditions of great or unusual stress" a normal person may manifest stress-related behaviours in response to "intolerable stress" such as combat. Hence, a recognizable stressor could generate reactions and symptoms but only for the duration of the stressful event since it was presumed that "recession of symptoms generally occurs when the situational Stress diminishes"; when the battle is over. It is here that we see the Freudian influence that a traumatic neurosis is caused by a "penetration of the protective shield of the ego" due to an excess influx of excitation in the mental apparatus within a short period of time. Thus, while a traumatic neurosis – GSR, may be produced, it was presumed to diminish once the event terminated. Persistence of traumatic reactions could only be due to underlying psychopathology which became more apparent because the individual now lacked the capacity to defend against pre-morbid and repressed infantile conflicts. Stated more basically, this view of GSR implies that trauma may aggravate repressed, latent or pre-existing intra psychic conflicts but that the persistence of reactions is not

primarily caused by the traumatic event. Thus, while the stress might be great, it also may weaken ego-defences such that other emotional problems become manifest as well (Wilson 1994).

The second edition of the manual, DSM–II, heralded a then type of intellectual vacuum in which the *collective clinical wisdom* that had been established and was evolving; specifically about psychic traumatisation seems to have gone "underground" and in many ways evaporated from clinical research arenas by the time of the publication of DSM-II (1968). What makes this so peculiar is the apparent contradiction (between trauma initiated circumstances and diagnostic classification instruments) that by 1968 the cumulative historical events involving war, civil violence and nuclear warfare had produced more trauma, killing, mass destruction, death and the threat of total destruction in a short delineated time frame than at any prior time in recorded history (Wilson 1994). Yet the medical diagnostic instruments did not keep pace with this change. During this time explicit disturbances of psychotic proportions changed from GSR and the associated implications of such a diagnosis to diagnoses which included TSD reactions to overwhelming environmental stress—such as a battlefield. These TSD diagnoses had a limited causal range which did not provide a sense of urgency or one may say a sense of medium to long term severity. This limited and denied medical practitioners the avenues for greater diagnostic specificity at that time (American Psychiatric Association 1968).

Some ASR symptoms and PTSD are reflections of adaptive mental processes. Exposure to the trauma has provided certain susceptible individuals with a psychological emphasis for assimilating and integrating new information with an intense focus on survival. Thus, DSM–II denied psychiatrists and medical practitioners the information they needed to acknowledge the existence of, and make a specific diagnosis of, ASR and PTSD (Janoff-Bulman 1985) with a medium to long term prognosis. The maladaptive outcomes, balanced with an individual’s adaptive potential, are directed to attempting to repair the internal structure of their respective realities (Epstein 1990). It is worth considering then, that PTSD is part of a normal instinct for individual survival.

Interestingly, if the natural response to trauma is blocked, then the pathological development of PTSD occurs. Fear associated with military combat is manifested in veterans by trembling, running and hiding and was diagnosed by clinicians as an adjustment reaction to adult life (Wilson 1994). It is also not restricted to large-scale disasters or wars. Rather, refined research findings reflect that PTSD can develop after individual or small-scale critical incident exposure. This raises the question of whether specific maladaptive symptom reactions are exclusive to the types of exposure to specific traumas all of which may develop into PTSD today.

Diagnostic and Statistical Manual of Mental Disorders— DSM-III (1980)-The development of the category of PTSD

The DSM–III (American Psychiatric Association 1980) was the first publication to confer official recognition of PTSD as a discreet and distinct diagnostic classification. The two

previous editions of the diagnostic and statistical manual had incorporated, respectively, diagnoses such as ‘gross stress reactions’ and ‘anxiety neuro-logicals, TSD’. These diagnoses referred specifically to the actual response to an overwhelming environmental stress.

The publication of *Diagnostic and Statistical Manual of Mental Disorders First Edition* DSM-I in 1952 coincided with the Korean War and the diagnosis ‘gross stress reaction’. This diagnosis focused on the transient response to severe emotional or physical stress which may evolve into a chronic neurological reaction linked to predisposing character traits. When DSM-II was published in 1968, the world was in a state of relative peace. Interestingly, the diagnosis of ‘gross stress reactions’ had been totally eliminated. In 1980, DSM-III reflected the catastrophic affect the Vietnam War was having, and would continue to have, on the respective combatants. This document clearly announced the arrival of PTSD as a distinct diagnosis and clinical entity (see Appendix F for the manual’s complete definition). The committee reviewing the inclusion of PTSD as a diagnostic category had to rely principally on literature which focused attention on traumatised male adults. These were primarily combat veterans (Kardiner 1941) and holocaust survivors (Ben Shoshan 1985 and Krystal 1968).

Coincidentally, though not surprisingly, a heightened interest in PTSD and traumatic stress reactions usually occurs after wars and predominately with men. This occurred after the Vietnam War as there were many battleground exposure cases in a short period.

Follow-up research revealed other types of trauma such as rape; although this usually affected more women than men (Mezey & Taylor 1988). Everyday events—such as road traffic accidents—were also regarded as severe and traumatic (Mayou et al. 1993). In 1975 the DSM–III PTSD committee developed a 27-item questionnaire which they administered to 724 Vietnam veterans. The results of this survey fixed the definition of PTSD for DSM–III (Shatan et al. 1977 and Scott 1990).

Current research literature about PTSD at the time, and confirmed in DSM–III, was that the classification of this specific diagnosis had a broad application across an enormous variety of traumatised populations. The research confirmed that PTSD affected not just combat veterans but also refugees and abused children (King et al. 1999); rape victims (Ullman & Filipas 2001); victims of accidents (Pennebaker & O’Heeron 1984) and disaster victims and domestic violence victims (van der Kolk 1987).

Diagnostic and Statistical Manual of Mental Disorders— DSM–III–R (1987)

The modified definition of PTSD first appeared in the revised edition of DSM–III in 1987. This manual was subsequently revised and published as DSM–III–R (American Psychiatric Association 1987). The most significant increase in prominence was that of the magnification of avoidance phenomena detailed in DSM–III. The criteria included are described below:

- deliberate efforts to avoid thoughts or feelings associated with trauma
- deliberate efforts to avoid activities or situations that arouse recollections of the trauma
- inability to recall an important aspect of the trauma.

The important understanding of avoidance-related symptoms heralded an evolving awareness of PTSD and sympathetic treatment regimes. Exposure to an extreme life-threatening stressor—followed by the protective defence behaviour of recollection avoidance of the distressing traumatic stressor—highlights the prominence of PTSD as a diagnosis. It also ensures that to qualify for a diagnosis of PTSD the individual has to experience, or be exposed to, a life-threatening event and subsequently exhibit avoidance behaviour. Common stressors such as bereavement, chronic illness, financial loss, and divorce do not qualify to be defined as life threatening. The stressor criterion has an admission role for the diagnosis of PTSD. Consequently, specific ASRs may evoke specific exclusive developmental paths of PTSD. The definition of Criterion ‘A’ through the *Diagnostic and Statistical Manual of Mental Disorders (DSM)* series has been modified as follows:

- DSM–III (1980) ‘Existence of a recognizable stressor that would evoke significant symptoms of distress in almost everyone’

- DSM–III–R (1987) ‘The person has experienced an event that is outside the range of usual human experience and that would be markedly distressing to almost anyone, e.g., serious threat to one’s life or physical integrity; serious threat or harm to one’s children, spouse, or other close relatives and friends; sudden destruction of one’s home or community; or seeing another person who has recently been, or is being, seriously injured or killed as the result of an accident or physical violence’
- DSM–IV (1994) ‘the person has been exposed to a traumatic event in which the following were present:
 - the person experienced, witnessed, or was confronted with an event or events that involved actual or threatened death or serious injury, or a threat to the physical integrity of self or others
 - the person’s response involved intense fear, helplessness or horror
 - the disturbance causes clinically significant distress and impairment in social, occupational, or other important area of functioning.

An individual confronting serious injury to others or responding to a horrific event would qualify under the provisions of Criterion A. Interestingly; this criterion also incorporates

the definition and concept of ‘vicarious traumatisation’. This significant inclusion envelops and reflects the vulnerability of rescue and emergency service employees (Alexander & Wells 1991). The ICD–10 (World Health Organization 1992 and 1993) defines the other major classification of PTSD and criterion A, diagnosis stipulation, as follows:

- Exposure to an exceptional mental or physical stressor that is either brief or prolonged. Events commonly eliciting this response include military combat, sexual or other violent assault, human or natural disasters, and severe accidents.

The Diagnostic and Statistical Manual of Mental Disorders-DSM–IV and its acceptance (1996)

The following diagnostic criteria for PTSD and ASD used in this research are taken from the *Diagnostic and statistical manual mental disorders, Volume IV* (American Psychiatric Association 1996). It is also important in relation to this research to examine the original diagnostic criteria for PTSD which was published in the second edition of the manual in 1980. In particular, the United Kingdom did not readily accept the diagnostic and statistical manual system of classification. Rather, it continued to favour the ICD–9 system (World Health Organization 1977). It continued to be the case in Australia, for example, that the ICD system remained the official method of classifying disease for hospital admissions. This was despite the fact that this led to the exclusion of the

collection of figures on PTSD until the inclusion of that disorder in ICD–10 (World Health Organization 1992).

In many contexts, DSM–III (American Psychiatric Association 1980) was seen as a major shift in the promulgation of knowledge and possible future broad-based research. The philosophy behind its introduction was the advantage of having a system that resulted in a much greater inter-rater reliability. However, many controversies remained about the definitions in DSM–III and the dominance of American academic opinion in its formulation. These tensions were only some of the factors influencing the reluctance of non-American academics and clinicians to embrace this diagnostic system.

There is an historical need to understand these issues in relation to how the victims of exposure to traumatic stressors were treated before the acceptance of the DSM–III diagnostic criteria. There still remain dramatic pockets of ignorance of these issues and, to date, there is still a failure to implement knowledge and information in many mental health settings. This occurs because there are competing paradigms. The advocates of these other perspectives would equally argue the value of their alternative perspectives.

It is especially important that an historical analysis be conducted between the presentation of ASD in the battlefield, its in situ diagnosis and the emergence and course of PTSD. This analysis should be undertaken during different periods while the patient is undergoing various treatment regimes (Duckworth 1987).

Treatment regimes were developed to examine some of the complex questions that emerge about each mental disorder. The disorder and treatment regimes were first described in DSM–III and DSM–III–R. Subsequently, in DSM–IV, PTSD is conceptualized as a clinically significant psychological syndrome that is typically associated with either a painful symptom (distress), or impairment in one or more important areas of functioning (disability). These definitions and descriptions help clarify the significance of phenomena in circumstances where there is a need to differentiate spurious observed associations from causal associations that indicate causal links with actual traumatic exposure. There is no assumption that each disorder is a discrete entity with sharp boundaries between it and other disorders; or between it and no mental disorder. Clinical usefulness is the main justification for inclusion of a particular disorder that can be brought to bear on these traumatic exposure issues.

All the individuals described as having the same mental disorder will show at least the defining features of the disorder. However, an important consequence of this is that they may well differ in other important ways that may affect clinical management and treatment regime outcomes. This is especially true given the high incidence/prevalence of depression in trauma victims, including military veterans suffering from battlefield traumatic exposure. Patients experiencing anxiety and/or depression as they attempt to cope with their perceived physical and psychological life circumstances after exposure to traumatic events have two choices. They can cope by adopting avoidance and emotional protection strategies or they can use problem solving or task confrontation strategies

(Duckworth 1987). This same examination philosophy has been adopted to examine the current research involving the Australian Vietnam veterans involved in this research.

The International Classification of Diseases 11th revision (ICD–11)

The 11th revision of the *International Classification of Diseases* (ICD–11) integrated the subcategories of ‘acute reaction to stress’ and the subsequent ‘adjustment reaction’ following an individual’s exposure to acute stress (World Health Organization 1995). The description of acute reactions to stress was restricted to that of a transient disorder of any severity and nature. This disorder could occur in an individual without any apparent mental disorder in response to a natural catastrophe or battleground. Such acute reactions to stress—catastrophic stress, combat fatigue, and exhaustion delirium—would subside within a few hours or days. The ensuing adjustment reactions were specifically excluded from this category as they tended to have a longer or more pronounced manifestation than that of ASRs. They are situation-specific or circumscribed; and are generally, but not necessarily, reversible with a longevity prognosis of only a few months. The specific time and content stress predictors of these types of reaction are closely related to events such as separation experiences, migration and bereavement.

The value of diagnostic criteria

The definition of the diagnostic criteria for ASD has enabled the development of more reliable and valid instruments to explore the reactions to ASRs. The literature on ASR in

non-military settings is limited to studies that have examined opportunistic samples (Bryant & Harvey 1997 and Classen et al. 1998). Inevitably, these studies involve bias given that the purpose of the study was to define ASD and this influenced how participants were recruited for the investigations.

Following the inclusion of ASD in DSM–IV, there have been several investigations of the symptoms and their relationship to longer-term outcomes. This literature emerged in the late 1990s. However, the observations were biased by the diagnostic criteria specified in DSM–IV as presented in Brewin et al. 1999; Bryant et al. 1998 and Koopman et al. 1995.

The applicability of this literature to military settings is questionable. This is because ASD has been studied in individuals who have been observed in the aftermath of very brief traumatic stressors. These include home invasions or a rape—this is not to trivialise the traumatic event but rather to show its impact duration. In military settings, combat stress disorders (Kormos 1978), or combat fatigue, (Jones & Wessely 2005) are manifested as behavioural disorders in the course of combat. Solomon (1993a) very eloquently describes it: ‘The soldier is defined by his ability or inability to continue to fight as an effective combatant’. In this context, the diagnosis of specific symptoms of distress is not of great significance. These are presented and experienced in the aftermath of a traumatic event that occurs almost immediately and is then over. The combat

disorder or fatigue is more about the ability to function, for protracted periods of time, in the face of fear of imminent injury or death.

Most of the research has involved careful exploration of the relationship between the acute stress symptoms and the onset of PTSD following a limited range of traumatic exposures—particularly motor vehicle accidents. However, these diagnostic criteria have limited the observational set that has been applied to the investigation of these phenomena. They do not reflect the elegant and often deceptive transitional nature of the symptoms as defined in ICD–10 (World Health Organization 1992) and the research of Solomon et al. (1996). From a pragmatic perspective, the definition of ASD is a critical issue in settings where the behavioural disturbance of the individual carries a major disadvantage to their effective performance in the battlefield.

This is particularly the case during combat where it is not the clinician who makes the initial diagnosis but the soldier's comrades and immediate superiors. Often this occurs in the face of continued exposure to the primary triggering stressor. In these circumstances there are often marked fluctuations in the individual's mental state—often attributed to substance abuse—that are not observed at the time unless that individual is highly dysfunctional. The meaning of behavioural disturbance in combat—in contrast to a person who has been removed from the setting of danger—is obvious. Hence, it is essential to clarify, and further differentiate between, people's behaviour and ASD symptoms during ongoing exposure—from those in the immediate aftermath—and their

relationship to chronic PTSD. Since the 1980s there have been advances in knowledge to inform the management of combat stress reactions above and beyond the practice from World War II (Kidson et al. 1993), Israeli soldiers (Solomon 1993b) and Vietnam (O'Toole et al. 1998).

The diagnostic challenge of co-morbidity

Co-morbidity continues to be a conceptual challenge in the diagnostic classification process. There is a presumed specificity of aetiology of all the disorders. The uncomfortable fact is that the real world of patients is not so neatly divided into a hierarchical diagnostic table. There is minimal research knowledge about the role of traumatic stressors in the aetiology of disorders. Hence, the definition of post-traumatic illness creates uncertainty that prevents reference to the scientific and clinical literature. The prevalence and implication of co-morbidity have only begun to be addressed in the 1990s although DSM-III-R (American Psychiatric Association 1987) provided the impetus for multiple diagnoses to be defined and subsequently made.

The publication of the National Co-morbidity Study in the United States was the first large population sample to provide detailed information about the relationship between co-morbidity and multiple diagnoses. Earlier studies alerted researchers to the importance of the question. However, the National Vietnam Veterans Readjustment Study (NVVRS – Kulka et al. 1990) provided the first comprehensive examination of this question in epidemiological samples of combat-exposed military service personnel.

The occurrence of combat-related PTSD has now been well established in Vietnam veterans and some research has explored possible subgroups of these veterans. Research has also shown that combat veterans with PTSD who seek, and receive, treatment have poor adjustment prognosis and continue to suffer the pernicious effects of their traumatic battlefield exposures. Most are unemployed (Kulka et al. 1990) and have inadequate and dysfunctional interpersonal relationships. In some cases these are linked to the symptom clusters identified (McFall et al. 1999; Chemtob et al. 1997a & b; Beckham et al. 1996 a & b and Lasko et al. 1994). Additionally, when combat veterans with PTSD are compared with those without the disorder, the PTSD sufferers manifest significantly more intense hostility and interpersonal violence rates (Beckham et al. 2000; Beckham et al. 1996 a & b and Jordan et al. 1992).

Research correlates those Vietnam veterans who suffer chronic PTSD typically present high symptom cluster scores across research participants. There are also distinct clinical subgroups within these populations depending on the type of traumatic battlefield exposure. To date, minimal research has been done to identify empirically these subgroups or the types of traumatic battlefield exposures.

However, clinicians have long noted individual differences in veterans' responses to standard PTSD treatment (Lambert et al. 1996 and Rosenheck 1984 & 1985). Ongoing clinical experience by Rosenheck caused him to initially hypothesize that there was a

subgroup of severely traumatized combat veterans who have a distinctly pathological clinical presentation, which he referred to as 'malignant post-Vietnam stress syndrome' (MPVSS) (Rosenheck 1984 & 1985).

This research proposed that there are four distinct clinical features that characterize this subgroup of combat veterans:

- dramatic violent behaviour
- social isolation
- intense self-loathing
- re-experiencing of war trauma in ways that are extreme (Niles 1991 and Rosenheck 1985).

It also drew a strong correlation between the experiences of combat veterans with MPVSS and compared these with other veterans with PTSD. It analysed their corresponding frequent and intense exposure to heavy traumatic battlefield combat experiences, and their direct participation in, or witnessing of, atrocities in the battlefield (Rosenheck 1984 and 1985).

This early research additionally proposed that these combat veterans with MPVSS might not respond well to standard PTSD treatment regimes. Consequently, it is important to distinguish possible subgroups of combat veterans for treatment planning, administration

and evaluation. Subsequent research refined the MPVSS theory by incorporating more recent research and clinical findings (Rosenheck 1984 and 1985). Specifically, this early research identified that the concept of MPVSS coincides with current conceptualizations of more complex PTSD symptoms (Herman 1992a) such as dissociation and affect dysfunction which are closely interrelated (Lambert et al. 1996). The field of traumatic battlefield exposure reactions has forced a question to be asked. That is, what is the role of this type of event in the aetiology of the affect arousal regulation of a range of disorders (Frewen & Lanius 2006)?

Diagnosis stigma

Current research has demonstrated that there is a strong stigma associated with recent military veterans openly disclosing psychiatric problems—especially PTSD. This has also been confirmed in the qualitative data obtained in this research. Interestingly, those veterans who are most symptomatic are more sensitive to the stigma attached to the diagnosis. They are consequently less likely to seek treatment (Hoge et al. 2004). Many veterans fear openly admitting that they have a psychological injury as a result of their battlefield experiences because of the effect that such an admission might have on their careers. In addition to avoiding career damage, however, they do not want to be tagged as subnormal, nuts nor have their mates treat them differently. Research into the significance of a participant's social standing or class suggests that once an individual has developed a PTSD symptom history there is a significantly increased social disadvantage. This is associated with subsequent decreased income status allied with the tag of 'disabled'.

The beginning of a psychiatric disorder

Psychiatrists broadly accept that environmental stress plays a precipitating role in the onset of psychiatric disorders. Generally, it has been suggested that individuals do not develop a disorder as soon as an event has been experienced. In this context, it is important to consider the duration of time over which events occur. Some events can be dramatic and short-lived. One example would be a single, brief episode of combat that lasted minutes. This should be contrasted with prolonged exposure that could occur over days or weeks—such as a military campaign in the Second World War. With a short-lived stressor, an individual may function more than adequately during the traumatic exposure. But when they remember the experience, they may develop an increasing sense of agitation and distress. That is not to say that the individual might not have felt highly aroused and possibly experienced a sense of horror if he or she had witnessed severe injuries or even death. However, these are affective states experienced by normal individuals. The critical issue is whether these affective states led to an abnormal mental state. These abnormal mental states are defined by the various disorders in either ICD–10 (World Health Organization 1992) or DSM–IV (American Psychiatric Association 1994). Psychiatrists acknowledge that, for conditions such as depression or schizophrenia, there is a window of approximately six months in which these events may contribute to the onset of PTSD.

The timing of the onset of PTSD is a question of particular interest with traumatic stresses and ASD. This is an area that has not been comprehensively researched. The individuals studied in the most detail are those who become acutely distressed and develop an ASD which progresses to a chronic PTSD.

However, there is another substantial group of people who develop sub clinical symptom patterns. That is, they experience some of the symptoms of the particular disorders but do not develop the mature PTSD condition. These individuals generally do not seek treatment and continue to suffer in silence (Gavrilovic et al. 2005). They may or may not have a disability or suffer impairment as a consequence of their symptoms. They have some, but not all, of the markers of a psychological disorder. From a diagnostic perspective, the symptoms that define the onset of a disorder relate to the disorganisation of affect—particularly in the domains of depression and anxiety.

There are several other domains in which individuals may experience symptoms. For example, they may have a range of physiological reactions such as palpitations, symptoms of diarrhoea or constipation, or excessive sweating (Wagner et al. 2000). Others may experience transitory waves of tearfulness or preoccupation with the traumatic experience. These moments of recollection may be associated with transitory sadness or horror. Essentially, the duration of these periods of distress differentiates a disordered individual and a distressed individual. Surprisingly, there is very little research that has investigated these margins between disorder and sub clinical syndromes. A

proportion of those who have partial syndromes would be classified as being disordered according to the criteria for adjustment disorders in DSM–IV (American Psychiatric Association 1996).

Adjustment disorder is a diagnostic category that has little associated systematic research and is often defined in terms of behavioural impairment. It is a diagnosis that is only accepted as having six month duration, after which time an alternative diagnosis needs to be provided. In many aspects, this is the legacy of transient situational disturbance (TSD) from earlier diagnostic systems. Thus, from a clinical and theoretical perspective, there is a paucity of information to inform the differentiation of distress and disorder.

The differentiation between grief and depression is perhaps the best research domain of this question. Research into the nature and the process of grief developed in the 1950s and the 1960s as the field of social psychiatry expanded. More recently there has been an emotional shift in the cultural acceptance of a diverse range of psychiatric disorders. This has resulted in more disclosure, ventilation and, in many ways, more acceptance of people's feelings. In the context of military combat requirements, and this new-found acceptance by the general population of psychiatric disorders, a greater emphasis is being placed on forward psychiatry. Forward treatment considerations were examined by Glass (1947). He attributed the exceptionally low rate of identified psychiatric casualties in Vietnam with the adoption of forward psychiatry support to the troops (Glass 1974). More should also be done now to consider the ethical considerations of this type of

combat psychiatry (Camp 1993). It should be noted though that there is still a delicate balancing act between the military need to return soldiers to combat and the therapeutic time an individual needs for the cathartic release of tension.

This research obtained anecdotal accounts of soldiers who received forward psychiatric medical treatment in Vietnam. These accounts give an individual insight into the efficacy of a diagnosis that was made in 1969–70. I then compared these diagnoses with a group of soldiers who did not present with these symptoms during their time in Vietnam. I am still reviewing this insight with individual veterans who wanted to continue with the ongoing research. I present this in more detail in Chapters three, four, five and Appendix A.

Post-traumatic sensitisation

There are several important theoretical and observational research studies about the process that underlies the transition from distress to disorder in PTSD. The conditioning of the traumatic memory may be critical to the initiation of a traumatic memory structure (Hopper et al. 2007). However, the progressive modification, over time, from distress and to disorder, also appears to be a critical issue. Shalev et al. (2000a) completed research identified effective treatments for PTSD. The emergence of the PTSD predictor of the startle response at the end of the first week after a traumatic event was also identified (Butler et al. 1990). This indicated that the symptoms of a psychological disorder can

emerge well before the disorder is formally diagnosed and consequently provide an identification of possible predictors of the late onset of PTSD (Shalev et al. 1996).

The importance of the transitional shifts in an individual's ASD comes from a variety of works that have looked at determinants of the course of PTSD (Koopman et al. 1995). Several studies have verified that the severity of current PTSD symptoms is related to the more current non-traumatic life events to which individuals have been exposed (Yehuda et al. 1995; Koopman et al. 1994 and McFarlane 1989). This implies that these secondary life events can significantly influence the dynamic state of an individual's coping system. Thus, the nature of the post-traumatic environment is an important secondary risk factor for diagnostic consideration. Also, the impact of the distress caused by the illness itself should not be underestimated as a secondary risk factor. Hence, sources of the originating endogenous distress might be important contributors to the destabilisation of life events on return from the battlefield. Veterans will often comment that flashbacks can be more distressing than the primary traumatic experience (Bremner et al. 1997 and Hyer et al. 1993). As with affective disorders, this implies that rapid and early symptom control may have major implications for the probable course of the PTSD. Thus, delaying seeking treatment may be an important secondary risk factor in the prognosis of the disorder. However, in 1995 Kessler et al. implied that if a patient's PTSD is not resolved within six years, there is a very substantial probability that it will remain chronic. The most remissions occur in the first year. Over a six-year period, approximately 60 per cent of cases will be resolved. These data underscore that there may be time windows in

which these modulating factors might operate. Thus, their effects may be most potent in close proximity to the initial exposure to trauma.

Pynoos et al. (1997) found that repeated re-exposure to traumatic reminders was a powerful predictor of the emergence of the behaviour suggestive of PTSD in animals. This was in contrast to the acute stressor that, in isolation, appeared to prime the animals. Clinicians acknowledge that exposure to triggers can cause major increases in violence in individuals with PTSD. It is possible to see how traumatic reminders may, in the early stages of the disorder, have a progressively destabilising effect and adverse consequence on the prognosis of PTSD. Following exposure to a traumatic event, there is an important series of events that can occur. These can have a primary role in modifying the ASD and subsequent sensitivity of an individual's reactivity to the traumatic memory once he or she has left the battlefield. This early intervention can alter the severity of the onset of PTSD (Koopman et al. 1995). The factors of distress that will have to be dealt with over a veteran's life after combat can include the:

- degree of the individual distress
- prevalence of triggers and the nature of post-traumatic adversity
- differences in current PTSD symptom cluster severity
- military experiences—outside the pre-deployment training parameters—such as exposure to atrocities
- immediate military tactical area of responsibility factors including:
 - age at time of initial combat exposure

- level and duration of combat exposure
- post-deployment adaptation and functioning.

This includes veteran-initiated domestic and civil hostility, interpersonal violence, and substance abuse. It is vital to identify specifically, at the earliest stage of traumatic exposure, the possible predictors to the onset of PTSD. This early identification and intervention will assist in the most effective and efficient treatment assistance for the veteran and the community (Mazzeo et al. 2002).

PTSD sufferers adapt

A battlefield, by its nature, can provide rich, rare and distinct opportunities for humans to participate in a kaleidoscope of intense physical and emotional experiences associated with the challenge of survival in battle as well as experience the intensities of fear provided by the sceptre of death and the horrors of injury. The tribulation with being placed in a context of maximum uncertainty like that of a battlefield for any individual (volunteer or conscript) is that the magnitude of each thought that accompanies exposure has no comparative norm to be measured against. The diversity of the exposures is exceptional each time and is individual in nature with regard to outcome. The dimensional context of the thoughts of the exposed individual has no boundaries so that there is an ever prevalent risk that any idea can permeate the physical, nervous and emotional state of an individual's being and alters it forever.

In the introduction to *A Memory of Solferino* by J. Henri Dunant, Major General Sir John Kennedy writes, 'The vivid and tragic story of the horror of war tells in realistic detail of the suffering, the wounds, and the neglect of men in agony.' The Battle of Solferino was one of the bloodier engagements of the 19th century. When it was fought medical arrangements were negligible and the wounded were left to bleed to death or to recover as best they might. Many were left with mutilations and lifelong ailments to remind them of a 'glorious victory' (J. Henri Dunant 1947). The wounds referred to in this record were physical—and obvious to all. But what of the possible hidden psychological wounds?

When an individual suffers from PTSD, they often process information or social stimuli differently to what would usually be expected from an individual who does not suffer from this medical condition. Often sufferers will compulsively expose themselves to situations that are indicative of the scenario of the initial trauma. They will volunteer to be at the frontline or undertake the most hazardous of missions (Solomon et al. 1987e).

Historically it has been suggested that the endeavour of such exposure is so the individual can conquer the void left by the initial trauma (Freud 1955). Clinical experience has demonstrated that this outcome is rarely, if ever, achieved. They may also experience flashback memories that are so intense that they interfere with other more pressing daily requirements. Other behaviour includes actively avoiding specific trauma-related triggers such as ANZAC day marches, war movies and military unit reunions. Some sufferers are unable to modulate their physiological responses to stimuli. Many report having a feeling

of being numb or dead to the world (Kadiner 1941). Some experience physical reactions such as extreme muscle tension, rapid increases in their heart rate or extreme sweating. A person's own physiological changes can then become the source of apprehension and fear.

Psychological changes experienced by sufferers include being easily distracted, being unable to discriminate effectively between alternative demanding social stimuli and a lack of concentration. This inability to discriminate between different feelings and stimuli confirms a sufferer's feeling of being unsafe. In addition, it continually reinforces the pivotal significance of the trauma experience and often forces the sufferer to regress to earlier, inadequate coping mechanisms (Green et al. 1988).

Finally, sufferers change their normal personalities as a type of defence mechanism against feelings of anger, betrayal, helplessness, shame and irretrievable loss.

Consequently, those who suffer from PTSD also have a high rate of co-morbidity with anger (Zimering et al. 1998), dissociation, mood disorders, substance abuse (Boudewyns et al. 1991b; Bremner et al. 1996; Brown et al. 1995 and Dansky et al. 1997), character pathology, anxiety and depression (Rush 1998 and Green et al. 1992 & 1989).

Causal relationships between a stressor and the onset of PTSD symptoms

The literature that exists about this subject has focused more specifically on PTSD rather than other disorders. This issue has been examined in relation to a range of different

traumatic stresses in different populations. For example, much of the work that has been done into PTSD examines discrete and specific populations—such as the victims of a specific disaster, the victims of motor vehicle accidents or combat veterans. Much of this research would argue that there is a causal relationship between the intensity and duration of the stressor. However, meta-analytic examination of this question does not support this view. Some research has shown that brief, constrained traumas led to higher rates of PTSD than combat (Norris 1992). Additionally, various research studies have concluded that, once over a threshold of exposure, greater exposure does not cause a significant increase in the prevalence or intensity of PTSD. For instance, for individuals involved in serious motor vehicle accidents requiring admission to hospital, neither the cost of the damage to the vehicles, the injury severity scale or the injuries to other people involved in the accident were major predictors of PTSD. This conflicting research evidence indicates that the causal relationship between stressor and symptom is not a simple linear correlation. Noticeably, the severity of the exposure in combination with the individual's perception of the experience, resilience and vulnerability are probably equally critical issues (McFarlane & Yehuda 1996).

The problem of quantifying battlefield exposure can be better understood by examining the content and structure of a combat scale. The combat exposure scale—the Wilson and Krauss Combat Exposure Scale—used in this research study is attached as Appendix D (Wilson & Krauss 1985). A qualitative composite list of experiences about which servicemen informed the principal researcher during the telephone interview phase of the

research is included in Chapter five and Appendix A. These traumatic events occurred during the course of the research participants' deployment to the battlefield between 1969 and 1979. One of the problems with scale measurement is the arbitrariness of the items and the presumption that severity of exposure can be assessed by a simple numerical total of the items endorsed. They do not address the sequential nature of experience during a deployment. Thus, there are difficulties objectively assessing the threat exposure felt, and subsequently experienced, by combatants. The conclusions about the effects of exposure need to be considered against this background of relative subjectivity of the trauma. This is because individual perception and recall can be contaminated by the symptoms the individual respondent experiences which disrupts the consistency of the memory of the traumatic event or events (Southwick et al. 1997).

There is a direct relationship between the number of acute combat stress reactions and the intensity of combat recorded in the tactical area of operational responsibility. This has not been examined with the normal methods of independent validation of the diagnosis, because clearly such research has not been able to be conducted in combat settings until now. The research into the initial PTSD responses following motor vehicle accidents has examined this correlation in more detail in this specific selected population group (Bryant & Harvey 1996).

It is absolutely necessary that exposure to a real or imagined life-threatening trauma is an essential element of the onset of PTSD. This is the fundamental issue of the laying down

of traumatic memories that represent the core of the fear structures around which the symptoms of the PTSD condition can develop. The process of conditioning is central to the initial learning of this fear network that is then reinforced by subsequent exposure to real or symbolic triggers related to the initiating trauma.

The events and circumstances that follow in the aftermath of the event can play an important role in modifying or intensifying the relevant trauma memory networks by the process of time-dependent sensitisation (van der Kolk 1996). Supported by this foundation, in the last three decades many researchers have reported the existence of a strong correlation between stressor intensity and the duration and severity of PTSD. This correlation was observed in research conducted specifically to examine the relationship between stress, intensity and the duration of combat exposure. It revealed a strong linear relationship between PTSD severity and the intensity and duration of combat (van der Kolk & McFarlane 1996).

Relying on a sample of 34 combat veterans, Buydens-Branchey (et al. 1990) reported PTSD sufferers to have the highest ratings of intensity of combat and the longest exposure to combat or the battlefield. Veterans who had never experienced PTSD, on the other hand, had the shortest duration of combat and the lowest intensity combat experience. Patients in remission had intermediate intensity and duration symptoms. Interestingly they also reported that 100 per cent of men exposed to combat for more than one year consequently developed PTSD. Of the men who had been wounded 76.9 per

cent currently suffered PTSD (Buydens-Branchey et al. 1990). These rates suggest that this may have been an unusual and distinctive sample given very high rates of PTSD compared to the National Vietnam Veterans Readjustment Study (Kulka et al. 1990).

Historical research studies performed on Vietnam veterans produced similar results. A research study that involved 25 Australian Vietnam veterans with PTSD established that 92 per cent of those with PTSD had experienced moderate to severe combat stress (Boman 1985). Another study involving 715 monozygotic twins found a nine-fold increase in the prevalence of PTSD in Vietnam veterans who experienced high intensity combat experiences compared to those who did not (Goldberg et al. 1990). Another study confirmed that there exists a relative prevalence of five to two comparing Vietnam veterans with high levels of war-zone stress (Combat Zone) to Vietnam veterans with low to medium levels of war-zone stress (Kulka et al. 1988). In another study involving 481 Vietnam veterans, the author reported that the intensity of the combat experience was a strong predictor of the severity of post-battlefield exposure PTSD symptoms (Card 1987). The research report highlighted a strong positive relationship between PTSD and the frequency and variety of several combat experiences including:

- receiving fire from enemy
- killing the enemy
- seeing the enemy dead
- receiving an injury
- firing their own weapon at the enemy.

Another research project involved a sample group of 489 male veterans seeking treatment for substance abuse disorders. It found that those veterans, who were exposed to combat in South East Asia, had a significantly increased chance of developing PTSD if they met any, or all, of three criteria. These were being wounded, being stationed in the war zone (Australian-combat zone) for extended periods of time; and experiencing highly stressful battlefield exposure experiences (McFall et al. 1991).

Research involving civilian population sample groups has also examined the relationship between the intensity and duration of the stressor, or trigger, and the prevalence and severity of PTSD symptoms. Following the eruption of Mount St Helens volcano, 1025 victims were divided into three specific focus groups. The determinant for each group was the level of exposure to the trauma (Shore et al. 1986). A linear relationship was established between the degree of exposure and the onset of psychiatric disorders—that is, PTSD, depression and anxiety. During the reporting process in the first post-disaster year, the researchers identified a significant onset rate difference not only between high- and low-exposure groups but also between the genders. Onset rates for highly exposed group males were 11.1 per cent compared to 2.5 per cent for males in the low-exposure group. Interestingly, onset rates for highly exposed females were 20.9 per cent and 5.6 per cent for those females in the low-exposure group.

Another civilian research study evaluated a sample of 159 children exposed to a fatal sniper attack at their school. PTSD reactions were present and were noted as being the highest in those children who were in the playground—the focal point for the sniper attack—during the attack and consequently, the children most highly exposed to danger (Pynoos et al. 1987).

Additional research completed as an adjunct to this research has attempted to define the direct causal link between a stressor's duration and intensity and the onset and prevalence of PTSD. This research has attempted to demarcate the individual symptoms of PTSD. Three distinct research projects have emphasized a strong relationship between re-experiencing symptoms and the intensity and duration of combat exposure (Goldberg et al. 1990; True et al. 1988 and Laufer et al. 1985a and b). Fascinatingly though, the symptoms of avoidance and arousal were identified and reported to exhibit a more modest association with the trauma of combat exposure (Goldberg et al. 1990).

General observations about the role of risk factors

Given the above discussion about the nature of PTSD, it is not feasible to discuss the role of risk factors for disorders other than ASD and PTSD in any more than a general sense. The underlying theory is the same for all disorders; a range of vulnerability factors will increase the probability of developing a condition in a susceptible individual.

In disorders such as schizophrenia, genetic factors have a primary role. The disorder may be ignited by exposure to an environmental stress; but the characteristic symptoms are determined by the individual sufferer's underlying genetic predisposition. In depression, a complex matrix of parenting style, inheritance and environmental factors are all hypothesised to play central aetiological roles. This notion of a disorder where the phenomenology is determined by a genetic disposition to a major degree contrasts to PTSD. In that disorder the pattern of symptoms is critically determined by the traumatic event/s. This does not mean that the risk factor does not alter the probability of the onset in certain circumstances, affect the patterns of co-morbidity or transform the longitudinal course of PTSD in exposed individuals (McFarlane 2000a).

Before 1980, and despite a lack of adequate evidence, individual vulnerability factors were seen to be the critical elements in PTSD. It was often presumed that screening would be able to preclude individuals who would not cope with combat. This conceptualization prevented an understanding of the central importance of environmental factors. These were:

- the role of the traumatic event
- morale
- group cohesion
- prior training
- briefing and debriefing
- leadership

- possibly the understanding of self.

The role of the traumatic stressor in the traumatic disorders that appear in the absence of an ASR is not well understood. This means that the proximal effect of the traumatic exposure in such cases was not acknowledged. This is in contrast to battlefield zone stress reactions and adjustment disorders where the significance of the traumatic exposure is commonly acknowledged. In DSM–II these reactions were also known as ‘transient situational disturbances’—a diagnosis used extensively in the original source data for this research. This definition emphasises the brief duration of psychopathology thought to have an environmental origin.

In the 1980s, the aetiological models that were used to conceptualise PTSD were derived from the battlefield stress reaction literature and management ethos. These diagnoses were descriptions of the normal human reactions to an abnormal environmental event—the battlefield. This perspective highlights the difficulty that psychiatry has had in developing a defining model. What is needed is a definition that clearly describes the interaction between individual vulnerability factors and the proximal effect of adversity or danger that often occurs in a battle zone or other traumatic situations (McFarlane 1989).

During the late 1990s there was a more sophisticated dissection of these interaction relationships. The psychiatric profession concluded that the importance of vulnerability

factors should not disqualify or marginalise the primary aetiological role of the battlefield traumatic event. This conceptualization had little or no impact on clinical practice and procedures in the 1990s. However, it is a significant understanding especially with the changing tactical and operational conduct of warfare today (Solomon 1995).

There was little interest, or attention given to, the role of individual vulnerability factors in the 1980s. It was only in the 1990s that researchers and clinicians generally questioned of the conceptualization that PTSD was a normal reaction to an overwhelming traumatic experience. Paradoxically, this notion of the normality of PTSD came from applying the aetiological views and ideas derived from battlefield stress reactions used to convey an expectation of improvement with treatment. There was also the associated reluctance to diagnose the individual with a disorder early after traumatic exposure. This process of labelling was seen to imply a negative prognosis and prolonged disability—akin to the notion of expectancy and simplicity. Such labels tended to subsequently distort treatment options.

These ideas about the lack of diagnosis of the normality of maladjustment under stress were also embedded in the crisis intervention literature of the time. If a diagnosis was made, there was the fear that this would suggest the presence of an illness that would lead to the anticipation of long-term disability. From the military's perspective this meant it would cost more. The idea that the symptoms were a normal distress response and would resolve once the stress ceased was to overcome the suggestibility conveyed by an illness

diagnosis (Glass 1974). This body of information was the legacy of an acute lack of military psychiatry in civilian settings in the first three decades after World War II.

The experiences of the armed forces of the United Kingdom and the United States during World War I and World War II confirmed another two primary considerations associated with diagnosing a battlefield psychological injury. The first is that labelling symptoms or battlefield psychological injuries as exclusive create an impression of ‘a signature diagnoses’. Secondly, it gives the impression that disorders of this type can cross any divide between the physical and psychological. This diagnosis requires a detailed scrutiny of diagnostic interpretation, risk factors and treatment regimes rather than a simple reliance on the patient becoming better the longer he or she are separated from the trauma exposure (Jones et al. 2007).

Risk factors

The role of risk factors at different points may be very different and they may or may not interact with other risk factors. If a factor operates at the end of a cascade, it has no role in an individual in the absence of preceding risk factors. At each point there is also the potential for protective factors to have an effect. The onset of delayed PTSD is an example of protective factors exerting an exceptional effect. Individuals appear to be able to use a variety of adaptive coping mechanisms—for example, group traditions and affiliations—to impede the surfacing of symptoms. Thus, risk factors in isolation do not necessarily predict the onset of a disorder (McFarlane 2000a).

The complexity of these relationships can only be ascertained in longitudinal research. There is also a need to consider the role of risk factors across a range of stressors. It should not be supposed that the same role is played with all stressors at each stage of an individual's aetiology. This potential variability highlights some of the challenges in determining what risk factors may have a useful role in screening potential recruits before deployment into battlefield operations. Longitudinal research on the resulting course of traumatic exposure is a key method for clarifying these issues although it has significant limitations (McFarlane 1996).

There is a major problem with applying such general information derived from relatively large-scale population studies to an individual's single situation. There are no clear rules of logic to applying the data collected from groups using scientific method to the clinical situation of making decisions about an individual patient. This circumstance demands a different set of principles and approaches. It is a flawed approach which says that the scientific lessons derived from studies of large populations can be neatly transposed to individual clinical situations. This is especially so given that there is a myriad of variables that affect individuals uniquely.

Applying the general to the specific circumstances means that although there may be agreement about the general principles or facts, there can still be significant disagreement about applying them to the specific question. People demand an interplay of variables

that is above and beyond the capability of even the most sophisticated multivariate statistical models that are the primary analytic research tools. Thus, beyond the realm of population studies there is still a demand to understand the nature of clinical reasoning and how this is derived. The longitudinal course of a PTSD is one of the areas where this is predominantly the case.

The individual's risk of traumatic exposure

An individual's personality can increase the adverse effect to the risk of exposure to a traumatic event—especially that of exposure to a battlefield. Their behaviour and reaction to the event may be determined by a range of variables such as, age, education, degree and intensity of exposure, prior knowledge, training and emotional reactivity (Perkonig et al. 2000).

The development of an ASD is potentially influenced by a range of factors. The exacerbation or easing of an individual's distress has multiple determinants in the period that follows the traumatic exposure. These variables may have no effect in determining the behaviour response at the time or in the immediate aftermath. Determinants of an individual's ability to recruit health care may also significantly influence the course of the disorder.

‘Vulnerability’ risk factors for an individual

Consideration of the role of vulnerability factors needs to take account of their theoretical significance in the field. Before the early 1990s it was distinctly out of favour from a scientific perspective to discuss the issue of vulnerability factors in relation to PTSD. The diagnosis was, in a sense, advocated by those who wished to emphasise the role of the trauma and the normality of the symptomatic stress response of the individual. Before the acceptance of PTSD as a valid diagnosis, the role of vulnerability had been exaggerated. This theoretical bias is an important issue when considering how the issue of vulnerability factors may have been examined in research studies.

An individual’s vulnerability when exposed to trauma and the likelihood that they will develop an ASD and then PTSD in many cases is interpreted in such a way as to qualify the vulnerability as a risk factor (Koopman et al. 1995). Some research has suggested that these individual 'vulnerability' factors are multiple, as opposed to single, exposures to traumatic events can have a cumulative effect resulting in physical and/or a psychiatric breakdown at any time of life (Orcutt et al. 2002). Other vulnerability factors include:

- previous traumatic experience (Breslau et al. 1999)
- pre-existing psychiatric disorder (Davidson et al. 1989b)
- pre-existing defects of personality (Zeidner 1994)
- childhood abuse (Lindberg & Distad 1985)
- socio-economic (McCarren et al. 1995)

- exposure to atrocities (Yehunda et al. 1992).

The focus on the vulnerability of sufferers of ASD and/or PTSD has revealed evidence of a positive association between coping with anxiety and depression, pathological grief, the number of previous traumatic events and the likelihood of a least one suicide attempt.

This is especially the situation with chronic PTSD Vietnam veterans (Hyer et al. 1990). Additionally, PTSD is often co-morbid with other suicidal conditional behaviour states such as depression, substance abuse, panic attacks and severe chronic anxiety (Hyer et al. 1990). Interestingly, there is no current data available to suggest that PTSD sufferers will harm others (Friedman 2006a).

Traditional research has also demonstrated that the presentation of various diseases increases depending on a combatant's age when he is exposed to battlefield trauma. The greater the combatants' exposure to death, and the younger they are when this exposure occurs, the more likely they are to present with some diseases and symptoms (Pizarro et al. 2006). In qualitative responses obtained through this research these reflections are often the only thoughts and feelings that crowd the minds of some of these battlefield veterans. It was noted that soon after being exposed to battlefield trauma/s, these thoughts become the only emotional context that these military personnel had or now have to reflect on in the battlefield and throughout their post-combat lives. After the battlefield trauma/s many of their lives are often littered with the tragedies of fractured personalities

and broken homes. In a way they are like young men who linger lightly where they proceed to die, yet in an ageing body.

Exposure to atrocities

Much of the literature research in this area has focused on the effect of deliberate exposure, by way of participation, to wartime atrocities. It found that such exposure strongly increases the probability of the participant developing an ASD and subsequent PTSD (King et al. 1995; Yehuda et al. 1992; Kulka et al. 1990 and Laufer et al. 1985a and b).

A study of 251 Vietnam veterans found that exposure to wartime atrocities increases the risk of developing avoidance symptoms. Participants start, almost immediately, to organize their lives to mitigate the haunting experience of intrusive thoughts and feelings. It distorts how they manage their lives and often results in devastating outcomes. This research also distinguished between witnessing and perpetrating atrocities. Both intrusion and hyper arousal symptoms are associated with witnessing atrocities whereas avoidance symptoms are linked to perpetration (Laufer et al. 1985a and b).

Another study of 69 Vietnam veterans confirmed that participation in wartime atrocities increased the probability of a veteran developing PTSD by 42 per cent. This was when the number of combat stressors was controlled. The same research also confirmed that

100 per cent of the veterans who reported participation in atrocities consequently developed PTSD (Breslau & Davis 1987).

Generally, researchers have defined atrocities as any type of excessive or non-sanctioned violence that causes death or physical injury to a victim—civilian or non combatant. The death or injury must occur in a situation where the veteran was not at risk of physical injury and where the victim is unable to avoid or prevent injury to them (Unger et al. 1998 and Breslau & Davis 1987). Some common atrocities reported by veterans include the:

- torture of prisoners
- physical mistreatment of civilians
- mutilation of bodies
- death or maiming of the enemy from a booby trap (Laufer et al. 1984).

Research has also revealed that both participating in, and witnessing of, wartime atrocities can have serious, long-term effects on post-service psychopathology, readjustment into civilian life, and the severity of depressive symptoms (Grady et al. 1989).

This and other research studies have reported a strong relationship between atrocity exposure and the development and severity of intrusion symptoms. Those who were

exposed to the atrocity evaluate themselves, their actions or their failure to act against their personal value structures (Beckham et al. 1998a and Yehuda et al. 1992). An example of this self-evaluating behaviour was reported to the author in this research. On one occasion a soldier fired his weapon at night on an enemy group in the protective mine field around his fire base. The next morning, to his ongoing horror, he had killed three children (Children were often used at night to probe mine fields with their toes, locate, disarm and lift the mines.).

In addition to increasing the risk of developing PTSD, exposure to atrocities has been reported to result in strong feelings of guilt (Beckham et al. 1998a); anger (Zimering et al. 1998) and demoralisation (Laufer et al. 1984) and feelings of wrongdoing (Beckham et al. 1998a). Interestingly, the research literature also indicates that exposure to atrocities during time in the battlefield may lead to interpersonal violence (Hiley-Young et al. 1995).

The experience of prior traumatic events

There is a consistent variety of research that claims that there is a correlation between experiencing traumatic events and developing immunity to the onset of PTSD.

Conversely, it has been shown that childhood abuse increases the risk of PTSD; but that childhood victimization in isolation is not sufficient to warrant this correlation. Rather, whether or not someone develops a PTSD depends not only on they have previously

experienced traumatic events but also on the interaction of a series of lifestyle, familial and individual variables (Perkonigg et al. 2000).

Data collected from the impact of the severity of trauma underscores that the impact on military samples was greater than that of civilian samples. The pre-trauma variables also tend to illustrate that there exists a more standardized response, and a larger predictive effect, in combat veterans compared to that of civilian samples. One of the significant deficiencies with many of these studies is that the risk factors have been defined after the exposure to the traumatic event. Thus, the development of symptoms could create a response bias favouring an association rather than being exclusive and clinical.

Military samples have provided some opportunities for prospective examination of these questions using the information collected at the time of enlistment. The predictive quality of this information is relevant but it then depends on the severity and type of trauma experienced. Two studies used pre-enlistment data and found a significant effect from these measures of psychopathology collected before combat exposure for PTSD arising from Vietnam service (O'Toole et al. 1998 and Schnurr et al. 1993a & b). However, the predictor effect of the data from these studies was still weak.

A study into the pre-military and military factors concluded that:

- pre-enlistment factors accounted for three per cent of the variance of PTSD

- pre-enlistment psychiatric diagnosis accounted for 13 per cent
- military variables accounted for seven per cent
- combat stress accounted for 18 per cent (O'Toole et al. 1998).

The pre-military and military factors accounted for only a minor contribution to the onset of PTSD—either alone or after controlling for PTSD. Combat exposure, however, consistently made the largest contribution even after controlling for the effect of other variables. Consequently the current models of vulnerability factors have a generally low predictive ability for PTSD. The characteristics associated with the event, and its immediate aftermath, have the greatest potential effect and utility as a predictor to the onset of PTSD. If nothing else it should provide a tag for medical support staff to identify trauma exposed individuals as 'high risk' candidates.

Previous trauma vulnerability factors

Individuals exposed to extremely traumatic events exhibit a wide spectrum of PTSD reactions—from strong resilience to deep vulnerability. Most individuals exposed to a range of traumatic events do not go onto develop PTSD (Kessler et al. 1995). Various longitudinal studies have identified a range of previous trauma vulnerability factors.

These include previous trauma experiences, pre-existing psychiatric disorder, pre-existing defects of personality, childhood abuse and socioeconomic background (Charney 2004).

The nature of the sample and the variables examined the size of the sample and the socio-demographic background of the population being investigated all influence these factors.

Individual characteristics that appear to influence individual resilience include coping skills, interpersonal relatedness, attachment, shame, stigma sensitivity, past trauma history and the level of motivation for treatment. An initial question that arises is if it would be possible to formalise the data to make it appropriate for military use. For example, could individual vulnerability factors be prioritised in terms of their causal link to combat effectiveness? Could it be used, for example, to exclude those individuals whose history of exposure of vulnerability factors could potentially compromise their capacity to act effectively in combat? This is a retrospective approach that may not produce accurate results for each individual case and may not provide the best prognosis for the future health and wellbeing of veterans.

A second question emerges: can risk factors act as predictors of the onset of disorder? This is a critical question because it may be possible to identify the contribution of a particular vulnerability factor in a very large population sample that in itself is only a very weak predictor. Furthermore, the exact nature of vulnerability factors and their causal relationship to exposure needs to be examined (McFarlane 2000a).

This problem was also identified in a sub-analysis of the national co-morbidity study which demonstrated that a family history of psychiatric disorder was a vulnerability factor predictor for PTSD (Bromet et al. 1998). Some individuals experience greater childhood adversity than others. Supplementary investigations have demonstrated that

predictor vulnerability factors may be as a consequence of this rather than being directly linked to a genetic predisposition to cope, or not cope, with trauma exposure.

These observations present an inextricable challenge. That is, there is a distinct difficulty in the initial design and subsequent application of pertinent screening instruments for employment categories that are exposed to life-altering threats. Ideally such instruments should only contain variables that can be directly and reliably characterised in individuals. Particular characteristics can be found to have associations with PTSD in epidemiological samples. However, the strength of these relationships may be so weak that they are of little use when applied to specific individuals—especially those in military forces. Despite the significance of a statistical association in epidemiological samples, their positive and negative predictive value may have little value when they are applied to an individual. There is a range of studies that have examined a series of vulnerability factors. One of the difficulties with this literature is that the conclusions are frequently contradictory. This is due to the variability in longitudinal studies that examine populations that have had different exposures in very different social circumstances. The range of vulnerability factors that have been examined is discussed below (Miller 2006).

Family or personal history of psychiatric disorder

A parental history of PTSD is an indicator of a higher possibility of their children being susceptible to developing poor reactions to trauma exposure and subsequently developing symptoms of depression (Davidson et al. 1989b). An individual's vulnerability to

depression in contrast to anxiety disorders is also a researched independent predictor of chronic PTSD (Davidson et al. 1998).

Prior psychiatric disorders have long been identified as a risk factor for PTSD. A longitudinal study indicated that there is a complex relationship between depression, substance abuse, the occurrence of rape and physical assault. This longitudinal study of 3006 women in the United States verified that both depression and alcohol abuse were predisposing factors for PTSD (Acierno et al. 1999).

Genetic factors

A variety of populations using both a family history method and twin studies have been initiated and examined. Some of these studies found that some genetic factors could influence individuals to seek out high-risk occupations in the armed services and thus increase their risk profile for PTSD. These examinations highlighted the complexity of the environment and individual interaction. In some cases personality factors could account for the level of exposure rather than simply predicting a propensity to the onset of PTSD once exposure to the trauma had occurred (True and Pitman 1999).

An investigation into the contribution of genetic factors to PTSD in a study of monozygotic twin pairs identified a unique genetic factor (Goldberg et al. 1990).

However, such a genetic factor may reflect a personality that is predisposed to repetitive high combat exposures. Put simply, an individual who seeks novelty, and has a low

propensity to avoid danger, is more likely to become a member of an elite fighting force than a cook in the armed services. This increases significantly their risk of developing PTSD. This example throws up one of the major problems in attempting to define vulnerability factors. That is, that the characteristics that have been identified may only be proxy markers rather than primary direct vulnerability factor indicators. It may be a situation where the genetic predisposition has to work in concert with a range of high risk factors before it is triggered into activating the individual's reactions to the traumatic exposure.

Personality factors

A range of studies has found an association between PTSD and personality—in particular neuroticism. It needs to be noted though that there is always a potential for patients' current symptoms to be contaminated by current measures of personality. Conducting prospective studies that collect personality measures before exposure represents a major challenge for future research.

Personality traits characterised by neuroticism and introversion also have a consistent relationship with PTSD and these may be linked with their relationship with negativism (Bramsen et al. 2000) and a negative attitude to expressed emotion (Nightingale & Williams 2000). These personality traits also have an impact on processing trauma-related cognitions.

Gender

Studies have indicated that females are more susceptible to PTSD than males. However, the size of this increased risk varies significantly between populations. The National Comorbidity Study found that the risk of developing PTSD doubled with traumatic exposure (Kessler et al. 1995). In an examination of the role of pre-trauma risk factors, the role of war-zone stressors was pre-eminent in men. Pre-war, war zone, and post war predictors of PTSD in female Vietnam veteran health care providers has also been examined (McTeague et al. 2004). It has been shown also for women, that the post-trauma resilience-recovery variables were more salient (King et al. 1999). The impact of gender appears to be greater when traumatic exposure occurs during childhood (Breslau et al. 1997). Due to the emphasis on the male combatant with regard to traumatic exposure often females who have served in the TAOR in combat support roles are not included in collateral research (McHugh 1993).

Ethnicity

The results of a study into veterans' populations have been influenced, and to some extent distorted, by the apparent vulnerability of minority groups in veteran populations (Kulka et al. 1990). The same conclusions were not apparent with the same consistency in general population studies conducted recently (Kessler et al. 1995).

Coping style

At the cessation of battle, and on return from the war zone to the home environment, it would be expected that the euphoric state of surviving would still be present in the veteran. Unfortunately this is not the case in most situations. Rather, survivors face new problems while still carrying the baggage of the traumatic battlefield exposures. There are ongoing secondary stress factors that affect an individual's psychological coping resilience and ability (Friedman 2006a & b). These include changes in the home situation that have occurred while they were away, possible familial and/or marital discord, and changes in civilian employment and social structure settings. For example, some veterans find it difficult to know what to talk to people about.

In 2001, research was published about the individual predictors of PTSD among fire fighters. It found that the severity of symptoms co-varied with the individual's ability to develop and sustain supportive relationships to buffer the impact of events. This research showed that perceived social support decreased as disturbances in relational capacity increased (Regehr et al. 2001). Consequently, speculation about the severity and impact of PTSD symptoms may have created a psychological barrier in research participants suffering from PTSD. Alternatively the stress placed on the partners of PTSD sufferers who are in a vague sense charged with the responsibility of providing the social support can have a dramatic effect on their wellbeing (Maloney 1988). These barriers nullify the ability of all involved parties to avail and utilise the benefits of the available social

support mechanisms, such as family, friends and civilian work mates (Buckley et al. 1996) and thus interfere with their respective coping ability.

This impaired capacity to cope with the ordinary stressors of life often results in the PTSD sufferer avoiding situations that may trigger disturbing outcomes and consequently withdrawing. The presence of an avoidant coping style has also been identified in several studies as being a key predictor of the onset of PTSD (Harrison & Kinner 1998). It has also been shown that an individual's verbal skills, or an extensive source and understanding of descriptive vocabulary, are an important protective factor against the onset of PTSD. Psychological emotional resilience and personal hardiness also appear to have an effect that may decrease the risk of the onset of PTSD (Sutker et al. 1995b and Kobasa 1979).

Prior experience and training

There is a notion that training, controlled exposure and experience with traumatic events gives individuals the conceptual time to develop adaptive behaviour patterns—that is, defence mechanisms. These can then be implemented in an emergency. It is thought that this constructed behaviour pattern may decrease individuals' immediate fear and long-term sense of helplessness in the face of trauma and threats to self (Holmes 2003). This is an alternative approach to the limited cognitive resources model. It suggests that individuals have a limited cognitive resource pool capable of dealing with disasters or exposure to traumatic events—such as those experienced on a battlefield.

Some research has found that prior disaster exposure and experience had an almost protective effect in the victims of a factory explosion (Weisaeth 1989a & c). In the United States forces' current deployments in Iraq and Afghanistan, there is a large contingency of National Guard or military reserve personnel. These combatants are not exposed to the culture of full-time training nor do they usually live in close proximity to military establishments. Consequently, they are not similarly affected by repeated deployments, and cannot access the designated social support often proffered to full-time military personnel (Friedman 2006b). Therefore, the deployment stress—separation from friends and family, loss of income, disruption to life generally—may intensify the resulting traumatic battlefield stress associated with a war zone (Friedman 2004). This lack of support means that National Guard and military reserve personnel are confronted with an additional stressor indicator. This may explain why, in the most recent research, they have a higher prevalence of PTSD symptom clusters and associated depression than active duty regular enlisted volunteer soldiers (Friedman 2005).

Social support

The role of social support is difficult to research. Researchers have postulated that the environmental factor of the level of perceived social support can influence the onset and severity of symptom constellations of PTSD (Wilson 1989). This is because the issue of perceived, as against actual, social support is very difficult and consequently is seen as the value of perceived social support. Social support has demonstrated a strong influence

on an individual's physical and mental health (Cobb 1976; Cohen & Matthews 1987; Cohen & Wills 1985 and Sarason & Sarason 1985). Social support also can ameliorate the effects of stress, including war-related stress, on health (Cobb 1976). It was also observed that higher levels of social support appeared to alleviate physical symptoms and enhance perceived health for a sample of sexual assault victims. Alternatively, a deficiency in the social support availability resulted in somatisation, depression, and anxiety within a sample of flood victims (Cook & Bickman 1990). Additionally, Taft et al. (1999) also cited King et al. (1998) report that social support mediated the relationship between war-zone stressors and PTSD for the NVVRS sample, a result consistent with previous research on military veterans (Card, 1987; Egendorf et al. 1981; Frye & Stockton, 1982; Keane et al. 1985a and Solomon & Mikulincer, 1990).

Veterans' perceived relationship support network or the health of their personal dyads has long been acknowledged as an important influence on their physical and mental wellbeing (Cohen & Matthews, 1987; Sarason & Sarason 1985; Cohen & Wills 1985 and Cobb 1976). Research supports the view that social support relationships ameliorate the effects of stress (Buckley et al. 1996)—including battlefield exposure—on individuals' physical and mental wellbeing (Cobb 1976).

These studies show that social support is a powerful protective factor— especially for veterans (Brewin et al. 2000). The resulting dichotomy between a veteran's ability to

consent to accept and utilise the social support made available, and its protective quality, is always finely balanced (Benight & Bandura 2004).

For most traumatic event sufferers, especially veterans, accepting social support is problematic because of the unique symptoms. These will affect a sufferer's ability to benefit from family, marital and social support sources (Friedman 2006b). They include feelings of alienation, detachment, and survival guilt and avoidance behaviour. This inability to avail themselves of the significant benefits of institutional and domestic social support can create high levels of dissatisfaction and be key indicators to the delayed onset of PTSD. Dissatisfaction with the organizational support, lack of social interactions, and the lack of time given to adjust to a plane crash were predictors of PTSD in police (Carlier et al. 1997). This particular study also exposes the complexity that exists between the cause and effect of social support after a traumatic event/s.

These major dyad dysfunctions caused by exposure to battlefield traumatic situations imply that the individuals involved in this research had poor social support structures in the community when they returned to Australia in 1970. In addition, they were also in a state of sensitisation where their psychological regulatory systems were in overdrive.

Co-morbidity

The co-morbid nature of being exposed to a traumatic event, developing PTSD, and then being diagnosed with at least one other psychiatric disorder, is approximately 80 per cent

(Kessler et al. 1995). These PTSD sufferers are also more at risk of developing physical illnesses (Schnurr & Green 2004). Several population studies found, fairly consistently, that physical and psychological adversity in the aftermath of a traumatic event prolonged individuals' symptoms. This ongoing cycle of decline imposes further strain on the individual's coping resources. This validates, in part, the research concept that individuals have finite physical and psychological emotional reserves to draw on through their lives (Kirsner et al. 1991). Exhausting the reserves in one area has a causal affect on the other.

Dissociation when the traumatic event happens

When behaviour, emotions, sensations and knowledge are in a state of balance, an individual experiences a sense of unity with self (Braun 1988). Dissociation is seen by many as an adaptive strategy for dealing with traumatic experiences—especially those of a battlefield. It can dim the responses to trauma by a process of fading the clear acute confrontations that may be triggered later in life (Hoffman 1974). Confronting mutilation and death on the battlefield can induce in many individuals dissociation, emotional—and in some cases—physical shut down (Putnam 1994a). These reactions can save the individual from, if not postpone a breakdown. Unfortunately, confrontation with the stark experience of reality exposes punctuated and broken lives. In some cases this can trigger a life-ending experience (Putnam 1994b).

The issue of the retrospective

The 1988 National Vietnam Veterans Readjustment Study involved a representative sample of 1200 veterans concluded. It concluded that approximately 30.9 per cent of these veterans had developed PTSD during their post-Vietnam War experiences while 15.2 per cent were still suffering from symptoms of PTSD (Dohrenwend et al. 2006). The study's conclusion about the number of PTSD sufferers has been challenged. This is because there appears to be an inconsistency in the measurement of stressors before the onset of PTSD. Researchers thought that the stimuli for stressors that would trigger PTSD were minimal in the Vietnam War and that the incident exposure level was historically low. The traditional predictor rates of PTSD are combat reaction breakdowns, killed in action and/or wounded in action. If these rates were used, PTSD in Vietnam veterans should have been low (Jones & Wessely 2001). The Vietnam War was initially defined as a police action and then a 'low intensity war'. Consequently, the rate of PTSD sufferers should be low (Jones & Wessely 2001 and Solomon et al. 1987d). Regrettably, the actual threat analysis to the individual in fighting an unconventional war, and the multitude of other factors associated with the Vietnam War, were not considered. These included the sense of guilt expressed by veterans on return to Australia with leaving a job unfinished and the social mood of the civilian community towards veterans during the 1960s and 1970s.

Military situation

An initial review of research into the measurement of at least two occasions of PTSD symptoms also confirmed that trauma exposure will result in the manifestation of specific PTSD symptom clusters. These estimates range from 94 per cent in rape victims (Rothbaum et al. 1992) to 14 per cent of individuals in a community exposed to a serial murder (Herkov & Biernat 1997). Most studies recorded a mean in the region of 30 per cent of a population registering symptoms within three months of exposure to the trauma, especially that of depression (Shalev et al. 1998a). On average, the rate of symptoms of PTSD decreases over time (Blanchard et al. 1996a). However, other studies have confirmed an increase in symptoms of PTSD sufferers over similar periods of time from a two year follow-up study into the trauma symptoms of combatants of Operation Desert Storm in 1995 (Southwick et al.) which was preceded by a preliminary study published in 1993 (Southwick et al.).

In the context of military personnel exposed to battlefield scenarios, there is approximately a 19 per cent probability of the exposed combatants developing PTSD (Miller 2006). Additionally, a minority of cases demonstrated a capricious course of improvement with symptomatic patients and the development of new sufferers. This is often referred to as delayed-onset PTSD (Koren et al. 1999 and Mayou et al. 1997). The propensity, by which symptoms of PTSD initially manifest themselves, and their respective pathologies, varies dramatically across time. However, no studies have examined initial diagnoses in the battlefield and the longitudinal outcomes of diagnosed

battlefield combatants in a case control paired group. Thus, the causal links between specific in battlefield trauma exposure psychiatric diagnoses, subsequent PTSD symptom cluster manifestations and definitive physical and psychological symptom outcomes (such as delayed onset PTSD) have not been researched. This is the foundation of this research work.

Military stress reactions

Stress reactions and depression symptoms are presented at all levels of command and in all combat situations and their influence is significant. These reactions can limit a military force's operational capability. They can lead to mental and physical exhaustion in any member of a combat force. Alternatively, they can also lead to grand feats of unexpected courage and bravery. Courage is a wartime necessity which must be nurtured and enhanced long before any combat force even enters battle (Shephard 2002). Military commanders consider it prudent training practise in peacetime for soldiers to prepare for battle so that their likely performance in real-time battle conditions can be evaluated. To date, the military has given little consideration to identifying acute battlefield stressors and those members of a combat force who may be susceptible to battlefield exposures at the time of immediate exposure (Gerner 1987). The challenge of measuring human ASR and depression symptoms after battlefield exposure has received some research attention (Southwick et al. 1991).

However, it has not exposed the specific nature of individual ASR or depression symptoms and the distinctive aetiological paths (Sanders 1991). Consequently, when service personnel experiencing life altering traumatic situations in which their inability to come to terms with battlefield experiences have overwhelmed their capacity to adequately adapt to normal life, is exposed, they cease to function within the confines of normal life (McFarlane and van der Kolk 1996). An area of critical interest was the systematic examination of the range and nature of stress reactions and depression symptoms following traumatic battlefield situations resulting in individuals experiencing functional interruption of memory, flashbacks and anger (Rainey et al. 1987). Also how these stress reactions have affected the veteran's physical health up to today (Zimering et al. 1998). Stress reactions to traumatic exposure can also include intrusive, arousal and avoidance behaviours while depression symptoms include grief, loneliness and prolonged agitation. Specific stress reactions and depression symptoms may identify the initial aetiological indicators of an individual's vulnerability to the onset of PTSD (Solomon et al. 1996) or what may be expected after a specific traumatic exposure has been experienced.

One of the most significant consequences is PTSD onset rates that are higher than those experienced in the civilian population. Recognition of specific stress reactions and depression symptoms may also be able to assist in the formulation of screening (Rona et al. 2006) and treatment regimes (Shephard, 2002). The Australian Defence Department has recognised the higher rates of military personnel suffering from battlefield trauma

exposure and has implemented a screening program which is administered on all returning veterans from Iraq and Afghanistan in an attempt to identify those high risk individuals for follow up assessment and treatment. Considering this preposition, this research while declaring the limitations of an analysis of human behaviour on the battlefield; began with the recognition of the specific battlefield traumatic exposure/s and stress reaction/s (in battlefield captured) and all/any manifested ASD. This research then detailed the linked psychiatric diagnoses to the severity and intensity and the onset of PTSD.

War - trauma exposure

“Then it started: the real horrors of war” (Storer 1977, p: 9); the occupation of the trenches—a safe refuge from the enemy—was a horrible ordeal. The bottoms of these long, endless pits were littered with our unburied dead comrades. It was also not uncommon for us to see a corpse lying long ways in the soft mud wall of the trench. If you moved quickly—which was necessary on many occasions—there was a horrible chance of pushing one’s hand into the body of a long-dead soldier. Artillery shells rained down on the pits without respite—day and night. All a soldier could do was to crouch down and make himself as small as possible. This was especially when the German Artillery used their shrapnel shells, commonly referred to as ‘c-r-umps’ because of their double bursting action. The shrapnel from these shells was aglow with a phosphorescent fire that would burn through fabric and flesh all too easily. Under this anticipation and strain a soldier’s nerve may break (Storer 1977). In understanding war syndromes, it is important to acknowledge the early diagnostic definitions of Battle Fatigue,

Neurasthenia, Shell Shock, Combat Neurological disorder and Combat Fatigue have all contributed to the foundation of research understanding for the development of the diagnostic and statistical manual definitions of acute responses to trauma PTSD and the delayed onset of PTSD. They also assist in the ongoing legacy of battlefield traumatic exposure in the context of soldiers' contemporaneous experience accounts and their reflections on their health and illnesses beyond the initial diagnosis.

Traditionally it is known that after all wars soldiers return home with psychological and psychiatric syndromes that are an immediate consequence of their participation and exposure to battlefield situations. The wars and their syndromes include:

- American Civil War - neurasthenia (Mott 1918)
- World War I- shell shock (Mott 1918 and Southward 1919)
- World War II- combat exhaustion (Kardiner & Spiegel 1947 and Swank & Marchand 1946)
- Vietnam War- combat fatigue (Jones & Wessely 2005).

Psychiatrists and medical practitioners also had the *Manual of the International Statistical Classification of Diseases, Eighth Revision – ICD 8* (WHO 1977) and subsequently the *Ninth Revision* of the same manual (ICD–9). The World Health Organization approved this revision to become effective in 1968. A fundamental inclusion in DSM–II was that the ‘transient situational personality disorders’ now included the acute reactions to stress that are of psychotic proportions. Disturbances of psychotic proportions are specifically

allowed and included in DSM–II—especially when they are considered to be clearly transient reactions to overwhelming environmental stress—such as defined by a battleground. Regrettably, this diagnosis does not convey the veterans’ specific type of stress reaction or the Acute Stress Disorder (ASD) suffered by the veteran. Rather, it acknowledges that war can have a tremendous effect on an individual and that there are long-term consequences of participation in, and exposure to, the battlefield arena.

Combat exhaustion casualties in war

In the Mediterranean and European theatres of combat during World War II, the average incidence of combat exhaustion casualties was one case requiring medical holding and treatment for every four wounded in action—a 1:4 ratio. During intense or prolonged combat this ratio increased dramatically to 1:2. While fighting along the Gothic line in Italy, the American 1st Armored Division suffered 137 combat exhaustion casualties for 250 wounded in action—a 1:1.8 ratio. As a direct consequence of the forward medical support provided; between 50 and 70 per cent of combat exhaustion casualties returned to combat within three days of initial diagnosis. Most of the remaining soldiers returned to active battlefield duty within a few weeks of receiving treatment (Jones & Wessely 2005).

Also during World War II, the American 6th Marine Division was involved in the Battle of Okinawa. They battled day after day against a determined, dug-in, toughened Japanese resistance, rain and mud, and Japanese long-range heavy artillery. The division suffered

2,662 wounded in action and had 1,289 combat exhaustion casualties—a 2:1 ratio. Many of the combat exhaustion cases were evacuated to Navy ships offshore and very few of those cases ever returned to active battlefield duty (Jones & Wessely 2005).

In the Pacific theatre in World War II, there was one neurological psychiatric casualty evacuated from the theatre for every one wounded in action—a 1:1 ratio. Many of these troops appeared psychotic—that is, bizarrely out of touch with reality. Most of them, however, did not come from the combat units or areas. They were combat service support troops left behind. They were effectively isolated from their fellow soldiers in the hot jungle or coral islands; or the cold, damp Aleutian Islands. The environmental stressors were a combination of isolation, monotony, boredom, chronic discomfort, and low-grade illness. They also had to cope with fear of disease, injury, and surprise counter attack from the Japanese. In retrospect, commanders realized that evacuating these bizarre stress reaction cases home encouraged more soldiers to ‘go crazy’ when they temporarily reached their limit of tolerance to stress. It would have been better to have sent them to rest camps close to their units. This might have returned the majority to active battlefield duty quickly—as was done with the combat exhaustion cases in the European and Mediterranean theatres (Jones & Wessely 2005).

World War II demonstrated that tough training and esprit de corps prevented many battle fatigue, or combat exhaustion casualties. Elite units, such as the ranger and airborne units had less than one battle fatigue casualty for every 10 wounded in action. This unit

cohesiveness prevailed even in combat assaults, such as Normandy and Arnhem, where extremely high casualties were suffered. Unit cohesiveness also prevailed during prolonged fighting like the Battle of the Bulge (Jones & Wessely 2005).

In 1973, the Israeli experience in the Yom Kippur War confirmed that the risk of stress casualties was still high even in modern, high-tech, continuous operations battle. The Israelis counted on the strong cohesion and training of their troops and leaders to keep stress casualties to a minimum. They were caught, however, by strategic and tactical surprise and were forced to mobilize on a religious (fasting) holiday. Consequently they had to send their reserve forces into battle in a trickle feed fashion. Their Arab opponents—whom they had previously discounted as inefficient—used massed artillery, armour, and wire-guided missiles. They followed the Soviet continuous operations echelon-attack doctrine.

Israeli estimates of stress casualties suggest that many Israeli soldiers, including veterans and leaders, became unable to function solely because of stress. Stress casualties were frequent, especially in the Golan Heights fighting, in the initial defence of the Sinai, and during the re-crossing of the Suez Canal. Since the Israeli Defence Force had no plans for treatment and return to duty, all such cases were evacuated to hospitals in Israel.

Accordingly, the experience of Allied and Axis forces during World War I and World War II were repeated. The Israeli Army suffered an increased number of psychiatric casualties resulting from an inefficient medical support infrastructure. Many Israeli

soldiers were evacuated back home and, unfortunately, remain psychiatrically disabled today.

After the Yom Kippur War, the Israelis instituted a model program of leadership training and medical and mental health support. This program was intended to prevent combat stress casualties and to treat those cases which occurred in the brigade and divisional support areas. However, in the 1982 Lebanon invasion, many cases were inadvertently evacuated by helicopter to Israel in the initial haste of the invasion. Few of these cases returned to full duty. Of the Jewish casualties in that conflict, 60 to 80 per cent of those treated in Lebanon returned to active battlefield duty.

However, even the Israelis' strong preventive program could not completely prevent battle fatigue casualties in a high-tech war. One Israeli armoured battalion—trapped in a desperate night action against the Syrians—had approximately 30 combat stress cases and 30 wounded in action—a 1:1 ratio. A combat engineer battalion that was accidentally bombed by an Israeli fighter-bomber had approximately 25 KIA and 200 WIA. This same battalion soon had 20 immediate combat stress casualties. Approximately 25 other soldiers developed delayed stress reactions over succeeding days—a 1:4.4 ratio (Jones & Wessely 2005).

20th Century - reactions to trauma exposure

In the 20th Century, a critical theoretical issue dominated the conceptualisation of reactions to traumatic stress. Patients with PTSD typically have a long, latent period between exposure to the stressor and the development of very severe symptoms. To date, researchers have found it difficult to develop a conceptual model to explain the long, latency period. For example, in the military there is a long latency period between exposure to the battlefield, changing battlefield tactics and scenarios and the emergence of significant degrees of psychological morbidity. Military psychiatrists have long believed that those combatants who broke down in combat and manifested ASR, followed closely with developing ASD, were those that developed the chronic forms of psychological injury. During the later part of the 19th and throughout the 20th Century these combatants were variably diagnosed with a variety of conditions including:

- soldier's heart (Da Costa 1871)
- shell shock (Southward 1919 and Carlyon 2006)
- battle neurosis - term used by the British Army during WW II
- combat exhaustion - term used by the US Army during the Korean War (Swank & Marchand 1946)
- fear neurosis - a term adopted in 1941 for British forces (Jones & Wessely 2005)
- lack of moral fibre (LMF) - a term adopted by the RAF during WW II (Jones & Wessely 2005)

- combat fatigue - a term used by the US military forces during the Vietnam War (Jones & Wessely 2005)
- battle shock (a term adopted to describe temporary paralysis caused by intense artillery bombardment) (Forsyth 1915)
- ASD, PTSD and delayed onset PTSD (Jones & Wessely 2005).

Interest in battlefield exposure PTSD

In the first instance, the diagnosticians on the battlefield are not psychiatrists or psychologists. They are platoon commanders and other men in the line of command who may view the behaviour as disruptive to the core cohesive nature of the force. The behaviour disturbance may take a variety of forms. In this environment, the reactions observed tend not to be static, but highly capricious, in their phenomenology. There are varieties of reactions of an overly *anxious soldier* as discussed below:

A soldier may become increasingly anxious and this anxiety interferes with his or her ability to function or take commands. These individuals appear agitated, highly aroused, excited and tremulous with fear etched on their faces. They may become frozen in response to orders and environmental demands for adaptive behaviour. A soldier may adopt an attitude of inappropriate indifference to danger and seemingly fail to integrate and process salient environmental information. Distress and tearfulness may overcome the soldier so that he is unable to function as trained. Individual soldiers' behaviour may become erratic. This, in turn,

creates an environment of potential danger for other service personnel who depend on individuals' ability to act in an organized and integrated manner.

These are reactions that are observed in the field and dismissed with little or no regard for the wellbeing of the suffering individual. They involve monitoring an individual's behavioural response to the demands that are being placed upon him or her. Essentially, the internal affect and distress of the individual overrides their capacity for efficient goal-directed behaviour. This implies a stimulus response model where the individual is judged against the apparent norms and their assumed known capabilities.

Horowitz's research into traumatic bereavement has played a critical role in formulating both the dynamic theory about acute reactions and the nature of the phenomenology (Horowitz 1986a & b). His monograph, *Stress Response Syndromes* described the central role of the phases of intrusion and avoidance. He argued that there is an oscillation between these phenomena in the early stages of reaction to traumatic stress. These ideas were very influential in formulating the initial criteria for PTSD and for understanding the nature of the immediate distress response. This formulation represented an important conceptual shift. It was the first time that there was a focus on the importance of traumatic memories rather than affect alone in the internal modulation of distress. One of the important ideas that he articulated was the fluctuating nature of an individual's behaviour in the early period after a traumatic event and the phase quality of this

behaviour. This led to an interest in the way in which individuals have various states of mind and how these states of mind can change.

Detect changes in character and functioning by a military commander

The primary and most important function of a Section (Junior) Commander is to mould a small fighting unit into an action-ready team. This team must always be ready to fulfil its respective tasks and complete its assigned missions as practised during training. Section Commanders do not have specific mental health training. Their expertise exists across a broad domain of skills ranging from hand-to-hand combat, basic hygiene and survival in a battlefield scenario. Leadership ability is one of the requisite skills to fulfil these roles. By necessity it involves the capacity to understand the personality of the men who are in their team and under their direction. They similarly must have the capacity to observe the individual's performance of his role and problems in his functioning when required to complete assigned missions (Hackworth & Sherman 1989).

An obvious statement to make is that there are many factors that influence an individual's functioning and performance that are unrelated to mental illness. These include primary issues such as motivation, commitment to the group process and maturity. There are also many reasons that are not a direct consequence of mental illness, why individuals fail to function adequately within an organization. In organizations like the military, there are varying degrees of tolerance of change in functioning and character before action is

taken. But there always comes a time when Commanders at all levels would think to take an individual aside and ascertain the cause of the difficulties they may be experiencing. In some cases, the change in character and/or functioning affects the safety of the team or the cohesive nature of a sub-unit. When this happens, a Junior Commander is in a position to evaluate—and find out what the issue is—and then confer with a superior up the chain of command. In the military, this would be the case particularly if there were repeated examples of drunkenness, behaviour that led to disciplinary action or being absent without leave.

Whilst these behavioural disturbances are readily identified, it is a different skill to view them from a sophisticated psychological perspective. In military arenas there is a propensity to deal with these primarily through disciplinary actions. Ironically, a commander may refer a soldier with disciplinary problems to an RMO to confirm there is not a physical problem that may limit the physical punishment to be meted out. However, a competent Commander should at least have a modicum of suspicion or doubt about the possibility that other issues could be influencing the individual's behaviour—especially in a battlefield environment. The ability to perceive that this may be a consequence of combat fatigue depends upon the nature and the quality of the Commander. To a certain degree, it is also influenced by the sense of empathy he or she may have for their soldiers.

A battalion is a force size of between 600 and 850 personnel. A Senior Commanding Officer of a battalion would be aware of these disciplinary or behaviour issues in a different capacity and at a separate level. He would depend on the information provided to him by his Junior Commanders, and his general awareness about morale and behaviour within the battalion, which would affect its fighting readiness and capacity. It is a requisite demand on the skill of a Commander to be aware of the psychological state of his troops if he is going to lead them effectively. Hence, he needs to be aware of the differential characteristics of individuals and their capacity to cope within the organization. The critical issue is the threshold at which a Commander believes some action should be taken to deal with perceived changes in character. This action can be direct—perhaps by interviewing the individual and/or referring the soldier to the RMO. In essence, it is a balancing task that is extremely sensitive. Good leadership depends on the capacity to observe character and balance it with levels of functional capacity in a battlefield arena.

Detecting the signs and symptoms of PTSD by a military commander

Commanders' knowledge of combat fatigue and PTSD symptoms is critical for recognizing changes in a soldier's character and functioning of a soldier and the possibility of an underlying psychiatric disorder. Infrequently, people complain directly to their direct line commander or other soldiers with whom they work of their psychological distress. There are major barriers associated with the perceived and actual stigma and shame that prevent open disclosure of an individual's symptomatic distress.

Furthermore, while an individual is in a professional role he or she is less likely to declare any underlying distress through behavioural dysfunction. Admitting to this alleged perceived weakness would directly impact on the individual's survival in the unit and subsequent promotion prospects. There is a greater propensity for an individual's irritability and withdrawal to be manifest in their home or barracks environment rather than in the workplace or on the battlefield.

The significant majority of individuals with combat fatigue or PTSD symptoms would not demonstrate obvious changes in their day-to-day work environment. The non-clinicians, who are military commanders in the majority of cases, would have difficulty identifying the underlying psychological distress that may be contributing to total shifts. In the more obvious cases, the significant changes would be apparent. They would be manifested by:

- irrational irritability outbursts
- difficulty in concentrating on, and adhering to, assigned repetitive tasks
- an obsessive attention to detail
- and/or a general withdrawal from social contact.

Similarly, there may be indirect complaints—for example, from a partner—about the individual not coping or functioning in his or her domestic environment. All of these

factors contribute to the probability that the thresholds of detection by a competent junior officer, or commanding officer, would be high. They should also at least give pause for thought of the possibility that the individual is suffering from an underlying psychological issue.

Epidemiological research has demonstrated that morbidity rates are significantly higher—especially in battlefield combatants—than the broad social perception would suggest.

This is a stereotype that suggests that people who suffer from conditions such as PTSD are relatively grossly behaviourally disturbed. Implicit in this stereotype is the social underestimation of the prevalence of psychiatric disorder. Most individuals are able to contain their suffering without its public declaration or detection. It is unlikely that any military commanding officer would detect PTSD in the absence of a high index of suspicion, or direct scrutiny, by an RMO or a military psychiatrist.

Military Company Commanders are responsible for a Company Force size of 120 personnel. Their capacity to observe these behaviours and issues would depend on their ability to ask the appropriate questions when interviewing officers, soldiers, sailors or airmen about the non-performance of their roles. Except at the simplest levels, this is not a requisite skill for Commanding Officers at any level. Nor would it be believed to be within their respective purviews. Rather, it would be viewed as a medical problem to be referred to an RMO. This again significantly limits the possibility—other than in the most obvious cases—for early detection and subsequent early treatment of ASD and PTSD.

The most appropriate functional demand required of Commanding Officers—if they are concerned about a soldier’s behaviour—would be to direct a potential sufferer to the RMO for a medical assessment board (Shephard 2002).

The decision to treat a matter as a disciplinary action rather than as a medical problem is also very much an issue to do with the culture of most regiments. In a battlefield situation it is viewed as an expedient requirement so the force can get on with completing the assigned mission. Because there needs to be balance between them, these two perspectives are mutually inclusive. The veracity and propensity to raise the thresholds of detection is, and should be, of vital concern within military and political forums that train, allocate, and commit Australia forces into battlefield situations. From general observations about the identification of mental illness in the military workplace, these disorders are not often identified without a direct complaint from the individual. Commanding Officers, whether junior or senior, should not be expected to identify these illnesses in the absence of gross behavioural disturbance or direct symptomatic complaint. In 1991, O'Brien and Hughes reported on research about symptoms of PTSD in Falkland War Veterans five years after the event (O'Brien & Hughes 1991). While Orner et al. examined the long-term traumatic stress reactions in British Falklands War veterans (1993). It would be reasonable to expect that the military had attempted to ascertain the views of Senior Commanding Officers about whether they observed behavioural changes amongst officers, soldiers, seamen and airmen who had served in the Falklands. This request for surveillance and observation about behavioural changes

should have been in the context of providing specific information about the type of symptoms and behavioural dysfunction that were observed in people with PTSD. A basic understanding of the requirement for observation and surveillance of behavioural changes that could be attributed to combat fatigue would also be appropriate for inclusion at all levels of Australian military commander training (Shephard 2002).

Fluctuating states of mind in the context of battlefield exposure PTSD

The limitation of ASD is that it implies an established mental state in the same manner as other diagnostic categories. It needs to be remembered that in the immediate aftermath of events, there is an unpredictable interaction between the individual and the environment that will have many determinants. The continuation of threat, the reaction of other people in the environment, the presence of physical injury and its treatment, and whether or not the individual remains in a malevolent environment are all-important factors.

In 1947, the historian, S L A Marshall, made some of the most detailed observations about behaviour in combat during World War II. He observed a variety of combat situations and the relationships between soldiers. These observations demonstrated that the level of attachment between a soldier and his immediate comrades can make the difference between being able to fight or retreating into a state of fear and inaction. There can be sudden switches between panic and courage that are critically determined by the behaviour of those in the soldier's immediate vicinity. The group's cohesiveness, and the

communication and contact with one's comrades, is more important than direct orders from an officer or general issues of morale. Soldiers can seldom fight effectively if they are not in the presence of other soldiers they know and trust. Against this background, it should not be forgotten that, in the 19th century, battlefield stress reactions were conceived of as nostalgia. The idea was that the soldier's distress was primarily due to the separation from his family and familiar attachments (Glass 1974). The underlying trigger to this preoccupation may in fact have been a consequence of insecurity with his fellow soldiers and his lack of identity with the group.

In settings of extreme stress, an individual's state of mind is not a fixed entity like a psychiatric illness but an almost unpredictable pattern of orientation and self-organization. It involves a critical struggle to master fear and to organize one's behaviour in a goal-directed manner for one's own survival and that of the larger group. The mind has a series of mechanisms for coping with the extreme states that can occur when the available information is overwhelming and cannot be put into a more manageable context by the presence of others. Survival demands that all information that might be salient to the individual is sorted out. Panic happens when the multitude of novel stimuli cannot be prioritised. The range of different stimuli becomes overwhelming and there is a flooding of awareness. In this state, the anxiety associated with the situation can freeze the individual's behaviour or cause a progressive breakdown of their ability to integrate the multiple stimuli and threats. The capacity to integrate these multiple layers of sensory stimuli is what determines whether an individual experiences dissociation in this setting.

Dissociation in this context may involve losing the assimilation of environmental drivers of emotional arousal. This can lead to a state of numbing. In its extreme form, the normal orientation to the self is lost. This may be experienced in terms of one's own body or the sense of being an agent in the world. If the latter sense is disrupted, the individual experiences de-realisation. This can be a transitory state. When the individual regains control of the anxiety, they are able to reintegrate rapidly and effectively perform goal-directed tasks (Frewen & Lanius 2006).

There is another critical frame of orientation that occurs in the face of threat and determines the fields of information that an individual reacts to. It has been referred to as 'survival mode' (Chemtob 1999). This state of mind involves the suppression of affect and promotes a scanning of the environment for threat. Vigilance and the accompanying propensity to shift attention occur in order to predict the most immediate threat to survival. At the same time there is a constant reorientation around the individual's attachments with the powerful desire to remain with, and to protect, the group.

The mode of awareness at these times is one of intense problem solving rather than the more open style of associative thinking. This implies that the individual is entrapped in the immediate environment and outer reality rather than in a more internal dialogue that enables subtle movement between different affect states. Observers note that this mental state is one of emotional constriction where the individual fails to integrate the immediate situation with the larger self and the past. It characterises many aspects of individuals'

behaviour in situations of extreme stress. The ability to move in and out of this state may influence the patterns of acute stress-related symptoms observed in an individual. The person who remains in this state even when a safe environment has been reached is at a considerable disadvantage. Individuals who remain in this state are prone to further affective intensification of the sense of threat experienced after the traumatic event passed (Koopman et al. 1995).

The ability to adjust in the aftermath of threat implies a flexibility and adaptive response to the immediate shifts in the environment. To date, there has been no systematic study of these issues and the way they impact on ASD symptoms. This is a critical issue. There is a great deal of difference between a stressor like a motor vehicle accident and combat. The car accident lasts for seconds and is associated with a short period of rescue. With combat, however, there is a very direct threat and a demand for adaptive behaviour that may have to be used for the duration of the deployment (Koopman et al. 1995).

Trained individuals, such as fire officers or soldiers, who deliberately expose themselves to danger, challenge a very different repertoire of behaviours, learning and memory than an individual in a car accident. Someone involved in a car accident emerges in a very brief window of time and reacts on little more than reflex behaviour. The development of symptoms in the aftermath of these settings is likely to have very different determinants. These include the role of training, the motivation for re-exposure and group morale. For this reason it is important to not generalise the findings in this area too broadly. Also,

although these individuals may experience brief moments of terror, panic or dissociation, their previous training often enables them to regroup quickly and take charge of the situation (Hughes et al. 2005).

Such rapid and subtle shifts would be very difficult to research and any enquiry would be subject to the bias of retrospective analysis. Marshall (1947) also observed that soldiers are far better and more accurate at recalling the speech of others when compared to that of their own. This indicates that self-generated narratives may not be as readily accessible or reliable as we might have imagined. Given this, exhaustive checks of reported traumatic events must be undertaken before any statistical analysis.

Military force comparison/perspective

There were very low rates of traumatic stress disorder in Vietnam. Yet, despite this, veterans still developed PTSD—in some cases several years after they returned home. For military cases, the medical fraternity is still, to some extent, struggling with the apparent contradiction this presents. The conflict in Vietnam was extraordinary. It was declared an international police action initially. Then it evolved into an unpopular war and veterans faced hostility when they returned to their homes in the United States of America and Australia. All of these factors are believed to play a specific role in the prevalence of PTSD following these veterans' battlefield trauma exposures. Also, the actual feeling of social inferiority felt by suffering veterans would have forced some of them to suffer and self medicate in silence.

In comparison to a relatively contemporaneous conflict the British experience in the Falklands War in 1982 was very different in several ways. It was initially declared as War and it was comparatively brief. The units were, in the main, held as cohesive groups for their pre-embarkation training, deployments and repatriation. As individuals, unit formations and as a combat force they received general and national public acclaim when they returned to the United Kingdom. Similarly, forces from Australia now serving in Afghanistan, Timor and Iraq have very different experiences in terms of the mood at home and the reception they receive when they return home than that experienced by the Vietnam veterans.

These elements of cohesion, monitoring and repatriation are considered today by all military personnel and especially the military medical fraternity to be critical in maintaining the psychological health of Australian veterans today. Alternatively, during the Vietnam War, the respective American and Australian command infrastructure and medical corps personnel generally considered traumatic stress as having a transient nature with a moderate priority of incapacity. This was due principally to the lack of diagnostic information available to recognise “high risk” combatants. They perceived their immediate role as retrieving battle casualties along lengthy supply and support chains of command administering health care necessary to return them to the battlefield as soon as possible.

A military psychiatrist who had the foresight to anticipate the emerging morbidity of a veteran from the Falkland War would also have had a major task to convince others of this possibility in the absence of accepted knowledge. Psychological morbidity understanding that is available to military medical staff today. Another difficulty was the lack of a credible diagnostic instrument such as the PTSD definition which appeared in DSM-III in 1980. This was not available to the medical practitioners during the Vietnam War. It is also unlikely that the Falkland War medical support system would have been responsive to the opinions expressed by combatants and medical support staff. This was because the perception of immediate risk measured against long-term outcome at the time would have minimised the possibility of winning the war.

The Vietnam War has been described as a low-intensity war when measured against other wars by casualty rates (Jones & Wessely 2001). However, a quantitative distinction of this type does not present the most relevant way to compare and analyse the Vietnam War with more traditional wars like the Korean or both World Wars. Quantitatively, the Vietnam War was a different kind of war to previous wars. It involved what has been described as a paradigm shift in the conduct of warfare. War changed from industrial based wars between states that involved armies and emerging technology with roughly equivalent forces in the battlefields attempting to smash each other into oblivion, to a 'war amongst the people' (Smith 2006). In this latter style of warfare, it becomes a 'war without fronts' (Thayer 1985). Those that could be classified as being exposed directly to traumatic battlefield events are in the traditional combat formations of traditional

armies—that is, infantry, armour or artillery. This eclectic battlefield environment often makes it difficult to distinguish between the enemy and friendly civilians. Traumatic battlefield exposures to war-zone stressors may also be more difficult to locate define and consequently legitimize in this type of war among the people. Interestingly the qualitatively nature of the individual experiences of the combatants are not that different when their stories are told and letters and individual diary entries are read (Lewis 1999 & 2003). Research has cited as a base foundation figure that 15 per cent of a military force will be exposed to battlefield traumas in combat scenarios (Dean 1997 as cited in McNally 2003). Historical literature—while confirming the foundation figure of 15 per cent—possibly includes the 10.5 per cent of Army forces who were infantrymen (Clodfelter 1995). It probably also includes their combat force counterparts in the Marines, Navy, and Air Force in the United States military commitment. Conversely, the 15 per cent manpower figure clearly does not include an additional 14 per cent who were regularly exposed to combat traumatic battlefield experiences while serving in support roles. These include combat engineers, battlefield medics, artillery personnel and logistic supply staff (Clodfelter 1995). Data in the National Vietnam Veterans Readjustment Study suggest that combat theatre veterans accounted for 23.1 per cent of the total force that served in high battlefield combat exposure military occupational specialties. These included, for example, infantrymen, medics, combat engineers, cannon crewmen, and cannon-fire direction specialists (Dohrenwend et al. 2004). Estimates of the percentage exposed to combat dangers obviously increase when Vietnam is acknowledged as a war without fronts rather than a conventional war (Thayer 1985).

For American forces, 30.4 per cent of combat engagements were ‘organized enemy attacks against U.S. static defense perimeter[s]’ (Pentagon Papers 1971). Between 1967 and 1975, the American fire support bases were regularly at risk of standoff attacks from mortars, rockets, and recoilless rifles. North Vietnamese and Vietcong troops launched an average of approximately 14 000 standoff attacks per year (Thayer 1985). In this context, 50 per cent of soldiers were considered combat exposed forces irrespective of their job or corps classification. This is an interpretive statistic that is similar to the Australian force experience (Kolko 1985).

Other research, based on the United States commitment to Vietnam, concluded that about 1.6 million of the 2.15 million men they estimate were assigned to tours in Vietnam itself served in combat (Baskir & Strauss 1978). The latter estimate is close to Kolko’s when supporting troops on ships and land bases in Thailand, Guam and elsewhere are included. This increased the force size for the duration of the Vietnam War to about 3.14 million. In Vietnam some military forces were not assigned to, or did not serve directly in, what was incorrectly designated as the Combat Zone. These forces were free from the ever-present threat of injury or death (Dohrenwend et al. 2007). This definitive of combat and support force elements has also impeded the evolution of an appropriate diagnostic system that would consider the ever-changing aspects of different types of warfare and impending threats to survival from any direction.

In Great Britain, during the 1980s, there was evolving acceptance in the tumultuous times during and after the Falkland War of the need for an adequate diagnostic system. This was reminiscent of the psychiatric support provision issues during the 1960s and '70s in the Vietnam War for American and Australian forces. It would have been difficult for military medical personnel to diagnose PTSD in the United Kingdom during the 1980s.

Similarly, it would not have been a straightforward diagnosis for reasonably competent American or Australian Regimental Medical Officers (RMO) to diagnose a stress disorder or the onset of PTSD in Vietnam combatants. Apart from the lack of an acceptable diagnostic system, the difficulty for an RMO is revealed by the collected foundation diagnostic data obtained from the battlefield medical facilities in 1969–70.

During this period, *Diagnostic and Statistical Manual of Mental Disorders, Second edition* (DSM–II) was an accepted diagnostic reference available to the tactical area of responsibility medical support staff. The closest diagnosis in DSM–II that could be given at the time was 'Transient Situational Disturbance (TSD)'. Valium was the prescribed medication for treatment. The collected data on this research's participants from 1969–70 when compared with contemporaneous data obtained on veterans who were subsequently diagnosed with PTSD (post Vietnam deployment), utilising more sophisticated and detailed diagnostic reference material and the benefit of hindsight; confirms that those that presented for treatment in the battlefield would have to be regarded as those at the extreme end of the range of battlefield casualties. Or could they have been battlefield casualties that could not continue to hide their symptoms any longer?

The diagnostic practices of RMOs in 1969–70 reflect the broad diagnostic practices within the military as prescribed by senior military psychiatrists during that era. It would be reasonable to expect the practice of the specialist psychiatrists to precede the development of the skills and competencies of the respective RMO. The diagnostic practice would have been dependent on the training that had been implemented. The military's specialist mental health services are crucial if a new diagnostic category such as PTSD emerges; although this was not the case in 1969–70. An RMOs' diagnostic skill depends on the specialist mental health services within the military acting as the conduit of training and information. This, in turn, affects treatment regimes and patient outcomes.

Regimental Medical Officers today should be expected to be able to diagnose an ASD. They should also be able to indicate, if not diagnose, the onset of PTSD and other psychiatric disorders with a reasonable degree of accuracy. This is based on the assumption that medical officers have access to current training and literature (Russell & Silver 2007). It should be acknowledged, however, that an RMO performing to this standard is a statement of the ideal. It must also be remembered that military personnel use camouflage techniques and self-medicate to disguise their states. The medical officers would be unlikely to see these presentations in standard civilian general practices. An RMO has distinct advantages over his or her civilian peers in the diagnosis of PTSD because of their knowledge of their individual patients' employment demands, conditions of service and battlefield experiences. They should also be particularly familiar with the

types of traumatic exposures that have occurred. Thus, they would have a higher index of suspicion of the need to ask direct diagnostic vetting questions about the existence of PTSD symptoms.

The RMO would be unable, in the normal course of his or her duties, to take on this task in the absence of information, direction and personnel support. An RMO requires ongoing medical information that keeps them fully aware of these developments in knowledge. Their skill set for diagnosing PTSD is therefore critically dependent upon the systems that are put in place within the Defence Force at all levels of command. Research in the 1980s identified that there was significant variability in general practitioners' capacity to diagnose psychiatric disorders (Goldberg et al. 1993 and Grayson et al. 1987). It would be rational to surmise that, within the Australian Defence Force, there would be a significant range of differential skills amongst medical support staff and force commanders at all levels. Another issue is that this research is directly aimed at providing source data that will be important in determining the general capacity to diagnose battlefield psychiatric disorders.

Thus, it would only be reasonable to expect an extremely competent RMO to diagnose PTSD if they were informed about it through specific training programs when they entered military service. Such training would need to be based on an awareness of the variability and skill of primary care physicians in detecting psychiatric disorders. It would

also need to consider if commanders at all levels would be able to distinguish pertinent behaviour patterns to assist in early recognition (Russell & Silver 2007).

General practitioners are required to remain aware of a wide variety of information.

Given this, specialist psychiatrists play an important role in the diagnosis that emerges from the information with which they are presented during relatively short consultations in battlefield situations. It is unlikely that an RMO would have had the requisite skill before 1985. It is even less likely that they would have had it between 1969 and 1970 as this was the period when diagnostic competence was being developed in the specialty of psychiatry. By the early 1990s this should have been a requisite skill for all general medical practitioners. Against this background, the average RMO would not be expected to diagnose the co-morbid conditions with any degree of accuracy. However, they should have been alert to the possibility of PTSD when a soldier presented with alcohol or drug abuse (Kofoed et al. 1993), conversion disorders, hyper arousal behaviour and other DSM-IV conditional indicators.

The average RMO in the battlefield would find it difficult to address the diagnostic and treatment issues associated with a sub clinical PTSD. Soldiers who present such diagnostic dilemmas should be referred to a specialist psychiatrist for clarification if the need arises.

In the Australian Defence Force today, an RMO should be aware that PTSD is a possible differential diagnosis. And, considering the diversity of Australian Defence Force deployments, their awareness should be attuned to it. This would ensure that PTSD is not under diagnosed (Zimmerman & Mattia 1999). An Australian Defence Force RMO should also be able to assess and diagnose acute combat stress reactions throughout the relevant periods: pre-deployment, during deployment and during post-deployment phases. This is of primary importance. It is also of sufficient familiarity to the military such that any competent RMO should be equipped to diagnose combat fatigue reactions, ASD and the possible onset of PTSD when referring a sufferer for psychiatric clinical confirmation (Zimmerman & Mattia 1999).

The context of combat: its relationship between ASD and PTSD

As outlined in the introduction, the confusion about this relationship has bedevilled the conceptualization of post-traumatic syndromes. There has been a significant shift to an increasing acknowledgement of the role of the traumatic battlefield exposure and acute distress as key determinants of the subsequent onset of PTSD. When Solomon's 1993 (a & b) research was published, it acknowledged the poor outcome of individuals who had combat stress disorders. However, there was a general understanding that only a small minority of those who developed a PTSD symptom cluster had experienced an ASD. And there were with few references to these disorders in the literature. There was little research into the nature of the acute reactions to battlefield trauma until the phenomenon of dissociation began to attract interest in the early 1990s (Marmar et al. 1994). Before

DSM–IV (American Psychiatry Association 1994) there was no specific category to acknowledge the importance of ASD or to differentiate it from PTSD. In DSM–III (American Psychiatry Association 1980) these conditions would have been diagnosed as an acute PTSD. This would have been consistent with the conceptualization of PTSD as a normal reaction to an abnormal event.

The importance of dissociative reactions to ASD and the onset of chronic PTSD have only been examined in the last couple of decades (Koopman et al. 1996 and Hyer et al. 1993). Thus, there has been an historical process where, after World War II, an ASR was seen as the sole post-traumatic syndrome. It was conceptualised as a normal response to an extreme traumatic event that would basically resolve itself over time. When the diagnostic responsibility was upgraded to that of PTSD, there was a loss of interest in ASRs. They have re-emerged as a research interest in the last couple of decades.

The few presentations of acute combat stress reactions, or combat fatigue, in Vietnam encouraged clinicians to believe that there would be few psychological casualties of that war (Glass 1974). The provision of an effective psychological service in the theatre of war seemed to have solved the problem of the acute combat stress reactions.

Paradoxically this might have been hidden because of the high levels of substance use (Hyer et al. 1991)—for example, alcohol and drugs—in the Vietnam theatre of war.

Essentially, current research emphasised that PTSD is a disorder of memory which, by remembering the traumatic event, is engraved onto the sufferer’s psyche (van der Kolk &

van der Hart 1991). This results in the sufferer failing to integrate the traumatic experience into their life in a normal, psychological way. This is evident in the memory's dominance of the sufferer's consciousness. Thus, the re-experiencing symptoms reflect the primary characteristic of the disorder. This reflection may only present when some veterans retire and take time to reflect back and weigh up the good and bad of his or her life. There was no substantial quantitative data from the battlefield. This, coupled with inadequate diagnostic instruments, limited the resulting recognition of an enormous health problem which continues to present today.

The DSM–III (American Psychiatry Association 1980) definition of PTSD was representative of its conceptualization in its chronic form. The early clinical literature about traumatic neurosis (Seguin 1890) emphasised the chronic course of the disorder and the progressive social decline caused in its more severe forms (Archibald & Tuddenham 1965).

The definition raises several questions. Is a diminution of intelligence and interest a typical outcome? What is the range of other adaptations and whether these are modified by the nature of the stressor? The DSM–IV (American Psychiatry Association 1994) definition is more descriptive of the acute forms of PTSD than previous definitions. This is a consequence of the detailed research conducted into disaster and accident victims in the 1980s.

Combat fatigue casualties in Vietnam

During the Vietnam War, the Australian medical echelon support system was operational and integrated with the United States system. Throughout the war, the combat fatigue casualty rates rarely exceeded one per 10 wounded in action. The reasons purported for the low number of combat fatigue casualties have included the sporadic nature of fighting and Australian and United States air and artillery superiority. Other factors were well-supplied fire bases, scheduled rest and recuperation, and a fixed combat deployment tour of 12 months (Haran & Kearney 2001). The soldiers knew when they would have a break and also when it would end for them. All these factors kept most combat fatigue cases at levels which could be treated in their units and did not require medical holding or hospitalization.

Other behavioural problems related to loneliness and frustration, however, were associated with combat stress in Vietnam. Serious incidents of poor discipline occurred in Vietnam which resulted in the commission of atrocities (Hussey 1974) including, in March 1968, the My Lai massacre; and in other battles, battlefield deployment refusals, and even ‘fragging’, or murder, of comrades, mates or leaders (McNeill 1984). These events threatened unit cohesion and the chain of command.

By 1970–71, when United States ground forces were rarely committed to offensive operations, ‘neurological psychiatric casualties’— especially those that abused drug and alcohol and the subsequent addictions became an epidemic. In September 1971,

neurological psychiatric cases accounted for over 60 per cent of all medical evacuations from the battlefield theatre of operations. Today, those misconduct problems and other avoidant behaviour, aggressive outbursts and temperament changes are recognized as having contributed to the high incidence of delayed PTSD in Vietnam veterans.

These misconduct and stress behaviours can seriously undermine the objectives and successes of a sub-unit's mission. Due to the different nature of the stress, they are more likely than combat fatigue in operations other than direct intense prolonged battles.

Australian forces did not have the same frequency of incidences as those of the United States military. This could be due to the unit force rotation policy of the Australian forces. It was different to the American system in that it confirmed unit cohesion and relief in place. The American system, however, would intermingle or trickle feed reinforcements to combat zone-based units for prolonged periods of time.

PTSD— especially in veterans

This section discusses the history of the development of understanding about the many physical and psychological responses to traumatic life events and their respective treatments. Some people have no physical or psychological reaction to major stressors in their life. But for others, a physical or psychological response is inevitable. The most common and conspicuous long-term sequelae of combat stress is PTSD.

Epidemiological studies demonstrate that PTSD tends to be the exception rather than the rule after war. The Vietnam readjustment study found that in the 19 years after combat exposure, 15 per cent of veterans still suffered from PTSD (Kulka et al. 1990). The relationship between the acute effects of combat and long-term outcome has been investigated most thoroughly in veterans of the 1982 Lebanon war (Solomon 1993b). In that conflict, Solomon estimated that one in every four physical combat casualties went on to develop PTSD. That study suggested that soldiers who become acutely distressed at the time of combat have a much higher risk of PTSD and that this emerges from combat stress reactions. When all the combat stress casualties of this war were followed up, 41 per cent were found to have PTSD six years later. This is in contrast to a rate of 12 per cent in the control group of combat veterans who apparently coped at the time. Thus, the rates of PTSD are significantly less amongst those who cope at the time of the combat. These studies in conjunction with follow up analysis by Solomon and Mikulincer (1988 & 1992) also provided follow up data on combat stress reactions and valuable insights into the patterns of symptom cluster emergence.

A decline in PTSD rates was also observed among the Yom Kippur War veterans. Control group participants had higher recovery rates than combat fatigue casualties. Thirty-seven per cent of combat fatigue casualties who reported having suffered from PTSD in the past still suffered from the syndrome at the time of the study (Solomon & Kleinhauz 1996). However, not all combat stress reaction casualties suffer from long-term maladjustment. The findings also show a substantial pattern of recovery over time.

Following an acute reaction, some individuals may regain their equilibrium and cope well. For many soldiers, a combat fatigue marks the beginning of long-term chronic distress and puts them at high risk for subsequent stress disorders. However, for other soldiers, combat fatigue and/or ASD may be a transient episode to PTSD. The link between ASD and PTSD may reflect some veterans' responses to successive stressors and traumatic battlefield exposure—not just combat fatigue.

First, it may reflect the stressfulness of the trauma. Intense traumatic events may induce both immediate stress disorders and long-term stress reactions. This relationship may reflect the vulnerability of the individual or the extreme intensity and frequency of the traumatic exposure. More vulnerable individuals may suffer more severe ASD and more severe post-traumatic residual reactions. Finally, the link between the two disorders may reflect the fact that the post-trauma aftermath generally involves ruminations about one's reactions during the trauma. Individuals who exhibited an ASD ultimately remain preoccupied with their breakdowns and that, in turn, exacerbates post-traumatic reactions.

The pattern of PTSD symptoms was similar in soldiers whether or not they had a combat stress reaction. This suggests that these symptoms are relatively independent from the acute pattern of response. Blank also found that intrusive symptoms had low diagnostic specificity in contrast to the combination with avoidance symptoms. In addition, the prominence of intrusive symptoms decreased over a two-year period whilst the avoidance increased (Blank 1993). The relationship between the acute reactions to other types of traumatic events has not been so systematically investigated. This is because it is

uncommon for people to present for treatment in the immediate aftermath of disasters and accidents.

Combat fatigue soldiers experience a wide range of distress and non-PTSD psychiatric symptoms (Solomon 1993a). This phenomenon emphasises that PTSD is only one of a range of post-traumatic adaptations to the transitioning time in the sufferer's life. Combat stress or fatigue may also have long-lasting effects on the social aspects of the veteran's life. Often sufferers avoid contact to maintain control over their emotional structures (Figley 1978 and DeFazio et al. 1975). Combat fatigue casualties reported more problems in maintaining pre-existing work performance levels, family functioning opportunities, sexual functioning and various aspects of social functioning compared to control populations (Solomon 1993a). The difficulties in most of these areas did not abate with time; rather they began to become intransigent. Three years after the war, fewer soldiers reported problems in family functioning than at the end of the first year (Solomon et al. 1989b). This could be attributed to two things. The first is the intense support that can be provided by the discreet network associated with various aspects of family life. Alternatively, they may no longer have contact with their family due to avoidant behaviour strategies.

A higher percentage of battlefield trauma exposed casualties than control populations reported higher rates of somatic complaints and behaviours potentially detrimental to their health (Solomon 1988; Solomon & Mikulincer 1987 and Solomon et al. 1987e).

Generally, the battlefield trauma exposed casualties reported poorer physical health and mental wellbeing than those in case control populations.

Several studies are currently being conducted examining the impact of war on civilian populations and on specific groups of war victims—for example, Kuwait, Croatia, Afghanistan and Iraq. These will provide an extraordinary body of prospective data about the effects of large-scale, multifaceted and extended traumatic events. Retrospective studies have examined these issues in 824 Dutch resistance fighters (Hovens et al. 1994). They found that five decades later, 27 per cent of men and 20 per cent of women were still experiencing PTSD symptom cluster manifestations. A directly comparable population sample was not available for any of these studies. Thus, it was impossible to analyse the differences between this group and population norms on measures of anxiety and depression. A directly comparable population group suffering from anxiety and depression is of future research interest.

The origins of the combat stress control concept

Combat stress control is not new. The basic leadership techniques taught by successful military leaders through the centuries have long been cornerstones of Australian and United States Army leadership training at all levels of command. Combat stress control is said to have originated from the Israeli Defence Force experiences in the 1970s and 1980s. On the contrary, United States' experiences with its allies during World War I gave it an appreciation of the basic doctrine (Hackworth & Sherman 1989).

The French and British discovered that if stress casualties were evacuated far to the rear many became chronic psychiatric cripples. But, if forward psychiatry was used and casualties were treated quickly, and close to their units, most recovered and returned to duty quickly without residual damage. The United States Army Surgeon General of that time recommended that military tacticians implement a three-echelon system for prevention, triage, treatment, and return to duty of stress casualties. Interestingly, this same system of medical support was incorporated and adopted by logistic support elements responsible for the formation of division, brigade and unit supply support. In the first echelon, the United States Army attached a trained psychiatrist to each division—approximately 11 000 personnel) This individual's role was to advise command on the prevention of stress casualties, to screen out the unsuitable, and to assure that overstressed soldiers were rested and returned to duty—within the division whenever possible. Following British practice, stress casualties in the division were labelled 'Not Yet Diagnosed, Nervous'. This avoided even the suggestion of physical injury implied by the dramatic popular label 'shell shock' (Jones & Wessely 2005); or the implication of psychiatric illness conveyed by the official diagnosis of 'war neurosis' (Wilson 1994). Under good conditions, 70 per cent of stress casualties were returned to duty within the division.

The second echelon was geographically behind the divisional formations in World War I. This was mainly due to the style of combat which had clearly defined lines of

engagement with clearly identified enemy combatants. It is in this relatively safe location that the United States Army sited specialized neurological hospitals. These hospitals had 150 beds to support three divisions—that is, 33 000 personnel. Their sole function was to provide additional brief rest and rehabilitation to that Not Yet Diagnosed, Nervous cases that the divisional psychiatrists were unable to return to duty. These neurological psychiatric facilities also provided brief rest and rehabilitation to persistent cases of ‘gas mania’ or ‘gas hysteria’ who believed they had suffered chemical injuries even though physicians considered that they had not been truly injured (Faulkner 2000). The basic type of gas used was chlorine, a lung gas that affected the respiratory organs. Other gases used were blister gas, tear gas, phosgene gas and mustard gas. The main characteristic of mustard gas was its efficient way of eating into the flesh on direct contact. It caused running sores and blisters that at the time were very difficult to heal (Storer 1977). About 55 per cent of the cases sent to these facilities returned to duty in an average of two weeks. Interestingly, today this is the standard length of time for all soldiers’ rest and recreation after three and six months in the battlefield.

The third echelon was much further to the rear of the second echelon. Its location provided an environment for the establishment of a specialized base hospital. This offered several weeks of additional specialized treatment for cases who failed to improve in the neurological hospital. This medical support system had a successful record of returning many of the referred cases back to effective battlefield duty (Hackworth & Sherman 1989).

The three-echelon system worked well. But on occasions when the tactical situation interfered with forward treatment, it clearly demonstrated its flexibility in providing the medical support required and also supported the forward deployed part of the program. Lamentably, the experience of World War I was forgotten between wars. The lessons learnt in that war had to be rediscovered in World War II after several disastrous experiences when many psychiatric casualties were over evacuated in the early battles. By the later stages of World War II, both in the European and Mediterranean theatres of conflict, all divisions had again incorporated a divisional psychiatrist with mental health assistants in support. Psychiatrists supervised a Training and Rehabilitation Centre in the divisional rear echelon. They trained and supervised the regimental and battalion surgeons and medical officers in recognizing and treating combat exhaustion or battle fatigue cases. Most regimental combat teams—equivalent to an Australian brigade size—had an exhaustion centre in the regimental training area. Many battalions maintained a rest area in the vicinity of battalion first aid station. The medical officers supervised these facilities to assure that soldiers that were sent there recovered quickly and returned to active battlefield duty (Hackworth & Sherman 1989).

Behind the divisional area there were specialized medical clearing company stations commanded and staffed by psychiatrists and medical support staff. These clearing company stations provided additional treatment for non-responders or difficult cases.

Specialized base hospitals were located furthest back in the communication zone. These hospitals provided the medical support for longer-term patients.

Following World War II, the lessons learned were embodied in a tabulated War establishment organization and equipment profiles and the establishment of mobile psychiatric detachments. During the Korean War these psychiatric detachment teams established in the WW II force establishment and equipment organization formats functioned very effectively. They provided timely and, more importantly, accurate medical assistance to injured soldiers (Hackworth & Sherman 1989).

The emergence of symptoms in older veteran populations

A lack of trauma data captured at the source of either the exposure or point of disintegration in the emotional state of the exposed individual is negligible primarily due to a focus on recovery rather than immediate symptom data collection. This lack of data has also magnified concern about the flexibility to extrapolate conclusions from the results of civilian samples and apply them to military samples which in themselves are distinctive (Macleod 1994). A meta-analysis of the effect of risk factors in trauma-exposed adults concluded that in general, the size effects were small. The subsequent findings on gender, age at the time of exposure, and race were also variable across samples. Significant factors that were consistently associated with PTSD included education, previous trauma and general childhood adversity. The extent of the risk, however, was variable across populations (Brewin et al. 2000). More uniform predictions

were associated with past psychiatric history, reported childhood abuse, and family psychiatric history. The relative size of effect of factors that operated at the time of the traumatic exposure is extensive.

Protecting the mental health of soldiers into the future

The prevalence of PTSD in Vietnam veterans has been a controversial medical and political issue. This is especially so in 2008. New literature on specific research analysis is being sought all the time to provide a clearer appreciation of the suffering of veterans. Additional research would and also help to facilitate more robust discussion on the relevant issues and conclusions specific to the type of battlefield exposure. For example, the Vietnam War was a battle without boundaries. What lessons were learnt from that conflict that could be used to protect Australian soldiers' mental health in Iraq and Afghanistan? Similarly, how should commanders decide which soldiers should be exposed and what can be done to protect them before, during, and after battlefield exposure? The Vietnam War ended for Australia more than 35 years ago. But the controversy about its veteran psychiatric damage and subsequent costs to the Australian community continues today.

In 1988, the Centers for Disease Control and Prevention conducted the Vietnam Experience Study into the prevalence of PTSD in male Vietnam War veterans. It found that 14.7 per cent of male veterans developed PTSD after serving in Vietnam. However, only 2.2 per cent still had the illness by the late 1980s (Centers for Disease Control

1988). The study further added to the debate about the psychological trauma sustained by combatants during battlefield exposure (Dohrenwend et al. 2006). Clinicians dealing with PTSD sufferers disputed this conclusion of the Vietnam Experience Study. They argued that the methodology was flawed and that the study underestimated the true pervasiveness of the problem. In an attempt to resolve the issue, the United States Congress authorized the National Vietnam Veterans' Readjustment Study (Kulka et al. 1990).

Its' research concluded that 30.9 per cent of male veterans developed PTSD; and that an additional 22.5 per cent developed partial PTSD. Moreover, 15.2 per cent still suffered from the disorder in 1990. This incidence rate was nearly seven times as high as that determined by the Centers for Disease Control in 1988.

Until the research results from the National Vietnam Veterans Readjustment Study were provided, the United States Congress had been ready to phase out counselling and other therapeutic support services for Vietnam veterans. However, the National Vietnam Veterans Readjustment Study conclusions prompted an abrupt cessation of the phase-out program. The United States government then provided increased funding for clinical services and research designed to manage the apparent epidemic of chronic PTSD suffering amongst a large proportion of Vietnam veterans (McNally 2006).

Many researchers and clinicians working in the research and treatment of trauma-related issues immediately accepted the National Vietnam Veterans Readjustment Study findings without further scrutiny. They concluded, without reservation, that the conduct of the Centers for Disease Control and Prevention's research into the health conditions of veterans was fundamentally flawed and had produced spurious results. But in recent years cynics—quite often historians of military psychiatry—have articulated doubts about the National Vietnam Veterans Readjustment Study (McNally 2006). In 2006, McNally highlighted that, from his understanding, the '...psychiatric casualties are lower than in any previous war'. These alternative considerations also highlighted that only about 15 per cent of those United States military personnel who served in Vietnam were assigned to combat units and deployed to what was then defined as the battlefield (Dean (Jr) 1997). However, the National Vietnam Veterans Readjustment Study specified that 53.4 per cent of all military personnel who served in any capacity in the tactical area of operational responsibility developed either full-blown, or partial, PTSD (McNally 2006).

McNally (2006) concluded that the National Vietnam Veterans Readjustment Study interviewers misconstrued predictable symptoms of emotional distress as indicative of mental illness. Indeed, the diagnostic criteria for PTSD used by the study did not require that symptoms produce functional impairment. This is a limitation in the diagnostic process.

Other observers have concluded that the pattern of psychiatric casualties in Vietnam differed from the shell shock of World War I and the battle fatigue of World War II. This could be attributed to the contrast between the types of warfare experienced. World War I and World War II had a defined enemy in most situations and predominantly defined lines of engagement. In Vietnam, however, the enemy was more subtle and the lines of engagement were not as clearly defined. This often resulted in a lack of direction and violent, and apparently senseless, random forays into unknown areas where an individual's life changed drastically and sometimes finally (Caputo 1999).

Another observation about the select psychiatric consequences of the Vietnam War was that it produced an extremely low proportion of proximate combat stress casualties and produced or is claimed to have produced massive numbers of post combat casualties. Therefore, Vietnam breaks with the past normative pattern of combat and war zone stress casualty production (Marlowe 2001). There is still uncertainty about why psychiatric problems are only manifested in many Vietnam veterans' years after their return to civilian life.

Dohrenwend (et al. 2006) analysed and investigated the disproportionate observations and concerns raised by critics of the National Vietnam Veterans Readjustment Study data. He viewed and consulted archival records, personnel files, and other historical sources to verify reports of traumatic events. Critics' observations and doubts were verified.

Dohrenwend confirmed that the National Vietnam Veterans Readjustment Study had overestimated the rate of PTSD in Vietnam veterans by 40 per cent. Although his recalculation produced a plummeting PTSD symptom cluster prevalence rate, Dohrenwend (et al. 2006) noted that 9.1 per cent of all Vietnam veterans still suffered from the disorder in 1990. His most interesting conclusion was that while the study markedly overestimated the prevalence of PTSD, two of its other findings were accurate. Those were the dose-response effect and that the more trauma exposure a veteran had experienced, the more likely he was to develop PTSD.

Also, by examining the war archives he was able to verify nearly all the reports of trauma exposure cited by the veterans. Indeed, an epidemiologic study concluded that fabrication of trauma histories and PTSD symptoms was almost non-existent. In 2007, Frueh examined the same war archives as Dohrenwend. However, he could only verify 41 cases out of 100 of combat exposure of those men currently seeking treatment for a Vietnam-related PTSD service disability. Both the National Vietnam Veterans Readjustment Study's results, and Dohrenwend (et al. 2006) re-examination, found that many veterans who developed PTSD symptoms after the Vietnam War ended no longer had any symptoms by the late 1980s.

This research suggests that it is possible to conclude and predict that the number of men suffering from PTSD would have declined further since then. But a recent investigation

by the United States Department of Veterans Affairs suggests otherwise (United States Department of Veterans' Affairs 2005). Interestingly, the number of United States veterans seeking medical treatment and service-related disability compensation payments has increased exponentially in the fiscal years between 1999 and 2004. The total number of United States veterans receiving disability compensation for PTSD increased by 79.5 per cent. By contrast, the total number receiving disability compensation for all health problems increased by only 12.2 percent. During this period, PTSD disability payments increased by 148.8 percent. There are three possible explanations for this. The first is that the rates of delayed onset PTSD have increased. Secondly, veterans approaching retirement could be experiencing a reactivation of their symptoms. Finally, these figures could suggest that many veterans have suffered from PTSD for many decades and are only now seeking the help they need.

The field of psychological trauma is prominent for the moral passion it mobilizes and the controversies that often erupt within it (McNally 2003). Irrespective of the outcome, constructive critical analysis is of vital significance for research. Discovering new facets of symptom expression; however politically sensitive; provides the best foundation for supporting and treating sufferers. Increasing the accuracy of identification, and more awareness of initial manifestation and ongoing prevalence rates, will always contribute to the robust debate about future diagnostic treatments. Advocacy for victims must rest on the best science possible.

Screening military personnel for PTSD

As described in the previous section, treatment costs and disability payments for veterans diagnosed with PTSD have increased significantly in recent years. In an attempt to stem this increase, the United States Department of Defense has implemented a universal screening program to monitor the health—including the mental health—of troops returning from combat. It needs to be stated here that this retrospective program, although innovative, is reactive and not proactive. It almost requires veterans to prove that they are sick. Several other innovative programs aim to ease veterans' transition to civilian life. Unfortunately, they are all reactive. It is also too early to gauge the effectiveness of these retroactive interventions. The screening program has its champions and its cynics.

The leadership of the Department of Defense has taken a very deliberate stance toward mental health issues. Charles Hoge (et al. 2006), a psychiatrist at the Walter Reed Army Medical Center in Washington, D.C. says: 'We're well aware this time that there's an expected psychological cost of war.' Mental health treatment experts say it's impossible to know how many of the troops serving in Iraq or Afghanistan will develop PTSD or other combat-related mental problems. But preliminary data indicates prevalence similar to the new figure for Vietnam—that is, approximately 19 per cent of the committed compliment will develop ASD, partial or full-blown PTSD. Soldiers in all three conflicts have faced similar stressors. There is a constant threat of ambush from any direction; a high casualty rate among both soldiers and civilians; and it is difficult to distinguishing friend from foe. These three stressors also distort the Rules of Engagement which, in

itself, add enormous pressure to the combatant in the ever changing battlefield. This integrated with more frequent and more intense combat experiences—and there is no shortages of these, especially in Iraq—raise veterans’ risk of developing PTSD (Shephard 2002).

Hoge and his colleagues published the results of some of their research in the July 2004 issue of *The New England Journal of Medicine*. They reported on an Army combat unit of 894 soldiers that had recently returned from Iraq. Of those soldiers, 89 per cent reported being attacked or ambushed and 95 per cent reported seeing dead bodies or human remains. Labbate et al. (1998) also provided one of the initial insights into how soldiers’ (from Gulf War I) are surviving after experiencing such conditions, especially that of handling human remains and the resulting psychiatric syndromes manifested. This is also presented in research conducted by McCarroll et al. (1995a, 1995b & 1993a, 1993b, 1993c). In another anonymous survey, 17 per cent of unit reported symptoms of PTSD, generalized anxiety, or depression. The researchers found a somewhat lower prevalence of such symptoms, about 11 per cent, in 1,962 soldiers deployed to Afghanistan. This lower incidence presumably reflects their lower levels of reported combat experience.

The difference in the data does not indicate if they are trained in the same way—for example, were they Special Forces or infantrymen (Grunts)? Another study by Hoge and his colleagues (2006) was based on an abbreviated survey but involved a much larger

sample of 238,938 Army and Marine personnel returning from Iraq and Afghanistan. It produced similar findings. The paper reported that 19 per cent of those serving in Iraq, and 11 per cent of those serving in Afghanistan, reported symptoms of PTSD or other mental health problems. Even though the percentage figures are similar, a definitive comparison cannot be made. The collection of the data is different and with Hoge et al. (2006) the data compilation was not supervised (Miller 2006). This has resulted in concern about the reliability of using unsupervised surveys to detect mental health problems. It has also led some medical health experts to question the effectiveness of the United States Defense Department's new post-deployment health assessment program instituted at the start of the Iraq War.

Every service member must now complete a three-page questionnaire—either immediately before leaving their deployment or within two weeks of returning home—that includes about half a page of questions on mental health. Those who screen positive for a mental health problem get a follow-up interview with a clinician. The Defense Department's goal is to catch soldiers who need help early on and get them treatment before their symptoms develop into a full-blown disorder or become compounded by other issues. A similar program has been introduced in Australia where returning military complete the PCL-M and other questionnaires on arrival in Australia from overseas deployments.

This is very different to when soldiers returned from Vietnam, they had to deal with federal, state and in many cases local community and family protests, this environment of negativity associated with isolation and a history of alcohol and/or drug abuse confirmed a resistance to seek help for psychological problems created by their military service (Pemberton 1987; Rowe 1987; Sexton 2002 and Kofoed et al. 1993). This raises the question of whether this is more about insuring against claims into the extended future than protecting veterans' health. The department has announced plans to repeat the screening at three- and six-month intervals after the soldiers return home. However, despite this, very little is known about the time progression of PTSD. This is partly attributable to the fact that some problems are masked by soldiers' initial elation over returning home alive, if not slightly damaged.

Doctor Simon Wessely is a psychiatrist at Kings College London and a civilian adviser to the British Army. He does not agree with screening and dismisses the United States Defense Department's screening effort as scientifically vague and, quite possibly, a huge waste of resources. The main problem he and others have identified is that such surveys haven't proven effective at predicting which individuals' mental health will need help into the future. According to Wessely and his colleagues, the screening may tend to exaggerate symptoms by only accumulating symptom clusters. These might identify symptoms in the present but they do not allow for symptoms that may surface in the future. And, as discussed earlier, it's possible to have a couple of symptoms of PTSD but not a full-blown disorder that requires medical intervention. Almost everybody is

changed by the experience of fighting in a war. You have to draw a distinction between normal human emotions that are evoked by a horrible experience and things that impair daily life (McNally 2006).

However, the follow-up screening interviews should help cut down on false positives (Miller 2006). There is also a larger, more sinister problem. That is the self-sabotage behaviour of soldiers not wanting to appear vulnerable or weak with their peers. The screening may fail because soldiers who take the survey before returning to the United States are often tempted to hide symptoms to avoid delaying their return. The screening's validity is also questionable because of widespread worries about its confidentiality. A great many soldiers may not check the box to initiate this type of medical support because of a valid concern that it will have a negative consequence on their careers. Concerns that the screening isn't very accurate at identifying individuals who need follow up psychiatric support have been confirmed. Fewer than eight per cent of servicemen seeking mental health care in the first year after their return were referred by the screening program. This suggests that the program didn't identify the vast majority of those who sought help. At the same time, fewer than 20 per cent of those who did report mental health concerns on the survey were referred to a mental health professional for further evaluation. In a May 2006 report, the United States Government Accountability Office chastised the Defense Department for failing to get veterans mental health care when they need it (Miller 2006).

Doctor Wessely proposed an alternative approach to the British government. He suggested that it would be better to invest money and effort on expanding mental health services and making them more amenable to veterans than to spend money on screening. He cites a United States Defense Department program called ‘Battle Mind’, started by Dr Charles Hoge, as a promising development and way forward in the treatment programs (Miller 2006).

In presentations to returning combat units—and in videos and other materials available online for soldiers and their families—‘Battle Mind’ explains how the combat-zone mindset can cause problems at home. For example, in a combat zone, constant awareness of the surroundings is crucial for survival. But once soldiers return home, such heightened attention can leave them anxious and easily startled—a PTSD symptom called hyper-vigilance (Butler et al. 1990). The program appeals to soldiers because it uses language they understand rather than mental health jargon. Hoge clearly identifies that they don’t talk about hyper vigilance in combatants rather they refer to tactical awareness in the program (Miller 2006).

As indicated previously, there is within the fraternity of medical practitioners a positive assertion that increased intensity and duration of battlefield exposure leads to increased rates of combat casualties. There is a range of studies that suggest that there is a progressive recruitment or sensitisation of vulnerability with repeated traumatic exposure of this nature. Similarly, general information coming from military sources in the United

States confirms this assertion. In addition to this dictum, most of the exposure scales used to measure veterans' exposure, find a correlation between the number of contacts in combat and the subsequent risk of PTSD. Thus, the degree of exposure has a relationship to the development of PTSD.

Despite this, however, as with any risk factor, there is an interaction with other risk factors. This does not explain an all or nothing relationship. On the contrary, a variety of studies have suggested that there is a threshold effect. That is, that PTSD occurs in relatively high prevalence over a particular degree of exposure (Andrews et al. 2007) and additional exposures seems to have relatively little impact on the total prevalence of the disorder (Breslau et al. 1999).

The literature that has examined the impact of multiple, as against single, trauma comes from a variety of epidemiological sources (Breslau et al. 1995). Exposure to multiple traumatic events is a common phenomenon. Prevalence rates range from 13.3 per cent to 25 per cent for two events, and from eight per cent to 25 per cent for three or more traumatic events in the general population (Kessler et al. 1995). Several studies have shown that multiple exposures to traumatic events are associated with an increased severity of psychiatric symptoms. One research study, for example, reported that the number of previous traumatic events was a moderate predictor of PTSD symptoms in 440 college students (Vrana & Lauterbach 1994). Correspondingly, in a sample of treatment-seeking women, researchers found that there was an increase in trauma symptom

reactions following multiple trauma involving victimisations (Follette et al. 1996). This result is sustained by strong evidence provided by research into the detrimental effects of multiple interpersonal traumas on current PTSD symptom demonstration (Green et al. 2000).

Other research studies investigating combat veterans with PTSD (Foy et al. 1987a and 1987b) and rape victims (Ruch et al. 1991) have also reported and concluded that a cumulative effect exists between multiple traumas and the onset of PTSD. Breslau found that exposure to two or more prior traumas significantly increases the risk of developing PTSD—especially in those previously exposed to assault and physical violence in childhood (Breslau et al. 1999). For those exposed to at least two previous traumas in their early lives, there is a five-fold increase in the probability of them developing PTSD following exposure to traumatic events in adulthood.

Research into the correlation between cases of pre-military exposure to trauma in combat veterans, and post-combat PTSD symptom severity, provides strong evidence for the link between prior traumas and PTSD severity. Zaidi and Foy's research into early childhood sexual and physical abuse cases supports a significant correlation between a history of physical abuse and the development of combat-related PTSD (Zaidi & Foy 1994). This research found that approximately 25 to 45 per cent of veterans with PTSD experienced physical abuse in childhood (Bremner et al. 1993).

Similar research also confirmed the role of gender for female soldiers who experienced pre-combat sexual and physical abuse and combat-related PTSD (Engel et al. 1993). It confirmed that females who had experienced physical or sexual abuse before combat have higher rates of post-combat PTSD symptom clusters than females who have no prior traumatic events. Further research in this field demonstrated that females who participated in active service presented higher rates of pre-military sexual trauma compared to male active duty soldiers (Stretch et al. 1998). The rates of prior sexual victimisation were high amongst women. In a sample of 1832, 45.5 per cent reported an attempted or completed rape (Merrill et al. 1998). The history of childhood abuse predicted re-victimisation in Naval recruits. Victims of childhood abuse were 4.8 times more likely to be raped in adult life (Merrill et al. 1999).

Other research also identified that emotional neglect was also a critical issue because it decreased a soldier's ability to utilise the social support often obtained in the camaraderie found in military units—especially those under stress (Rosen & Martin 1996). Other studies examining the influence of prior combat experience on PTSD symptoms in veterans also support the significance of multiple traumatic experiences. Early research has argued for a combination of a 'vulnerability hypothesis' and a 'stress inoculation hypothesis' to explain the effects of prior or multiple traumatic events. Stress inoculation theory suggests that soldiers with prior combat experience showed lowered combat stress responses to combat provided they did not have a previous combat stress response. However, stress response rates increased progressively with the number of war

experiences for soldiers who had a prior combat stress response. The combat stress response score was 57.1 per cent for those with one war experience, 66.7 per cent for those with two war experiences and 83.3 per cent for those with three war experiences (Solomon et al. 1987a).

More research provides further sustaining evidence for the detrimental effects of prior combat experience on post-combat PTSD symptoms in Gulf War veterans. Researchers examined the course and predictors of PTSD in interviews with soldiers five days after they returned to the relative safety of home. They found that veterans with prior combat experience were three times as likely to meet the criteria for PTSD. This trend was confirmed in the current research. This direct correlation was especially prevalent in female combat veterans with prior combat experience. They were 10 times more likely to meet criteria for PTSD than females with no prior combat experience. This research also confirmed that battle hardening, or battle conditioning, does not occur in either the experimental or the control group participants. Those in combat-related employment during their time in the battlefield were more likely to reach the diagnostic thresholds set in DSM-IV for PTSD than those who were not deployed into these employment categories (American Psychiatric Association 1994 and Wolfe et al. 1999).

As the Chief Psychologist with the United States Air Force, Doctor Alan Peterson served at Balad Airbase near Baghdad until January 2005. Doctor Peterson has provided qualitative data about his treatment of an Airman suffering PTSD symptoms. He provides

an insight into the immediacy of the tremendous stress and horrific traumatic battlefield situations faced by combatants and how it affects their mental health. More mental health professionals are now being deployed to battlefield zones in Iraq and Afghanistan. This has enabled a greater understanding, and an acknowledgement, of the physical and psychological harm of the threat of battle (Miller 2006).

Military situation conclusion

Further research has also argued that conscripted soldiers broke down more in cases of exposure than regular volunteer soldiers. This was primarily touted because the conscripted soldiers had less time to adjust to the concept of battlefield deployment due to their rapid training program which failed to provide them with an adaptive form of repression (Rivers 1918) they might utilise during and after the exposure/s. This research by Rivers proposed that regular volunteer soldiers were more effective in the battlefield and less likely to develop exposure reactions. It concluded that this was because they had more time to construct an internal emotional mechanism to control unwanted emotions. This concept is congruent with the diagnosis of abreaction where the treatment focuses on the active suppression of natural fears. This approach and philosophy were included in pre-embarkation training that remained popular through World War II (Freud 1966). This outcome was not confirmed by this research rather it was the opposite.

Traditionally, for those working in the military medical command and control field up to the 1980s, the severity of ongoing exposure was the primary factor accounting for the

onset of PTSD. Thus, the critical issue for them was to test, and possibly establish a causal link between, the severe traumatic stressors of the battlefield and a single syndrome of combat fatigue or ASD.

In the past, the in battlefield identification of trauma exposed individuals have posed a difficult if not impossible challenge for researchers. This would have been due primarily to the pervading need for confidentiality and the reluctance of medical practitioners to have their diagnoses challenged and also many soldiers of that time to being exposed to the professional and social stigma of being labelled 'mental, crazy or nuts'. Today there is to a lesser degree the same ill-informed reluctance to accept the uniqueness of ASD, PTSD and delayed onset PTSD. Previously it would have been diagnosed as a TSD with the presence of anxiety and depressive symptoms; a condition that could be disguised by the sufferer; yet presented in other anti social behaviour.

Previous researchers with limited diagnostic tools have thought reactions to battlefield trauma exposure would resolve itself over time or heal quite quickly with the correct short term medication and/or psychiatric treatment. Paradoxically, this focus underplayed the significance of the roles of PTSD and delayed onset PTSD. At the same time it would have increased interest in the manifestations of depression and anxiety as defined by conventional psychoanalytic models (Fine 1979). Conversely, those clinicians who had a particular interest in PTSD in the early 1980s were focused on defining the specific effects of combat fatigue, ASD and the timing onset of PTSD. Put simply, it is difficult

to retrospectively evaluate the efficacy of the treatment regime information that has emerged in the last 35 years of research. Primarily because it was of a short term nature; if one approach did not work another short term approach was adopted to its conclusion. However, the clinical systems, prevailing culture, philosophy or public health policy of today have facilitated enacting diagnostic direction, advice and opinions without a struggle principally due to the appreciation of the longevity of the disorders. Such is the immense significance of the data provided for this research with regard to the permanency of the effects to battlefield traumatic exposure.

Military psychiatry has a long tradition of developing innovative health management systems that have contributed to improving civilian psychiatric services. These areas of psychiatric support service delivery models are particularly about the treatment design and venue selection of psychiatric support service delivery. They reflect specifically the need for the military to address the military service that is battlefield exposure, environmental causes of illness and subsequently provide systemic treatment regime approaches that are applicable to other population-based trauma exposures.

A second layer of knowledge involves the specific treatment strategies that apply at the level of individual patients. This knowledge is characterised by a more specific set of information derived from the description of clinical programs, the report of individual cases and the conduct of treatment trials. This is another significant aspect of this research.

The tradition of medical data analysis, and the associated treatment trials, is a contemporaneous introduction to the practice of military medicine. When individual military service combatants are exposed to traumatic battlefield events, pernicious outcomes result. This contemporary, innovative research is now, and into the future, a vital issue of endeavour for longitudinal research. This has been confirmed by this literature review and the subsequent research result outcomes of this study.

Post-traumatic illness

Post-traumatic illness is not a term used in the medical literature. It describes a range of psychological and psychiatric disorders, dysfunction or disability—persisting or arising at an interval—following battlefield trauma exposure or in some instances a naturally occurring traumatic event/s (earthquake, bush fires and/or floods). The absence of a precise definition makes it difficult to define the relevant literature. Post-traumatic illness includes, but is not limited to, combat fatigue, ASD, PTSD and co-morbid conditions. Thus, this understanding is specifically relevant to the veterans experiencing co-morbid battlefield stress reactions that were identified and subsequently participated in this research.

There is very little published about disorders other than PTSD that arise in the aftermath of events such as combat. The specific aetiological associations with disorders such as panic disorder, major depressive disorder, generalised anxiety disorder and antisocial

personality disorder have been moderately researched. This is especially so in as far as they include battlefield-diagnosed reactions and the onset of PTSD. The lack of information also prevents informed discussion about an individual's vulnerability or risk status and the subsequent course for these and other disorders that may have a causal link to and directly predict the onset of PTSD (Perkonigg et al. 2000).

War and disaster definition of ASD

The number of published observational studies that have focused specifically on ASD has grown since its inclusion as a diagnosis in DSM-IV (American Psychiatric Association 1994). There was a paucity of research data informing the initial formulation of the criteria. This was due, in part, to the fact that it is very difficult to conduct research during war and disasters. The criteria in DSM-IV place a major emphasis on the presence of acute dissociation reactions in combination with the presence of PTSD that emerges at the time of exposure to the event. These criteria partially reflect the apparent role of acute dissociation as a critical component of long-term post-traumatic reactions.

In contrast, the ICD-10 definition of "ASRs" is more reflective of the descriptions that have been accumulated from military psychiatry and are perhaps more specific to combat. This specific definition focuses on the multifaceted nature of the symptoms. That is, that anxiety and depression are more important features and that the phenomenology can fluctuate rapidly. The formulation of the diagnostic criteria, however, has created a significant bias in the observations that are made about the symptoms that occur in the

aftermath of traumatic events (World Health Organization 1993). This formulation is more in keeping with the content analysis that Solomon et al. (1996) conducted into the phenomenology of ASD in combat. Their research identified a range of reactions using factor analysis. This included the development of severe psychosomatic reactions such as diarrhoea or shaking. These are matchless factors ignored in the current criteria.

Essentially, ASD is an acute form of PTSD that occurs within two days and no later than four weeks after exposure to the traumatic experience. The critical conceptual difference between PTSD and ASD resides in the distinctive significance of the dissociation symptoms. For a valid diagnosis of ASD, at least three dissociation symptoms are required. I discussed this in detail in: *The history of psychological classifications and ASD*.

The definition of the stressor criterion

One of the central issues for this field has been defining and observing what is a traumatic event. The DSM–III (American Psychiatric Association 1980) has adopted the definition of a traumatic event as the ‘...existence of a recognisable stressor that would evoke significant symptoms of distress in almost everybody’. The qualifier states: ‘The essential feature is the development of characteristic symptoms following a psychologically traumatic event that is outside the range of usual human experience’. The stressors described include combat, natural disasters, accidental and deliberate man-made disasters. It also suggests that some stressors frequently produce the disorder—such as

the processes of torture—while other stressors such as car accidents produce it only occasionally. This is further clarified by statements in DSM–III–R (American Psychiatric Association 1987): the person has experienced an event that is outside the range of usual human experience and that would be markedly distressing to almost anyone, e.g. serious threat to one’s life or physical integrity, serious threat or harm to one's children, spouse or other close relatives and friends, sudden destruction of one’s home or community, or seeing another person who has recently been or is being seriously injured or killed as the result of an accident or physical violence.

This is especially accurate with regard to the support that is offered by a spouse to a Vietnam veterans' to facilitate a manageable adjustment to PTSD (Shehan 1987). The *International Classification of Diseases, 11th revision* (ICD–11) (World Health Organization 1995) provides an elaborate definition in conjunction with the previous qualifier statement that: PTSD arises from a delayed and/or protracted response to a stressful event or situation (either short lived or long lasting) of an exceptionally threatening or catastrophic nature which is likely to cause pervasive distress in almost everybody (natural or man-made disasters, combat, serious accidents, witnessing the violent death of others or being a victim or torture, terrorist, rape or other crime). Predisposing factors such as personality traits (compulsive aesthetic) or previous history of illness may lower the threshold for the development of the syndrome or aggravate its course but is neither necessary nor sufficient to explain its occurrence.

The DSM–IV (American Psychiatric Association 1996) introduced a further dimension in defining the stressor criterion associated with PTSD:

- The person has experienced, witnessed or was confronted with an event or events that involved actual or threatened death or serious injury or threat to the physical integrity of the self or others; and
- The person’s response involved intense fear, helplessness, or horror (in children), disorganized or agitated behaviour.

This definition acknowledges the possibility of a personal subjective response to a significantly greater degree. It was included in an attempt to account for the role of dissociation reactions, which are presumed to be one determinant of the outcome. There is frequently a significant disparity between the perceived threat in a situation and the actual threat to the individual. This disproportionate gap presents a clinical dilemma when diagnosing the severity of PTSD. This is perhaps most apparent in considering cases of PTSD following rear-end motor vehicle collisions. The lack of opportunity for individuals to anticipate or prepare themselves for the accident in this situation may be one of the reasons why such events are so readily perceived as being threatening. In the context of this observation, military personnel are trained, and are aware, that something may happen to cripple or kill them; but they don’t know when, where or how. They just know that they are going to place themselves in situations that will promote this outcome.

Whether such individuals develop PTSD is a scientific question that can be addressed by examining its phenomenology. It is known that the experience of fear or horror is an integral factor in war and also in the development of ASD and PTSD. Against this understanding, an historical approach to the previously classified and their subsequent evolution traumatic stress response syndromes is significant in the way trauma generically is viewed today.

Re-experiencing phenomena

Whilst re-experiencing symptoms has been seen as the core of PTSD, the diagnosis of ASD also requires their presence. These symptoms cover several dimensions ranging from recurring images of the terror or trauma experienced in a range of sensory domains, nightmares (Smaldino 1991), battle dreams and flashbacks (Shephard 2002). All are associated with a sense of reliving the traumatic exposure experience (Hendin et al. 1984). The triggered psychological distress and physiological arousal occur when the victims are exposed to reminders that may be either real or symbolic. Intrusive memories are a relatively omnipresent aspect of the acute trauma response (Horowitz 1975). As highlighted in Rachman and De Silva (1981), some individuals do not experience these thoughts or memories as necessarily unpleasant or disturbing in a debilitating way. In some cases they can settle in individuals where a series of corrective associations can lead to the extinction of the fear networks linked with the traumatic thought or memory. Thus, in individuals who do not develop a PTSD, the frequency of these thoughts or memories progressively decreases. Conversely, in the individual who develops a PTSD,

the fear and distress associated with these memories and thoughts progressively increases. This suggests that, in these individuals, activation of the trauma-related interpretation progressively increases the sense of threat. It does not lead to a sense of mastery or the automatic self-regulation of the individual to maintain the normal or standard state of the body under variations in their respective environments. These individuals tend to adopt avoidance behaviour as a means of coping, possibly with other PTSD core symptoms (Burgess-Watson & Daniels 2008). PTSD re-experiencing phenomena plausibly overlaps with animal defensive flight and pre-predator encounter freezing. In contrast, PTSD dissociation may be more closely aligned with defensive immobilization in the context of acute impending attack by an unequivocally more powerful predator. This happens in situations where a more active defensive strategy, such as fight or flight, would predictably entail an increasingly aggressive behaviour on the part of the predator (Bryant 2006).

In earlier research into ASD diagnostic issues, it was acknowledged by Bryant and Harvey in 1997, that a PTSD diagnosis does not require these unwanted thoughts of the traumatic experience to be involuntary. What appears to be critical is the struggle that the individual has with these memory patterns and structures. In 1918 Rivers studied World War 1 soldiers' attempts at repression of thoughts. He found that attempts to manage the thoughts and reactions are critical to the individual's long-term outcomes. Hence, if an individual is severely distressed in the immediate aftermath of the event, this process of mastery may be significantly disrupted. In this regard, the affect associated with the

underlying traumatic memories and thoughts plays a critical role in determining whether the individual develops an ASD and subsequently develops chronic PTSD.

Avoidance phenomena

Several studies have noted, quite poignantly, the existence of avoidance phenomena in the immediate aftermath of a traumatic event (Bryant & Harvey 1996, Cardena & Spiegel 1993 and North et al. 1989). However, these reactions can be very difficult to demonstrate or articulate in close proximity to the traumatic event (Miller 2006). In the first place, this avoidance reaction often refers to the way the individual manages their thoughts and feelings about the traumatic event. As an explanation of this phenomenon, individuals who have been exposed to several traumatic events in a battlefield can insulate themselves from triggers that bring on avoidance behaviours. For veterans, these can include Remembrance Days, medal presentation ceremonies and unit reunions. This ability to insulate or exclude themselves from triggers is especially prevalent for those who are discharged from the military. The same thing happens to individuals in a civilian context. For example, if someone has had a motor vehicle accident and remains in hospital, they will not be exposed to any of the particular behavioural cues, such as driving, that may trigger avoidance in other social activities.

Horowitz (1986a & b) identified a stress response to specific syndromes. He focused on the multiphase nature of the post-traumatic phenomena and how this is driven by the individual's attempts to modulate and lessen the distress in the avoidance phase specific

to the trauma. Cognitive models (Creamer et al. 1992; Litz & Keane 1989 and Foa & Kozak 1986) have suggested that these avoidance phenomena may give temporary relief. However, if used excessively they can impede emotional processing and subsequent coping (Rachman 1980). These specific cognitive models have identified that avoidance is the primary psychological predictor of an individual who is predisposed to, and at real risk of, developing a PTSD.

For a diagnosis of ASD to be made, there is not the same requirement of three specified symptoms as in the diagnosis of PTSD. Thus, the diagnostic criteria reflect the instability of the avoidance symptom cluster (McFarlane 1992 & 1993). Rather the individual has to demonstrate marked evidence of affect. These phenomena also include psychogenic amnesia, emotional numbing and interpersonal withdrawal. The process of interpersonal withdrawal may only become evident in the extended timeframe. It can also be difficult to judge in the setting of serious injury and where there may have been major interpersonal losses. Often it can be disguised as the macho or stoic way of the professional soldier or officer who often believes that their symptoms are exclusive to them and no one else (Shephard 2002). This further complicates the reliability of observations about these phenomena and an appreciation of the depth of the symptom on a sufferer when they maintain their anonymity and reply to valid research instruments.

Hyper-arousal phenomena

Hyper-arousal symptoms include insomnia, problems with concentration and memory, irritability and an exaggerated startle response (Morgan et al. 1996 and Butler et al. 1990). A comparison of diagnostic criteria demonstrates the non-specific nature of these symptoms as they occur in a range of other psychiatric disorders. In research conducted by Weisaeth (1989a & c) into a factory explosion, the persistence of these symptoms in sufferers was a particularly important predictor of the subsequent onset of PTSD. Defining an abnormal arousal response in the immediate aftermath of the event is difficult because this is a time of expected vigilance and modulation of emotion. Most people will experience irritability and some disruption of sleep patterns following traumatic exposure. People with hyper-arousal symptoms experience extreme limits of irrational irritability and insomnia. In research conducted in 1992, specific PTSD symptom patterns in combat veterans were predictive of substance use patterns. Hyper-arousal symptoms were associated with alcohol abuse problems whereas avoidance and numbing were associated with drug abuse (McFall et al. 1992).

Dissociation

Historically clinicians and researchers have shown considerable concern in the impact of trauma on individuals yet have only recently become interested in the role of dissociation in the acute symptom profile. This phenomenon was considered to be a central component of ASD in the DSM-IV diagnostic formulation (American Psychiatric Association 1996). In the late 19th and early 20th centuries, Charcot, Freud and Janet

completed early research work on the onset of conversion symptoms and neurological disorders affecting the central nervous system. They all emphasised that dissociation, or double consciousness, was a central psychopathological process in the onset of these symptoms (Charcot 1887; Charcot & Richter 1881-84; Janet 1889 and Freud 1933). Dissociation has many components including depersonalisation, altering reality, time distortion and amnesia. The existence of these features is central to differentiating ASD from PTSD.

In 1998, Classen et al. reviewed literature that investigated the relationship between ASD reactions and PTSD. ASD was conceptualised on the basis of the apparent significance of acute dissociation symptoms. Before it was included in DSM-IV, empirical work describing the specific symptoms relevant to a diagnosis of ASD in a sufferer was scant. Subsequent studies into ASD have inevitably been biased by the formulations that led to its inclusion.

The ICD-10 (WHO 1992) also included an ASR category. The major difference was that the symptoms were conceptualised to be maximal in the immediate aftermath of the traumatic event. The symptoms then began to diminish within eight hours of the brief traumatic exposure (Peters et al. 1999).

It has also long been recognised that symptoms such as amnesia, psychological numbing, and de-personalisation occur in response to a range of traumatic stressors (Grinker &

Speigel 1945; Kardiner & Speigel 1947 and Lindemann 1944). Embedded in the literature, before the definition of ASD, were a series of studies about the impact of dissociation reactions on short- and long-term functioning. The initial observation was that the individual had experienced an event of the type described in the stressor criteria. These are events that anybody would generally find distressing as they involved actual, or threatened, death or serious injury and/or a threat to the physical integrity of the self or others. In addition, the individual experienced a subjective reaction characterised by intense fear, horror, helplessness and dissociation. They also experienced other characteristics more typically associated with PTSD—namely the re-experiencing of the traumatic event, avoidance and/or hyper arousal.

In most instances, for ethical and pragmatic reasons, research conducted in the immediate aftermath of traumatic events is extremely difficult. Traumatic experiences that have been examined include:

- nightclub fire (Lindy et al. 1983)
- automobile accidents (Barton et al. 1996 and Noyes et al. 1977)
- riots in penitentiaries (Hillman 1981)
- a collapse of a hotel (Wilkinson 1983)
- combat (Feinstein 1989)
- tornadoes (North et al. 1989 and Madakasira & O'Brien 1987)
- explosions (Barling et al. 1987)

- aircraft accidents (Sloan 1988).

There are several dissociated symptoms observed in these settings. They range from the disorganisation and sluggishness in thinking and decision-making seen in the Buffalo Creek dam disaster as identified in 1976 by Titchener and Kapp, to the constricted affect seen in combat soldiers by Feinstein (1989). In research conducted by Berah et al. in 1984, shock and bewilderment were reported after the Ash Wednesday bushfire disaster. This was a form of derealisation, a way of avoiding the situation making the traumatic experience less authentic for them.

Derealisation is the perception that the external environment is unreal or dreamlike. Between 30 and 53 per cent of individuals witnessing a range of experiences from executions to earthquakes reported this type of change. In contrast, depersonalisation is a state where the individual has a sense of observing himself or herself from the outside and being detached from one's body. This phenomenon has been seen in a range of victim populations such as earthquake victims (Cardena & Spiegel 1993); witnesses of an execution (Freinkel et al. 1994) and tornado survivors (Madakasira & O'Brien 1987). Other dissociation symptoms observed in the acute trauma phase include a general constriction of awareness of one's environment and a sense of numbing.

From a theoretical perspective, dissociation in traumatic settings is seen as a primary coping mechanism for managing the traumatic experience. It plays a critical role in minimising the disruptive effects of traumatic events by decreasing the individual's awareness of what has been confronted. This was first reported in Janet's research in 1911. More recently, research reported by Sandberg emphasised the critical role of dissociation as a mediator and moderator (Sandberg et al. 1999). Alternatively, dissociation could be regarded as a risk factor for subsequent trauma exposure due to decreased awareness of surroundings or increased attractiveness as a target because of a confused or distracted appearance. This is less of a threat in a battlefield situation (Cloitre et al. 1997).

This modification of awareness is associated with a series of perceptual psychological shifts. These include memory impairment, emotional detachment, derealisation and depersonalisation. In practice, the cognitive reappraisals that occur in the aftermath of traumatic memories are linked with individual pre cognitive natures and the fear coping structures that are embedded within the representations of the trauma to the individual (Kremen et al. 2007). From a theoretical perspective, dissociation reactions may impede these linkages. Consequently, there is a fragmentation of memory as well as an over-generalisation of trauma-related schema. The normal process of accessing other associative networks in the aftermath of the experience is disrupted (Morgan et al. 2004).

Cognitive behavioural therapy, or cognitive reappraisal, is a form of psychotherapy that attempts to teach people to recognise and change upsetting thoughts. Patients are encouraged to discuss the frightening event with their therapist with the goal of learning to respond to the memories more normally. The WHO recommends this therapy. Research has also specifically identified the cognitive behavioural therapy in effective treatments for PTSD (Rothbaum et al. 2000).

The significance of dissociation symptoms in the immediate aftermath of a traumatic event is based upon their apparent predictive ability in relation to subsequent PTSD (Ozer et al. 2003). Some researchers—such as Horowitz (1986a & b) and Barton et al. (1996)—have suggested that although dissociation responses are common, they can also serve potentially adaptive ends as identified in ASD. Other studies support the proposition that more maladaptive dissociation responses indicate an ASD which is a primary predictor of the onset of PTSD (Bryant 2006).

Holen (1993) studied survivors of the North Sea Oil Rig disaster. He found that those who had a dissociation reaction in the immediate setting of the event were more likely to have chronic symptoms. In 1989(a, b, c, d and e), Solomon et al. completed a series of longitudinal studies of Israeli combat soldiers. An outcome of the research identified that 20 per cent of the onset of subsequent PTSD could be predicted by the presence of numbing during the acute phase of the trauma. A similar observation was made amongst a group of assault victims. In 1995, Foa et al. found that numbing at the time of the

assault was an accurate predictor of those who would subsequently develop PTSD at three months.

Numbing was seen to cover a range of emotional reactions. These include the numbing of feelings, detachment from others, and loss of interest and a foreshortened sense of the future. Many of these observations, however, were retrospective. In other words, several months after the event, the individual was asked about the nature of their reactions at the time of the traumatic event. Clearly, there is significant potential for bias because the later development of symptoms may dominate the individual's awareness and subsequent recollections of the traumatic event or events.

Furthermore, dissociation is associated with greater PTSD severity and flashbacks among combat veterans (O'Toole et al. 1999; Bremner & Brett 1997 and Hyer et al. 1993).

Studies also have suggested that PTSD symptoms are associated with poor physical health (Litz et al. 1992), increased health-care use, and health-compromising behaviours including smoking (Beckham et al. 1997; Beckham 1998b; Boscarino 1997; Boscarino & Chang 1999; Friedman & Schnurr 1995; Schnurr & Jankowski 1999 and Schnurr & Spiro 1999).

Associated symptoms and other research

The ASD diagnosis is similar to the ICD-10 diagnosis of ASR. It focuses on dissociation, anxiety, and other reactions in the immediate aftermath of trauma (Koopman et al. 1995).

The main difference between ASD and ASR is the length of time for which symptoms are required to persist for a diagnosis to be made. For ASD, symptoms must persist for two days. However, for a diagnosis of ASR, symptoms must begin to diminish within eight hours if the stressor is transient or within 48 hours if it continues (World Health Organization 1993).

The Human Factors Group in the Information Technology Division of the Defence Service and Technology Organisation is collaborating on research with the University of Western Australia. Together, they are developing instruments to measure acute stress and personal performance ability around an individual's cognitive resources framework. Specifically, the project aims to develop and evaluate measures that are sensitive to the types of stressors in the battlefield environment.

The research hypothesis is that some of the stressors in the battlefield environment are too severe and that this severity depletes the personal central cognitive resource pool. In addition, the severity is also reflected by changes in an individual's diminished battle performance abilities. To ensure that the assessment was sensitive to the depletion of central cognitive resources, the Defence Science and Technology Organisation introduced a range of performance tasks. These spanned different types of cognitive problem-solving, information letter recognition and transformation tasks. Each task involved depletion of those cognitive resources that were specific to that task. However, all tasks were sensitive to the depletion of the central cognitive resource. Thus deficits—

which apply to all of the tasks in the instrument—constitute the critical measure of the depletion rate or level of the central cognitive resource. Disappointingly, the study discovered that a sensitive measure of the depletion of such resources—and hence a sensitive measure of ASR—couldn't be obtained by documenting performance levels on each task alone. The growing personal demand for resources may be compensated for by the supply of spare capacity from the central cognitive resource pool. This prevents a continuous decline in task performance in a single activity. Rather, through battlefield exposure, task performance may be maintained as the availability of individual central cognitive resources diminishes until some critical point is reached. When that critical point is reached in a life-altering traumatic situation, the individual performance breakdown may be sudden and absolute (Kirsner et al. 1991).

There has also been very little observation about these issues in the ASD diagnosis. Regrettably, current observations are significantly biased by the phenomena that are included in the diagnostic criteria despite the uncertainty about their appropriateness. Ideally there should be a series of studies that use a more open-ended observational framework in the first few days after an event. Furthermore, the sequence of the emotions and phenomenon requires systematic observation in close temporal proximity to the event. For example, does hyper-arousal precede dissociation or vice versa? Conversely, is it possible that these are relatively independent phenomena? To what extent is it possible to have very high levels of intrusive memories in the relative absence of anxiety and distress? These are significant questions that need to be resolved. Associated with these

questions are other specific conditions that require an open-minded research approach. Such research will lead to further revisions of the ASD diagnostic criteria.

Co-morbidity and PTSD

Co-morbidity specifically refers to the existence of multiple disorders within a given individual. The question of co-morbidity is one that has only been actively discussed to a significant degree in the 1990s. With the publication of DSM–III–R (American Psychiatric Association 1987), the earlier practice of DSM–III (American Psychiatric Association 1980) was shifted substantially. There is a conceptual problem about how to deal with the existence of a congregation of symptoms within a clinical population. Diagnostic literature up until DSM–III–R (American Psychiatric Association 1987) specified and accepted that there was a hierarchy of diagnosis. This diagnostic regimen implied that organic disorders sat above psychotic disorders, which were then placed above the mood disorders (Rush 1998). If a disorder at the top of the hierarchy was diagnosed, all other disorders would be subsumed under that diagnosis in this linear interpretation. Thus, anxiety disorders would be subsumed under a diagnosis of a psychotic disorder. This decision process was in keeping with the frugality of medical diagnosis that presumes one explanation will be the source of multiple diverse symptoms. The medical diagnostic system DSM–III (American Psychiatric Association 1980) accepted this hierarchical process.

This new diagnostic system was described in DSM–III–R. One of the significant outcomes of this new system was the acknowledgement of a much greater coexistence of disorders than had previously been recognised. This coexistence, and congregation, of disorders was highlighted by the development of structured diagnostic interviews that were routinely applied in epidemiological and clinical samples. Repeated studies in diverse populations indicated that the full criteria for several disorders could be met within a given individual. Previous clinical practise, before the use of such structured interviews, did not encourage the same exhaustive assessment of a patient’s mental state. Consequently, there had been a deficiency in recognizing the multiplicity of symptoms that often occurred within the same individual. This underestimation of the range of secondary symptom patterning continues in clinical practice today (Zimmerman & Mattia 1999).

One explanation for the resistance to exploring the implications of co-morbidity might be that this phenomenon poses a particular challenge to many of the aetiological theories of multifactor theories. These multifactor theories are based on the interactive role of environmental, biological and psychological processes that contribute to the particular patterns of symptoms (Roth et al. 1997). This poses a logistical problem. That is, how do treating doctors conceptualise the relationship between different aetiological mechanisms for co-morbid disorders in a given individual? An uncomfortable degree of complex reasoning emerges to sustain the current separation of disorders. A prudent explanation

may be to propose that there is a single aetiological process leading to multiple symptom clusters within the individual (Borgen & Barnett 1987).

The importance of co-morbidity is much better described in epidemiological research. There is, however, little theoretical or practical exploration of the phenomenon about the science of the course of diseases. With PTSD, the issue of co-morbidity has tended to follow the convention where it is presumed that it is the primary condition and the other disorders assume secondary significance. Large epidemiological studies indicate that, in a significant majority, a range of other disorders frequently emerges in conjunction with PTSD. These other disorders include affective disorders, panic disorder and alcohol and substance abuse (Boudewyns et al. 1991a & b; Bremner et al. 1996; Brown et al. 1995; Dansky et al. 1997 and Kofoed et al. 1993). This is not isolated to treatment-seeking populations. The patients with several co-morbid disorders are likely to have a worse long-term outcome and may require chronic maintenance therapy (Mazzeo et al. 2002).

Other studies have also drawn wider attention to the range of psychiatric disorders that can arise as a consequence of traumatic exposure. This largely unspoken convention presumes that the traumatic memory structure that is critical to the aetiological process in PTSD leads to a secondary affect or anxiety. This is manifested as a major depressive disorder and/or a panic disorder. The question is far from clear where the reverse circumstances arise. In particular, if an individual becomes depressed following a traumatic life event and develops a secondary PTSD, there is not the same acceptance of

the primary aetiological role of the traumatic stressor. Doctors should not presume that the treatments that address the traumatic stress will be effective in treating the primary disorder. In such cases, the treatments defined in the literature for that primary disorder would be seen to be the clinically appropriate steps to implement. The high rates of co-morbidity between combat-related PTSD and other psychiatric disorders, particularly substance abuse (Boudewyns et al. 1991b; Bremner et al. 1996; Brown et al. 1995 and Dansky et al. 1997), depression and anxiety, are well known (Kulka et al. 1990). These co-morbid diagnoses often complicate the treatment of trauma-related symptoms. Also, research with a sample group of flood victims found that lack of social support was related to somatization, depression, and anxiety (Solomon 1985 and Cook & Bickman 1990). Additionally, King et al. (1998) reported that social support acted to mediate the relationship between war-zone stressors and PTSD for the National Vietnam Veterans Readjustment Sample. This conclusion is consistent with previous research on military combat veterans (Solomon & Mikulincer 1990; Card 1987 and Egendorf et al. 1981).

People's responses to trauma are complex. Those complexities, and the comparative simplicity of the PTSD conceptualisation, are illustrated by the recent re-discovery of the close association between trauma, dissociation and somatisation as detailed in van der Kolk et al.'s research (van der Kolk et al. 1996b and van der Kolk & Fisler 1995). This issue is beginning to be acknowledged by the inclusion of complex adaptations to trauma in the associated feature section of the DSM-IV (American Psychiatric Association 1994 and Roth et al. 1997). These adaptations include disturbed affect regulation,

aggression against self and others, attention and dissociation problems, somatisation and altered relationship with self and others.

When PTSD is diagnosed, it should also be noted that the associated features also emphasise that not all of the phenomena observed in individuals with PTSD are described by the diagnostic criteria. These features by themselves should also not be seen as indicative of the onset of PTSD. However, Ford (1999) examined the presence and interrelationship between complex PTSD and PTSD in a group of combat veterans (Herman 1992a). This study found that combat could independently lead to these disorders. Twenty-nine per cent of the respondents had PTSD alone, 26 per cent had complex PTSD only and 13 per cent met the criteria for both. While PTSD was associated with the degree of combat exposure and with witnessing atrocities, complex PTSD was associated with early childhood trauma and participating in war zone atrocities. The level of disability was greater in the group with complex PTSD. Its members demonstrated important character abnormalities, extreme levels of re-experiencing and the extensive use of psychiatric treatment services. This study suggested the importance of considering these as distinct syndromes. It may be relevant to combat veterans as well as child abuse victims with the late onset of these syndromes (Bremner et al. 1993; Bremner et al. 1997 and Engel et al. 1993).

Anxiety and depression

Anxiety and depression are areas of intense interest and some of the most researched, analysed and described conditions in the field of medicine. Coping with anxiety and depression is also regarded as a significant variable in describing a patient's health after being exposed to traumatic experiences. Patients experiencing anxiety and/or depression as they attempt to cope with their perceived physical and psychological life circumstances after exposure to traumatic events have two choices. They can cope by adopting avoidance and emotional protection strategies or they can use problem solving or task confrontation strategies.

In detailed research Zeidner examined the personal and contextual determinants of coping and anxiety in an evaluative situation of university students who recorded high scores in the Beck Depression Inventory (Zeidner 1994). They asserted that these students preferred an emotional, focused style of coping. This was in direct contrast to those students who reported no depression (Zeidner & Endler 1996). It should also be noted that a patient trying to cope with anxiety and/or depression, who has experienced a traumatic event/s, may also suffer from one or many of the following symptoms:

- recurrent and intrusive distressing recollections of the traumatic event(s)
- psychological distress at subsequent exposure to events that symbolise or represent an aspect of the traumatic event(s)

- illusions, hallucinations, and dissociation flashback episodes
- recurring distressing dreams of the traumatic event/s
- avoidance of thoughts and feelings associated with the traumatic event/s
- avoidance of activities and situations that stimulate recollections of the trauma psychogenic amnesia
- diminished interest in significant activities
- detachment or estrangement feelings
- emotional numbness
- foreshortened future
- feelings of impending doom
- sleep abnormalities
- anger and aggression
- disrupted concentration
- hyper vigilance
- exaggerated startle response (Morgan et al. 1996 and Butler et al. 1990)
- physiological reactivity to the traumatic event(s)
- loneliness (American Psychiatric Association 1996).

All are key indicators to a diagnosis of ASD, PTSD, or possible delayed onset PTSD.

In DSM–IV, the diagnosis of PTSD is classified as an instance of anxiety disorder. PTSD is clinically diagnosed when individuals report re-experiencing a past traumatic event(s) or having intrusive memories of the event. Patients with PTSD also exhibit cognitive, and often strong, behavioural avoidance. They may also report symptoms of psycho–physiological arousal, mood disturbances, and sensory functional impairment. However, patients diagnosed with PTSD demonstrate a key, clinical attribute that is also a universal mark of the anxiety disorders as a class (Rush 1998). That is, not only are symptoms of marked anxiety and fear present, they are perceived by the individual as overwhelming and beyond their capacity to control or manage. Specifically, individuals with PTSD are characteristically unable to manage or adjust down their level of psycho–physiological arousal, aversion feelings and/or distress. Comparatively, at other times, individuals with PTSD appear to be unable to manage or adjust up their level of arousal; for example, during periods of hypo-arousal-anhelation may occur. These patients subsequently felt ‘emotional numbness’.

It is of clinical and theoretical interest that individuals with PTSD often report a generalized lack of control over their emotional responses. This symptom gives credence to the notion that a deficiency in the ability to adaptively regulate levels of affective arousal and distress in the context of stressors may be central to this disorder. It might also have a substantial impact on an individual’s physical health and dyad stability. This may be particularly true of individuals exposed to long-term interpersonal and developmental attachment trauma. For example, cases of recurrent domestic violence,

childhood sexual abuse and military personnel exposed to the battlefield (Engel et al. 1993 and Bremner et al. 1997). They react differently when compared with individuals exposed to single-incident adult-onset traumatic events. For example, motor vehicle or workplace accidents, natural disasters, and even one-time acts of violence including physical and sexual assault by a stranger. Military veterans especially are often exposed to severe, recurrent, and early onset traumatic events (Solomon et al. 1990). Because of this, their neural capacities for managing and regulating their stress arousal levels may be seriously compromised (Frewen & Lanius 2006).

Pathological grief

One of the areas of clinical interest that is often debated, is how best to define pathological grief. Pathological grieving is a state of grief that was considered abnormal by early researchers. This disorder was defined either in terms of the intensity, or the duration, of the grief process often related to death of a loved one (Jacobs 1993). It is noteworthy, however, that a category of pathological grief was not included in DSM–III (American Psychiatric Association 1980). Various committees considered the relationship between grief, depressive disorders and other psychiatric illnesses. They accepted the proposition that grief acts as a non-specific stressor and that, in some individuals, it will trigger a full-blown depressive disorder. Pathological grief could emerge at any point in the state of this normal distress. Defining the line between the normal and the abnormal and ensuring that there are no false positives in these circumstances is highly subjective and involves a transition over a period of days or weeks (Jacobs et al. 2000).

In the aftermath of combat, there are often competing affective states within an individual who has been distressed because of killing, witnessing horrific events, or being injured. The military has accepted, particularly since the Second World War, the importance of group cohesion and esprit de corps to an individual's psychological integrity. Accepting the role of morale implies that social pressures and relationships can suppress other affect states and the reporting of PTSD identifying symptoms (Burges-Watson & Daniels 2008). In part, this might result from the reassurance of comradeship. Military training emphasises bravery, esprit de corps and an ethos of self-control. In the final three years of the Vietnam War, public and political opposition to the war increased rapidly. It reached such a level that, by the time they returned home, many veterans felt an overwhelming sense of shame at having fought in the war. This was despite being ordered to do so by the government. Many were unable to express the normal range of emotional reactions, such as fear and horror, because of the public and political criticism of Australia's role in the war. The experience of such emotions is likely to act as a significant alternative mental state to the underlying horror. Thus, shame and these interpersonal factors will serve to suppress the associated distress. The existence of factors that suppress a distressing affective state does not mean that the underlying emotions are resolved. Rather they are buried or disguised with the constant threat of resurfacing or being exposed in an uncontrolled environment. In other specific circumstances—such as being demobbed—the external reinforcers of this sense of shame are removed. When this happens, the underlying distress often resurfaces and escalates into a clinical disorder.

Against this setting, it is important to consider specifically the transition from ASR into a severe case of PTSD. In some settings this can occur relatively immediately whereas in others it can be delayed significantly (Solomon et al. 1991a & b). In 1984 McFarlane published research into the Ash Wednesday Bushfires. He found that individuals with the delayed disorder had a particular capacity to utilise their social group and a variety of adaptive coping mechanisms to suppress their distress. However, this was only successful for a period of time. The acute stress response, in contrast to an ASD, represents a state of distress. It is a process that is not in itself pathological. There is a transitional period before this state of acute stress response develops into the range of psychiatric disorders that emerge following traumatic exposure. It might be that the response at the time of the traumatic event may not be the critical issue. Rather, the critical issue may be the individual's ability to modulate his or her acute stress response and to restore his or her psychological and biological homeostasis (World Health Organization 1993). Individuals who develop a PTSD do not necessarily have a more severe acute stress response. The critical issue is their inability to modulate this reaction.

Thus, PTSD may be a disorder of this transitional state rather than a specific stress disorder arising from the immediate reaction to the traumatic event itself. Specific predictors may be more relevant. They include the impact of family psychiatric history, prior psychiatric disorder and peri-traumatic dissociation. Their influence on this transitional process is of particular importance to the further understanding of PTSD.

Other research has also identified a strong correlation between exposure to traumatic battlefield atrocities and direct combat and the severity of PTSD in veterans (Beckham et al. 1998a; Breslau & Davis 1987; King et al. 1995; Kulka et al. 1990; Laufer et al. 1984 and Yehuda et al. 1992). Not only do the veterans have to deal with the threat of injury or death, they also have to cope with an assault on their sense of humanity. This sense of despair can spiral into grief. Other issues important to examine are the progression of, and changes in, PTSD over time, the subsequent impact on communities (Kulka et al. 1991), the interplay of personal risk factors (McFarlane 2000a) especially on veteran mortality (O'Toole et al. 1988), the protective counterparts, and individual coping mechanisms especially with Vietnam veterans (Green et al. 1990c).

The conceptual issue of defining the relationship between the acute grief and the disorder in PTSD raises an interesting question. Where do many of the risk factors in PTSD exert their effect if not resolved quickly? Acute grief reactions stemming from the exposure to trauma with sufferers trying to avoid the intense distress connected to the grief while at the same time avoiding the expression of the emotion necessary for emotional stability contribute to the complexity of indicators for the onset of PTSD. This intense avoidance may be a consequence of training, indoctrination, or group organizational bravado. In the structured organization, the individual is able to numb emotions or rely on the artificial social emotional mapping taught in training. In other words, PTSD may be a disorder where an individual fails to resolve the feelings and emotions of an acute stress response. In the more toxic forms of post-traumatic adaptation, individuals may progressively

recruit a range of instabilities. This possibility raises many interesting questions about the relationship between individuals, organizations, and the capacity for preventive treatment interventions to be beneficial in the immediate aftermath of a traumatic experience (Hall et al. 1997). For example, an individual's ability to modulate their distress at such a time may be critical to determining their long-term recovery. In that context, the relationship between an individuals' acute psychological state and organisational indoctrination systems is significant. It may be that during this phase there is a secondary series of modifications of underlying memory structures that further increase the risk of chronic outcomes (Bartone & Wright 1990).

Head and general physical injury

The presence of associated injury is a constant physical reminder of the experienced trauma. This manifestation can increase the risk of the onset of PTSD. Paradoxically, the same also appears to be the case for individuals with head injuries. Individuals who have an associated medical illness also have a greater risk of associated disability with PTSD (Mollica et al. 1999). Advances in technology mean that medical evacuation procedures are much more efficient and effective. In addition, medical advances and the quality of personal protective gear mean that today, most troops who are wounded in war zones survive their injuries (Gawande 2004). Previous research into Vietnam veterans has significantly demonstrated that those wounded in battle have a higher risk of developing PTSD (Schlenger et al. 1992). It should, therefore, be a routine procedure to conduct

post-injury psychological assessments as part of the recovery and ongoing treatment regime (Friedman 2006a & b).

Treatment regimes for ASD and PTSD sufferers

The 1990s heralded an increase in the quality and quantity of adequate psychotherapy outcome literature in the traumatic stress field. The therapeutic approaches used were generally based on case reports that described positive outcomes and the particular treatment regimes used in a small group of patients with similar symptoms. Employing this method of effective treatment research reporting is obviously inadequate because of the potential for bias and skewed results. When a particular treatment approach was advocated it would be subjected to preliminary clinical trials. In a latter stage a more detailed body of knowledge from multiple clinical trials would emerge as a consequence of rigorous attention to detail. Justifying treatments based on evidence became more common in the 1990s with the emergence of treatment guidelines for practitioners.

During the 1980s the same demand for proof was not required. This may have been due to a lack of definition for a range of disorders. However, the obvious benefits of using an evidence-based approach, as adopted in the 1990s, have become apparent. Treatments that were thought to be effective have been demonstrated to have no benefit; or even in some cases to be quite detrimental.

Effective treatment timing for PTSD sufferers

The type of treatment regime employed is of critical interest in this research. However, when the appropriate treatment is identified and made available to the sufferer is also of great interest. Other interesting questions are whether there is an optimal time for the therapeutic intervention and whether the treatment is more effective if given earlier rather than later in the course of the illness. Recent research has not explored sufficiently the relative effectiveness of a range of different treatments according to the time that has elapsed since the traumatic exposure. In the cases of battlefield exposure the collection of data to support the importance of the timing of therapeutic intervention is also extremely difficult. This has a flow-on effect of limiting the research findings. Essentially though, this is an enquiry avenue of fundamental importance to the interpretation of the timing of therapeutic treatment programs. Early treatment is theoretically justified on the basis of its capacity for prevention of severe psychological injury (Solomon et al. 2005 and Berah et al. 1984).

Prevention treatment regimes

Prevention can be viewed as three strategic forms: primary, secondary and tertiary. The primary preventative strategies aim to prevent the initial exposure and its adverse consequences. This would involve the prevention of war and other acts of interpersonal violence that are likely to lead to PTSD. The secondary strategy is to prevent the emergence of the chronic disease states and the associated disabilities, impairments and social disadvantage. It is in this strategic window of opportunity that the gains from early

treatment are most apparent. Finally, the tertiary prevention strategy involves treatment the established disabilities that have emerged as a consequence of the symptoms of a disorder associated with PTSD. The aim of effective treatment is to minimise these disabilities before they emerge. Tertiary prevention aims to mitigate the disabilities once they have become apparent; thus lessening the consequences of the established disorder.

From a clinical perspective, an optimal intervention would occur as early as the individual symptoms become apparent and the subject is willing to accept treatment. Generally speaking this would be once the initial shock and trauma of the event have subsided. If it was feasible to diagnose a disorder within the first weeks or months after the traumatic exposure, then that's when the treatment would occur. One of the hurdles to applying this approach is the delayed acceptance by many people of the need for treatment (Brom et al. 1989 and Lindy et al. 1981). This is especially true in military organisational structures. Promotion potential, group acceptance or the mateship experienced can anaesthetise sufferers of battlefield exposures until they are discharged or isolated from their group support network. Thus, what is optimal is very different from what is frequently accepted in traumatised populations—especially by members of military units in battlefield situations.

Permanent versus temporary treatment

A crucial limitation of the current treatment literature is that most studies have brief follow-up periods when the efficacy of the respective treatment program is evaluated (Solomon et al. 1992). It is often the case that there is some minor relapse when the treatment has ceased. On a case-by-case basis there are some individuals where treatment does lead to a relatively permanent resolution of the symptoms. That individual, however, remains susceptible to the impact of future traumatic exposures.

A combatant who is involved in another battlefield combat episode is likely to be more vulnerable. The exposure may act as a significant risk factor for triggering a relapse of symptoms or the occurrence of a secondary onset of PTSD. Prior traumatic exposure is a risk factor for the emergence of PTSD given a subsequent traumatic exposure (Delahanty & Nugent 2006).

The existence of chronic treatment services for groups such as veterans indicates that there is a group of people for whom treatment provides some diminution of symptoms. However, a significant degree of ongoing support is required. There are a significant number of people who do not respond to treatment to the point of total symptomatic relief. They require ongoing review, prescription of medication and assistance for the rest of their lives. This begs the question about whether treatment leads to an earlier

spontaneous remission in those cases that would have otherwise remitted anyway. That raises the question of whether treatment timing is really that important.

Research reported in 1995 presented a graph detailing the natural rates of remission of PTSD (Kessler et al. 1995). This graph also included a line indicating the effects that community-based treatment had on the natural course of the disorder. Community treatment has been shown to shorten the duration of symptoms in the first six years after the exposure to a traumatic event. An interesting point to note is that individuals sent to war as a consequence of an act of parliament would be ideally situated for treatment after their return from the deployment; whether or not they reported or manifested symptoms. Nevertheless, the research found that after six years, there is little or no demonstrated effect for community-based treatments and no evidence to suggest that after that length of time they lead to higher rates of symptom remission.

The treatment literature contains many cases where symptoms have been present for more than six years, where effective treatment leads to significant symptom remission. That is, the individual no longer satisfies the diagnostic criteria. Thus, it is also possible to get a positive treatment outcome in individuals who have been symptomatic for longer than the six years during which a normal, spontaneous recovery would have been expected. One of the problems, however, this research data of Kessler (et al. 1995), is that the findings in longitudinal studies do not necessarily correlate with these reported rates of remission. Many individuals have fluctuating courses of recovery with periods of

exacerbation and spontaneous relief of symptoms. Additionally, the rates of spontaneous remission varied following different traumatic exposures.

A state of confusion and a plethora of traumatic exposures which are all too common on a battlefield would subsequently inhibit the possibility of predicting a rate of spontaneous or extended remission outcomes in potential PTSD sufferers. To date, this question about the possibility of remission rates being predicted in PTSD has not been specifically asked in any study known at the time of this research. It would be very difficult to conduct a controlled study because that would presume that it is possible to predict in the immediate aftermath of traumatic battlefield exposure those individuals who will have a spontaneous or extended remission outcomes and those who will not.

Whilst longitudinal studies demonstrate the risk factors for a chronic course, their predictive value is still inexact (Green et al. 1990c). Should the question be: is early treatment more effective than later treatment? The answer to this question would depend on the definition of effective and the treatment regime utilised. The possibilities of a definition may range from a complete cure to temporary palliation of the symptoms with graduations of benefit in between. To date, there are no empirical data that specifically answers this question. Although the role of risks factors has been examined (McFarlane 2000a)

Early treatment is likely to be more effective than later treatment because it prevents the secondary co-morbidities from becoming established and entrenched. Deplorably, as described earlier, the many creative cultural methods employed by military personnel to disguise symptoms and not face the associated stigma makes the identification of sufferers problematic. This repertoire of culturally accepted norms would include behaviours such as substance abuse by self-medicating, associated major depressive disorders and other anxiety disorders (Boudewyns et al. 1991b; Bremner et al. 1996; Brown et al. 1995 and Dansky et al. 1997). Equally, the perceived artificial gains of symptom suppression would outweigh the tangible life-altering benefits of early treatment. These include continued productive employment, the ongoing maintenance of stable interpersonal relationships and a general sense of pleasure and engagement in one's day-to-day life. Inopportunistically PTSD sufferers, cocooned in the artificial safety of their platoon or battalion structure, would see this as a continuum of life as it is going to be rather than a disruption of what life should be (Boudewyns et al. 1991a).

Equally, there will be individuals for whom early intervention has no apparent benefit. Alternatively, research reported in 1998 showed that interventions within the first month have significant benefits in terms of preventing the development of PTSD (Bryant et al. 1998). Generally, as with any medical problem, the treatment should be provided as soon as it is practical and, most importantly, when the treatment is acceptable to the individual. There are several difficulties in defining those individuals who would most benefit from treatment. This approach to treatment regimes efficacy depends on the resistances that

individuals have to undergo both psychological screening and subsequent treatment programs (Marmar et al. 2006). Paradoxically, the resistances are more frequent and stronger among those who have the higher levels of exposure and are therefore more at risk of developing ASD or PTSD (Weisaeth 1989b).

From a pragmatic perspective, the ability to provide such treatment programs in the setting of a combat force has far-reaching logistic implications. The allocation and stationing of an extensive medical support staff and equipment would require a great many trained support therapists to be available. Combatants and commanders would need to accept—whether it is effective or not—and treatment referrals. There can also be no evidence about the effectiveness of the treatment in cases where the sufferer does not seek treatment and, therefore, is not treated. Alternatively, what would happen if these potential sufferers were identified in some way by a proactive system of monitoring and then treated? Would their future prognosis be altered (Marmar et al. 2006)?

It is reasonable to presume that individuals who do not take up the opportunity for early identification of potential vulnerability, or evade treatment, may be more avoidant and therefore likely to have a worse long term prognosis. In many ways, the involvement in treatment presumes an acceptance of the therapist's rationale and approach. The medical profession and researchers acknowledge the extraordinary popularity of alternative medicines. Many people use them regularly, in preference to conventional medicine, despite the absence of significant scientific studies affirming their efficacy. This

demonstrates that many people have views about the aetiology and cure of illness that contradicts all of the objective evidence gained from detailed research programs. These non-scientific health beliefs are determinants of illness behaviour and influence choices about the type of treatments that individuals believe are efficacious. People's own belief and health attributions are major factors that determine their acceptance of involvement in post-battlefield exposure treatment programs (Bramsen et al. 2000).

There is an obvious challenge about timing during the relevant periods of combat or battlefield exposure. That is, how confident would a psychiatrist, medical practitioner, military commander, or even a mate, feel to diagnose, identify or assist a combatant suffering from an ASD or PTSD? General research summarised it as: The disorder is often difficult to diagnose, especially when the symptoms are not clear cut and complicated by time, experience, and failure of interpersonal relations, litigation or the presence of other disorders, such as depression, substance abuse or personality impairment. Furthermore, people are often hesitant to talk about their condition because the reawakened experience brings distress. There is considerable evidence that PTSD is poorly recognised and treated after some major disasters (Raphael and Middleton 1988). This statement was made in 1988—eight years after the definition of the original diagnostic criteria. It reflected the clinical experience of medical practitioners at that particular time in history. The classificatory system had been further revised with the publication of DSM-III-R in 1987. In one sense, the difficulties of diagnosing PTSD have not changed significantly. It is frequently the case that, even in situations where

clinicians know that their diagnostic practises are being scrutinised, significant rates of under-diagnosis of veterans will occur. This is an issue peculiar to PTSD because of the avoidance strategies that many patients—especially military personnel—demonstrate. Another contributing factor to under-diagnosis is the lack of any link that the individual may make in their own mind about the clinical significance of the primary traumatic exposure event.

In the standard clinical settings, one of the factors that frequently lead to under-diagnosis is the failure to enquire specifically about the full range of traumatic experiences. The importance of asking about the full range of relevant traumatic experiences was acknowledged in the difference in the stem question for PTSD in the diagnostic interview schedule (Robins et al. 1981) compared with the Composite International Diagnostic Interview (World Health Organization 1997). The diagnostic interview schedule was the original structure of the diagnostic interview designed for epidemiological research. It preceded the Composite International Diagnostic Interview and provided a diagnostic and statistical manual but not *International Classification of Diseases* diagnoses. In the Composite International Diagnostic Interview, 10 specific traumatic experiences are described. The individual is asked to state whether these did or did not occur. If the event was experienced, a series of questions follows. This approach was used rather than the approach used on the diagnostic interview schedule. It uses a generic question about whether the individual had experienced or witnessed an event in which somebody was killed or there was significant risk of personal injury. Asking the latter questions about

the affect experienced during the traumatic event is potentially a source of significant under-reporting of the prevalence of PTSD. This is because the insensitivity of the question, and the patient's reticence in it, may result in the patient re-experiencing the trauma.

With increasing acknowledgement of the factors that can lead to under-diagnosis, clinicians have adapted their diagnostic approaches. The first lapse in judgement is that the individual clinician may see PTSD as an understandable response and therefore fail to make the specific diagnosis. Sometimes, superficial open-ended questions will be used without direct questioning about the specific phenomena of the disorder. Inevitably, unless the patient is experienced at recounting their distress, many relevant symptoms will be missed. Individual clinicians can also use idiosyncratic thresholds for the specific diagnostic phenomena for the diagnosis. An example would be an individual who has developed avoidance to some specific, but not all, aspects of the traumatic memory. This is apparent in individuals who have been in a fire fight in a tropical forest in Vietnam. They avoid the specific place, but will continue on a holiday in Vietnam even today.

PTSD can be made as a diagnosis despite major vulnerability factors. The diagnosis is based purely on the phenomenological criteria and the existence of vulnerability is a secondary issue. The salient event is defined by the content of the traumatic memory. Under-diagnosis can also occur when an individual's distress is attributed to other events in their life. The diagnostic lapse of judgement is obvious because the content of the

traumatic memory does not reflect the other events that are being talked about. Over time, clinicians have progressively become more aware of their idiosyncratic diagnostic thresholds. This is attributed, in part, to the use of concurrent psychometric instrumentation, or structured diagnostic interviews, and has led to standardised research thresholds.

Historically, the major shift away from DSM–II (American Psychiatric Association 1968) and ICD–9 (World Health Organization 1968) came with the publication of DSM–III (American Psychiatric Association 1980). It had no particular status outside the United States and was not readily embraced by clinicians, other than being widely adapted for clinical use in Australia almost immediately it was published. Thus, the prevailing philosophy about which was the optimal system of diagnosis was an important factor influencing clinicians’ readiness to diagnose PTSD in the early era. At that time, Vietnam War veterans were presenting with a variety of symptoms resulting from traumatic battlefield exposures. The use of DSM–III in research setting, combined with the timely benefits and the rationale behind it, quickly revolutionised psychiatric practice. By 1985 it would have been reasonable for the average clinician to at least have an awareness of the diagnosis. However, it is unlikely that there would have been a more uniform standard of practice for this diagnostic category until about 1990.

Two significant issues would have influenced clinicians’ diagnostic abilities. These were initially, the acceptance of the diagnostic criteria system detailed in DSM–III; and

secondly, clinicians' ability to understand the complexities of the diagnosis and the acknowledgement of post-traumatic syndromes. With the appropriate training and awareness of the literature, a proficient clinician would be capable of diagnosing the disorder.

The acceptance of DSM–III from an Australian perspective was slow because it was not an accepted international classification system. Therefore, outside of research settings, little attention was given to post-traumatic syndromes because there was no accepted British diagnostic system to provide a focal point for clinical concern. Equally, once the value of PTSD as a diagnostic category began to emerge, the problems of its identification were also slow to be addressed. Again, this was because there was no universal imperative to address the need to train clinicians in this system of diagnosis. Also there is a continuing controversy over the psychological risks of exposure to combat.

Validity in longitudinal data studies

The ability to identify risk and protective factors is one of the strengths of longitudinal research. Several studies have demonstrated that various factors other than the nature of the stressor influence the longitudinal course of the disorder (McFarlane 2000b, 1998 & 1988; Weisaeth 1989b and O'Toole et al. 1998). A bias in the recruitment of a sample can distort the prevalence of certain risk factors in that sample. This is because these may be the determinants of participation and non-participation in a body of research (Weisaeth

1989c). If this bias exists, a significant inaccuracy can be introduced into the interpretation of the data. Similarly, the existence of a risk factor does not mean that the individual was going to inevitably develop a disorder. There is a common mistake in the retrospective interpretation of a petitioner history. It is to presume that the existence of a risk factor—the imminent danger of a battlefield—was a marker for an inevitable progression of a condition (McFarlane 1989 & 2000a).

Another conceptual issue that is seldom discussed is the aetiological role of specific risk factors in longitudinal samples. A particular variable may function and influence one or more of a series of steps in the onset of a disorder.

Deficiencies of longitudinal data studies

There is a major deficiency of the longitudinal data that have been collected on traumatised samples. That is, the problem of insufficient original trauma exposure response data and subsequent non-participation of affected individuals. The lack of a complete sample obviously introduces series of biases in the data.

In any longitudinal study with single or multiple phases of data collection, there is always a problem of subjects who are not recruited in the initial phase or who later drop out. It is often difficult to characterise the individuals who do not participate. However, in one study, Weisaeth identified and characterised the group who did not participate and found

that they had high symptom levels and tended to be the most traumatised (Weisaeth 1989c). This lack of participation is consistent with the avoidance phenomena of PTSD where severely symptomatic individuals will be particularly distressed by any discussion of their symptoms or experience. Consequently, the literature on the longitudinal course may be biased to those individuals who have a relatively good outcome.

A second deficiency is that in many longitudinal studies the initial reactions described depend upon the retrospective recall of acute symptoms. There is always a tendency for the person to define the symptoms that came before on the basis of the symptoms that they have in the present. This propensity creates a natural and self-fulfilling bias that exaggerates the predictive potential of early symptoms to relate to those that follow. This may explain why there was a disparity between two studies of Vietnam veterans in 1988 (Centers for Disease Control 1988). The Centers for Disease Control and Prevention in Atlanta established the prevalence of PTSD at a rate of 15 percent. In a study conducted sometime later, the National Vietnam Veterans Readjustment Study concluded that the rate of PTSD suffered by veterans at some point in their lives was actually 31 percent (Miller 2006).

In truly longitudinal studies, the fluctuation of symptoms is far greater and more common than is suggested by the average clinical history or retrospective research. Therefore, many generalisations need to be carefully scrutinized to identify such biases. The

relationship between the acute symptoms and the emergence of PTSD is an issue of considerable theoretical and clinical importance.

Two issues of particular interest are the timing of the point of maximal intensity and the kindling of the traumatic response. Both have been hypothesised to be critical in the emergence of the chronic nature of the disorder (Weisaeth 1989c). Research published in the 1990s noted that a poor response to treatment is predicted by delayed timing of the maximal traumatic response (Foa 1997). Both of these cited studies which concluded that the earliest engagement with the traumatic memory is a critical facet to the processing of these experiences. These findings consequently advocated early psychiatric intervention. The lack of, or delayed, engagement means that the affect and intensity of the memory have been distanced. Anger and dissociation are two mechanisms that interfere with this process (Mollica et al. 2001). A prospective methodology is critical to the examination of such relationships.

The collection of as complete a data set as possible is critical to the development of patterns of longitudinal outcome. This type of research is demanding in terms of participants' resources and goodwill. This was confirmed during the collection and processing of the data relevant to this research. Other types of data have been used to describe the longitudinal course. These studies depended on the lifetime method but this is not as reliable as the prospective studies for the reasons stated.

The national co-morbidity data suggested that PTSD resolves in 60 per cent of those who develop the disorder in the first six years (Kessler et al. 1995). For the other 40 per cent, the disorder has a chronic course which poses a serious and expensive public health challenge.

The existence of these data sets, and an understanding of their weaknesses, is central to understanding the outcome of individuals who have had traumatic exposures many years previously. Despite the methodological issues described, it appears that PTSD has the potential in a minority of individuals to run a very chronic course that may fluctuate over time. A proportion of these individuals do not present for treatment. Rather, they slip into a lifestyle pattern of isolation and self-medication. When they are assessed there may be complex patterns of co-morbidities that dominate the clinical representation (Roth et al. 1997). These complex patterns of co-morbidities are often represented when involving refugees in longitudinal research (Mollica et al. 2001).

Alcoholism and depression can be more prominent aspects of the clinical depiction and many concurrent stresses exist that may or may not be consequences of the individual's disorders. There can also be a complex spiral of social decline with the loss of employment and the disruption of relationships (McCarren et al. 1995) and abuse amongst male veterans associated with combat trauma exposure (Prigerson et al. 2001).

These factors need to be disentangled from the previous circumstances that precipitated the original disorder and remain as determinants of the longitudinal course of the condition. Currently, there is little data that enables such dissection and many views are based on clinical opinion alone. It is a conceptual challenge to work with a model of adequate complexity to understand these relationships. This current research has the background and foundation data—collected in the battlefield—to map the development of the longitudinal course of this condition.

The relevant literature indicates that no longitudinal research studies have been undertaken identifying specific stress reactions and the possible causal links to the development of PTSD, especially longitudinal research that includes the initial consultation conducted in a battlefield environment. The literature justified claims by some medical practitioners that certain medical treatment regimes could alleviate PTSD. Other longitudinal research has mapped the trajectory of PTSD over 20 years (Solomon & Mikulincer 2006). Researchers argue that this can be done by investigating the role of vulnerability factors, phenomenology, patterns of co-morbidity and the patterns of ongoing medical service utilisation (Resnick et al. 1992). The literature also supports further examination of these treatment regimes.

Other longitudinal studies—predominantly of motor accident victims—have enabled a more detailed examination of the early reactions to particular stressors (Malt et al. 1993). This research literature has led to several investigations of the stressors that influence the

early reaction to the trauma. These include the psychological consequences of road traffic accidents (Mayou et al. 1993) and the clinical patterns of acute psychological responses to trauma generally (Atchinson & McFarlane 1997).

Conclusion

Defining the state of accepted knowledge about GSR, TSD, delayed onset PTSD from the early 1950s through to the 1990s is critical to deciding what knowledge should have been reasonably applied at that time to these research veterans. This was an intricate task for those involved in the traumatic exposure reaction research field because through this period paradigm shifts in thinking and acceptance were nurtured and emerging from an era of long-standing inattention. While the early researchers would obviously have accepted the paradigm of a causal relationship between traumatic exposure and reaction in the early 1970s, it was still then regarded as being of a transient state which over time would in most situations resolve itself in the individual or veteran irrespective of the frequency and intensity of the trauma exposure experience/s. Researchers and treating practitioners overcame many significant prejudices that existed about traumatic stress in psychiatry during these earlier years preceding the adoption of PTSD and delayed onset PTSD as distinctive psychiatric diagnoses. Psychiatrists did not have the research data or diagnostic instruments to initially accept the core hypotheses about the capacity of exposure to single traumatic events or involvement in combat in infancy, adolescence or in adult life and how trauma exposure/s could disrupt an individual's psychological health in all facets and for the rest of their lives.

The challenge in 2009 for this research and in future research is twofold. The first is to define the immediate in situ collective knowledge dealing with the specific trauma exposure/s and the historical physical and psychological histories of those individuals exposed. For this research it is especially those veterans related to the battlefield trauma exposure/s at a particular time during 1969-70. Secondly, it is necessary to define whether this early identification could reasonably inform professional practice and thereby implement an effective, strategically staged multimodal treatment program (van der Hart et al. 1993). The complexity of this task is easy to underestimate in retrospect. This is because the current general acceptance of the field distorts the specific focus of the earlier doubts about the effect of combat fatigue, ASD and the timing onset of PTSD. The barriers to these ideas and the uncertainties that influenced the field at an earlier time in research are now easily torn down. Early identification of “high risk” individuals is essential for effective treatment regimes to be implemented. Uncovering the traumatic memories is not enough in itself. They need to be diagnosed earlier, personalized and reconstructed to enable the sufferer to confront the suppressed secrets of the traumatic experience (Langer 1990) and then devise individual specific coping strategies. These, in turn, will be modified by co-morbid diagnosis-specific treatment regimes (Mazzeo et al. 2002).

Up to and after the 1980s, there has been a general reluctance among researchers to consider the issues of permanent vulnerability in relation to PTSD. During this time, one

of the central hypotheses that were promulgated was that PTSD was a normal response to an abnormal stress. Furthermore, when the diagnosis was introduced in 1980, the politics of the time was to de-stigmatise victims of trauma from many of the prejudices associated with mental illness to satisfy a societal prejudice.

It is also appreciated that individuals exposed to traumatic event/s often have a physiological chemical reaction occur as a consequence to the psychological stress that the specific exposure causes. In some cases this reaction is extreme and, when someone has an extreme reaction that is out of proportion to the trauma exposure they've experienced, they are said to decompensate psychologically. For some veterans (some in this research) a way of coping with the battlefield traumatic exposure/s is to appear to shut down. They may sit and stare into space, be unresponsive or become physically or verbally aggressive. One of the critical issues in defining PTSD was to move debate away from the notion that it is genetic or that it can be attributed to other vulnerability factors accumulated in childhood. Rather researchers have focused attention on conceptualising the importance and significance of the exposure to the traumatic event/s. For example, in the context of this research, that trauma is specifically identified exposure to combat or the inevitable direct threat of injury or death experienced in the battlefield.

The third edition of the diagnostic and statistical manual took a theoretical approach to aetiology in most other disorders so PTSD was the exception to the rule. The presumed primary importance of the event has been modified over time to accept the importance of a multi factorial model which examines the interaction of a range of possible aetiological

factors. The general premises of these arguments are contained in *Trauma and Recovery* (Herman 1992b) and in a history outlining the beginnings of the International Society for Traumatic Stress Studies (Bloom 2000).

It was vitally important today to have a diagnosis for PTSD and delayed onset PTSD, which is understood and accepted as a stand alone diagnosis, apart from that of a psychiatric morbidity in general. This uniqueness of PTSD and delayed onset PTSD is an important quality standard for identification and treatment of suffering individuals. It has helped to achieve acceptability amongst the general civilian population generally and of specific groups such as disaster exposed victims, war veterans, civilian and military prisoner of war victims and accident and criminal activity exposed victims. The feminist movement has also utilised the diagnosis which has played a pivotal role in helping to destigmatize the vague diagnosis of ‘get on with your life and forget about it’ for rape victims (Burgess & Holstrom 1974). The diagnosis of PTSD and delayed onset PTSD has also been fundamental in the dimension specifications of this research.

There has also been a general reluctance to examine the issue of specific exposure vulnerability factors in the literature up until the 1990s. Anxiety and depression, pathological grief, exposure to atrocities and the severity of the traumatic stressor were factors that were the exception to this reluctance. Anxiety and depression and pathological grief as predictors of possible at risk individuals were examined. Atrocities as a war stressor represented a distinct traumatic exposure situation for a combatant

because they may be both a victim and perpetrator of violence and have to deal with the associated guilt that follows such an exposure (Beckham et al. 1998a). Research data has shown that soldiers often report that the most stressful event of a peacekeeping mission was not the inability to defend their personal safety. Rather, it was witnessing many extreme atrocities that they were prevented from intervening in because of the specific Rules of Engagement (ROE). Consequently, they were helpless to prevent such atrocities as the death or execution of other soldiers and civilians—including children (Roberts 2000 and Lamerson & Kelloway 1996).

This research in part examines the role of specific exposure vulnerability factors. One of the first summaries of the literature available about this field was by Professor A. C. McFarlane in *Vulnerability to PTSD* (1990). It contains opinions that at the time would have been considered somewhat challenging to the prevailing political ethos in the United States and in Australia during the 1960s and 1970s.

In the late 1990s and into 2000 and beyond, medicine has been preoccupied with clinical guidelines and evidence-based practice. This is an acknowledgement of the struggle that medicine often has in adopting new approaches to treatment regimes that are established in the clinical literature. There is a propensity for medical practitioners to continue implementing familiar approaches in the face of alternative anecdotal evidence. Evidence if exposed to the rigours of qualitative examination may dissolve historically based treatment regimes previously held. The failure to provide this type of research knowledge

is not due to the reluctance of researchers or scientists to see its worth. It is due instead to the resistance of some practising clinicians and the lack of substantial evidence based research. This specific research may inform military trainers about pre- and post-deployment psychological training for combatants. It may also confirm military medical practitioners approach to early identification of “high risk” combatants during deployments. It might also help to inform health service providers about the emerging, ongoing social and financial costs associated with deploying forces to extend the nation’s strategic plans and political agendas.

The clinical and academic environment of today is very different to that which existed 35 years ago. There has been an emerging, and subsequently keenly focused, interest in the issue of battlefield trauma exposure vulnerability and how the identification of “high risk” combatant can be incorporated in current clinical practice and procedures (Sutker et al. 1995a). Inevitably, this begins to raise issues such as how to successfully identify at-risk individuals or population sub groups and how they might be screened before and after exposure to traumatic events (Smith et al. 1990 and Yehuda & McFarlane 1995).

An earlier significant interpretation paper attempted to highlight some of the tensions that existed in the field between the observed contemporary facts as alluded to above and the original conceptualisation of PTSD (Yehuda & McFarlane 1995). The cited research indicates that PTSD was the exception, rather than the rule, even following the most extreme traumatic events. This critical exposé was a call to acknowledge the existence of

competing agendas and paradigms that existed in the field and to address the serious inconsistencies that had subsequently arisen (Yehuda & McFarlane 1995). This scepticism continued to receive a voice in the literature even into the 1990s (Ellard 1997). Fortunately, the discussion that occurs now is in a more accepting and less prejudiced intellectual environment.

The acknowledgement by the medical profession, and in academia, of the importance of specific trauma exposure factors in the development of PTSD and delayed onset manifestation is a significant historical medical advancement. This acknowledgement of professional intellectual flexibility is also important to understand the current research and discussion about the Australian veterans and the identification of specific combat fatigue, ASD, PTSD and the delayed onset PTSD rates.

Picture 3



1969-70

Accommodation tents which are surrounded by double thickness sandbagging. This sandbagging will stop shrapnel from grenades, RPG fire and small arms fire as well as mortar fire directed into the 1st ATF TAOR. The damage shown is as a consequence of a grenade blast inside the sandbag enclosure.

Chapter 3

“When anxiety becomes the driving force in life’s endeavours, the fragile edifices of reason and competence are placed in jeopardy.” (Dixon 1994)

METHODOLOGY

Introduction

In Chapter 2, a literature review identified a hypothesis and a specific unanswered research question. That question was ostensibly presented to expose any pernicious outcomes of an individual being exposed to traumatic battlefield events. The supplementary research issues related to response rates to an invitation to participate in the ongoing research.

This chapter initially presents the pertinent research predictors for all research participants by establishing the historical context setting for the research. The specific research purpose is then identified and this is done by looking at the frequency and intensity levels of PTSD manifested in the research participants, then the severity of combat exposure experiences and the presence and severity of depressive symptoms felt by research experiences are discussed. Then an introduction to the quality of marriages and similar dyads, corresponding level of PTSD, in conjunction with adult psychological health the general physical health of the Veterans that were exposed to battlefield traumatic experiences. Then the research protocol and the case control design are described by the respective research phase intention and completion outcomes. This is

then followed by an explanation of the procedure, sample, and method of analysis and finally a description of the research survey instruments utilised with an additional inclusion of the qualitative data collection procedure.

The literature review also identified several well documented arenas of research and highlighted that all of the research to date dealt with pre, immediate past return from the battlefield or a longitudinal reflection of traumatic exposure sufferers. The specific unanswered research question proposed by this research pertaining to the long term pernicious outcomes experienced by veterans is distinctive because of the identification link to original 'in battlefield' psychiatric diagnosis source data. Ostensibly there is a psychiatric battlefield trauma exposure reaction diagnosis made for each of the Experimental group participants at a definitive time in the battlefield during 1969-70 which when examined after 35 years and compared to a case controlled group of peers. The outcome being that the majority of both groups presented pernicious outcomes on an individual basis (without any individual, sub group or group collaboration) after being exposed to defined traumatic battlefield events.

Research predictors for all participants were their age in 1969-70, the state of enlistment in 1969-70 and now, their corps and job identification, their military remuneration entitlements now, and the traumatic events they experienced in 1969-70.

Additional research predictors for Experimental group participants were when they received a psychiatric diagnosis and: their relationship status in 1969-70 and now, the

time they spent in Vietnam in 1969–70, when they received a psychiatric diagnosis and now, military rank in 1969–70 and now, and enlistment status in 1969–70 and now.

Another research predictor for Control group participants was their diagnostic status in relation to the *Diagnostic and Statistical Manual of Mental Disorders, Second edition* (DSM-II) (American Psychiatric Association 1968) and DSM-IV.

Another important issue was how accurate the initial diagnosis was as a predictor general health decline while serving in the military. This, in turn, was an indicator of the subsequent course of probable delayed onset post traumatic stress disorder (PTSD) and the resulting general wellbeing issues experienced today.

In this chapter, the adoption of an appropriate methodology to analyse these issues will be justified. This justification considers the issue of providing practical information suitable for the implication of early diagnostic intervention and general awareness of fellow combatants that was raised in Chapter 1. Subsequently, the specific methods used to gather data to investigate the research questions are outlined in this chapter. The Australian Department of Veterans' Affairs ethics committee has endorsed the case control data matching (Australian Department of Veterans' Affairs 1996) collection methods, the null hypothesis, the research question and the administration of the questionnaire.

The data collection methods included the:

- sampling procedures used to obtain a sample of a specific case control group

- development of a questionnaire, including its constituent scales, to measure such key variables as participant health and relationship status
- frequency and intensity of major PTSD symptom clusters
- severity of combat exposure experiences
- level of PTSD—the 17 items correspond with the *Diagnostic and Statistical Manual of Mental Disorders, Third Edition-Revised* DSM-III (revised 1987) PTSD symptoms
- presence and severity of depressive symptoms
- quality of marriage and similar dyads
- the general health and well being of the research participants.

Finally, this chapter describes how significant outcomes were derived. The SAS Version 9.1 was used to analyse data obtained through questionnaire completion and participation in the telephone interview process. Data for this research were obtained from a longitudinal retrospective investigation of Vietnam War veterans who were interviewed and diagnosed initially in 1969–70. Those of the Experimental group that agreed to continue with the research were interviewed again in 2006-07 along with a case control matched group of research participants (Control group) who also agreed to participate in the ongoing research. Some of the research instruments used paper and pencil questionnaires while one research instrument was administered over the telephone by the principal researcher. At this time qualitative data was collected to add to the research mosaic. All data collection, surveys and analysis were consistent with Australian Bureau of Statistics methodologies.

The quantitative findings of the Experimental group in this research indicate that the initial diagnosis of transient situational disturbance (TSD) was not a static or stand-alone diagnosis for 1969-70. Rather, it was an accurate predictor of treatment requirements of sufferers in 1969-70; the basis for the evolution of specific, sophisticated diagnostic tools now for PTSD and an early indicator of the changing nature of an understanding of self through cultural shifts in acceptance of the psychological affect that the battlefield can have on military personnel. This evolution in how the psychological impact of trauma exposure is identified and diagnosed has played a significant part in shaping how this research was conceived and presented now. TSD in association with other psychiatric manifestations identified a dramatic and interesting parallel between the reaction to battlefield exposure in 1969-70 and the long term prognosis of the delayed onset PTSD for many. Many of the research participants that agreed to be involved in the ongoing study during 2006-07 in both the Experimental and Control groups have now been diagnosed by other civilian psychiatrists with delayed onset PTSD. Anecdotal responses have provided an illuminating insight into how some of these participants have coped with these ever changing treatments and diagnoses (Appendix A).

Historical experiences in Vietnam

History is an organic process, a continuity of related events, implacable yet not inevitable. In the early 1960's the intimate political relationship that had developed between Australian and United States during WW II and the perceived threat from a domino effect of the threat of communism sweeping through Asia to Australia, resulted

in Australia's collaboration with the United States in the participation in the Vietnam War (Pemberton 1987). During 1969–70, the deployment period for the participants of this research, President Richard M Nixon was preparing to assume the presidency of the United States (Sexton 2002). While the Tet Offensive of late January and February had decimated the Viet Cong's infrastructure and its ranks, the war became more conventional as the North Vietnamese Army intervened to become more directly involved. At that time it was becoming clear that the United States was trying to disengage itself from a war that was unpopular—not only in the United States but also very much in Australia (Frost 1987). The Command structure had the unenviable task of fighting a war in which no one wanted to be involved.

The 'Bloodiest Year' of the Vietnam War has been attributed to 1969. The key weapon used by the Viet Cong and the North Vietnamese Army was the booby trap. These devices were used to delay and disrupt the mobility of Australian forces in the combat zone. They had a massive psychological effect because they were extremely effective at providing an ever-present danger without the employment of manpower. Advances were slowed, resources were diverted to clearance tasks and horrific injuries were inflicted. Booby traps are far more insidious than minefields because there are numerous ways a booby trap can be set and sprung compared to being in a minefield (Pemberton 2002).

In September 1969, President Ho Chi Minh was lying in state in Hanoi. President Nixon announced more troop withdrawals of United States forces—a total reduction of 40,500 military personnel. October marked the start of major moratoriums throughout the United

States and Australia. By December 1969 President Nixon had announced three major withdrawals of United States forces from Vietnam. These troop withdrawals were to be concluded by April 1970 (Daugherty 2002).

All national ground forces in Vietnam were aware of this operational shift in focus in the war. The troop withdrawals preceded the physical downfall and subsequent temporary defeats of the traditional fighting North Vietnamese Army (NVA) and the Viet Cong (VC) which resulted in them resorting to guerrilla warfare. It was paradoxically a psychological defeat for Australian and United States of America force commanders and soldiers at all levels despite their recent effective short lived victories over the NVA and VC. The perception of moral defeat accompanied the ordered troop reductions imbued Australian and United States soldiers with a quiet desperation. This desperation became evident when, in early 1970, cross-border raids into Cambodia were authorised by General C W Abrams—the United States Commander and Chief. These raids galvanised the antiwar movement and ramped up protest action throughout the world (Daugherty 2002). This is the world these young Australians found themselves in—volunteers and conscripts alike. The Australia that they left for their tour of Vietnam was very different to the Australia they returned to; and they knew it in the battlefield before they came home.

Politicians, community leaders, the general population and military commanders and soldiers make and support decisions within the context of their experience base and aspiration levels. The human history of the Vietnam War is that it was a war that ‘nobody

won' (Karnow 1983). Essentially it was a survival struggle between victims of the decisions of opposing political and military regimes. Its origins are murky and complicated; its political and military lessons are still disputed and, in many senses, have not been learnt. Its legacy will be determined by future generations (Gutzman 2002) especially how we deal with the psychological damage resulting from battlefield traumatic exposure/s.

It is no longer a consideration whether history decides that the war was valid or an imprudent endeavour. Which was the case as early as 1966 (Stone) when protests were being written prior to the massive build up of United States lead forces in Vietnam. It is difficult to present an argument that dilutes the overall understanding that the Vietnam War was a tragedy of classic proportions (Karnow 1983). Vietnam veterans have to deal with the war's impact on their memories and lives during and after military service. They may also have to deal with ASRs and the impact on their daily lives during and after military service. Battlefield-exposed participants must also deal with their perceptions of their:

- external realities—affiliation, social approval and self-esteem
- biological needs—fear, curiosity and rage
- psychological demands—anxiety, achievement expectations (Dixon 1994).

This is ever more significant for those veterans of the Vietnam War considering the lack of medical, social and in some cases family support most veterans have felt over the decades that have followed their return from the battlefield.

What the military knew in Vietnam in 1969–70

In August 1969, for the first time during the conflict in Vietnam, American soldiers (General Enlistees–GIs) refused to go into battle. Veterans from World War II and Korea were co-opted into talking to the infantrymen about why they were refusing to go into battle. Collectively, they commented on the facts that it is too ‘dangerous out there’ (Bishop 2003). The GIs were sick of the endless struggle in the humid festering conditions, the constant, unrelenting danger of impending battles by day and the incessant mortar attacks and enemy probing during the nights. But the reality of their situation was more complicated than a lack of enthusiasm or basic insubordination. Earlier generations of GIs fought for what they believed were clearly identified causes of defending their countries, families and for them doing ‘good’. That was obviously not the case in Vietnam for the then battlefield combatants (Karnow 1983).

Historical perspective of the Vietnam War 1969–70: an Australian context setting

A little over three decades ago, the final collapse of South Vietnam occurred as the North Vietnamese Army faced little or no resistance and drove through Phuoc Tuy province and captured Saigon—now Hoi Chi Minh City. Over the years that Australia committed forces to the battlefields of Vietnam, 520 Australians military members gave their lives

and now are listed on the Roll of Honour. There were many horrors and savage atrocities experienced during the deployment of the ATF in Vietnam that haunt many veterans even to today.

One of the horrific experiences in Australian military history occurred on 18 August 1966. On that day, D Company—comprising 108 personnel—of the 6th Battalion of the Royal Australian Regiment confronted and engaged a vanguard force of 2500 Vietcong troops in a vicious fire fight in a rubber plantation near Long Tan (Caulfield 2007). For Australia, this was the bloodiest and ugliest battle of the war. Seventeen soldiers were killed and 21 were wounded (McNeill 1984). This powerful demonstration by a relatively small Australian force was honed before deployment to Vietnam on a ten thousand acre tropical rainforest jungle warfare-training centre in Australia. This centre was based on experiences in the jungle battlegrounds of New Guinea and Borneo during World War II as well as the insurgency in Malaya.

The battlefield situation that the Australia Company found themselves in is not surprising given that it confirms the tactics taught in Australia (Laffin 1986). Australian soldiers' training programs were based on the concept that smaller unit forces would aggressively patrol and harass the enemy—a sophisticated style of guerrilla warfare (Greene 1962). When a fighting force came into contact with the enemy, reinforcements would be dispatched into the battlefield as quickly as possible to conduct the major killing required. The Australian type of warfare was firmly based on the principle that a platoon or company-sized force on the battlefield could do anything; this included evading the

enemy if required (Hackworth & Sherman 1989). Regrettably, this efficient and effective battlefield manoeuvring did include state of the art physical medical evacuation and treatment support but unfortunately did not include the comparable psychiatric support that is now available in many military forces today. This lack of psychiatric support was primarily due to inadequate diagnostic tools being available to medical practitioners and consequently not being aware of the resulting need for more involved support.

The historical psychological context of Australian Army research participants in 1969–70

There were 39 different Australian Military Units, principally Army, involved in a variety of operations throughout the three-month period of the initial data collection from the Australian military participants in this research. The foundation status of the participants' central cognitive states was recorded and established in the combat zone in Vietnam during a three-month period in 1969–70 in an Australian Army psychiatrist's diary.

The 1969–70 specialist military psychiatrist evaluation was based on the then-current diagnostic criteria contained in the DSM–II and ICD–8 instruments. This initial evaluation of military personnel experiencing life-altering traumatic battlefield situations provided a viable start point for this study. At that exact time, the individual performance breakdown was identified, sudden and, in some cases, absolute (Kirsner et al. 1991). This adoption of a methodology that examines the medical, social and emotional evolution of these (119) respondents after a period of more than 35 years was not a sequence of

scientific experimental revolutions. Rather, it is an examination of the progression of very different lives. To ensure that the comparison examination of the 1969-70 Experimental group population was sensitive to the diverse range of aetiology related to their respective diagnoses, the initial personality diagnoses were compared with those proffered by DSM I-IV and ICD 8-11.

This research provided an exciting opportunity to transform this irreplaceable information into an accessible format that could dramatically illuminate these recorded, and detailed, observations about Australian veterans' experiences in the battlefield in Vietnam during 1969-70. It is also essential to understand these phenomena due to its' distinctive research value and because of the increasing social and economic costs that will be associated with current troop commitments in Iraq and Afghanistan. Much like Vietnam, these areas of conflict face similar yet exclusive stressors. Fundamentally, it is difficult to distinguish ally from enemy. Alternatively there are relatively lower comparable casualty rates—both with troops and civilians. Although there is; as existed in Vietnam, a constant threat of attack—from any direction and even during designated rest periods. Military clinicians (understandable) are also reticent to estimate the number of troops that will present with delayed onset PTSD or other combat-related mental symptoms and problems. Their reticence is ostensibly because the combat experiences of the forces are unrelenting and intense with no line of engagement (Miller 2006).

All personnel involved in this research were affected by exposure to the diverse stimuli of battlefield traumatic experiences. Yet the majority of Experimental group personnel

presented the same distinctive ASRs and depression symptoms, in conjunction with TSD as diagnosed in 1969-70. The contribution that this research clearly provides is a longitudinal observation, combined with an extensive panoramic examination, of the clear trends of emotional and physical health over more than 35 years of battlefield trauma exposed Australian military personnel.

Recruitment of control group

This research is justified in terms of the theoretical propositions and the practical parameters imposed by the author and discussed in the previous section. The research was based on the premise that Vietnam War veterans experience a greater onset, and prevalence, of a whole range of psychiatric disorders. The examination of the medical records of veterans, who were psychiatrically assessed during their service in Vietnam, was concluded initially. Only then did the detailed matching process seeking Australian military personnel of the same age, rank, corps, unit, and sub unit, state of enlistment, enlistment status, military training levels and combat exposure occur. This process took over two years and ultimately identified and matched 1969-70 'symptom free' Control group participants. This then lead to the respective groups being compared and for those who agreed and consented to further contact, a follow up interview during 2006-07. The specific research null hypothesis that relates to there being no significant difference in the health and wellbeing outcomes of an Experimental and Control group were also identified at the commencement of this process. Key concepts such as TSD, combat fatigue, ASD, PTSD and delayed onset PTSD were defined earlier to clarify the research

problem and to address any subsequent questions about the research methodology and the two groups of veterans.

As extensive portion of my foundation research, required that I review Australian War Memorial archival documents relating to all of the Australian commitments and activities explicitly related to the period 1969-70 for Australian military forces committed to the war in Vietnam. I searched through Australian Vietnam War Veterans' military files, deployment orders, pre training deployment activity reports, individual unit war formation establishment tables, contact reports, operational orders and preparation reports, ammunition usage rates, unit attendance logs, training and travel manifests, health records, logistic support inventories and leave records. This examination was dove tailed into a confirmation process of individual battlefield trauma exposure experiences which reduced the difficulties which often arise as a consequence of retrospective recall bias. Put simply I obtained 1969-70 documented proof of individual (both Control and Experimental participants') battlefield trauma exposure. I was also able through this detailed matching process able to corroborate the commonality of battlefield trauma exposure with individual members of the Experimental group initially and then authenticate the same experiences with the matched Control participants.

This comparison verified that a significant majority of individuals presenting with PTSD today were not known to military health personnel during their military service as having a psychological disorder. Furthermore, there was frequently a long latency period between the end of the veterans' exposure to conflict and their initial presentation for

treatment. Consequently, the current DVA National Guidelines policy to support health professionals treating veterans with acute combat stress, PTSD and/or delayed onset PTSD is supported by this research. These policy guidelines were developed by the Australian Centre for Posttraumatic Mental Health in 2007 and are distinctly appropriate and are the only guidelines endorsed by the National Health and Medical Research Council. They are seen as a significant step in the promotion of evidence-based treatment of mental health problems in veterans. Unfortunately the deficiencies with these guidelines are that they only deal with veterans who are in treatment. They do not identify possible sufferers where proactive preventative actions could possibly be an accurate indication of possible PTSD sufferers and early treatment intervention could be implemented. Recent research (involving Iraq and Afghanistan US and UK military personnel) has shown the advantages of psychiatric disorders associated with war being assessed early, and reported, while the fighting continues. The data is tainted due to the perception of stigmatisation which deters soldiers on active duty from seeking help. This reluctance to seek help persists, even with the value of hindsight, when they have acknowledged the severity of their psychiatric problems (Spurgeon 2004). Thus, this research is supported, and is significant, as shown by data collected from the battlefield; from soldiers who are still, to this day suffering. Now, the Australian Defence Department has attempted to obtain some early notice of impending battlefield trauma exposure symptom manifestation by implemented a screening program which is administered to all returning veterans from Iraq and Afghanistan in an attempt to identify those high risk individuals for follow up assessment and treatment.

Research participant selection

It was established through the clinical notes in the diary from this initial evaluation that the majority of these military personnel experienced life altering traumatic battlefield exposure situations. In the battlefield the individuals' performance interruption was identified and recorded on the day of consultation, diagnosed and the subsequent treatment prescribed by the consulting psychiatrist (Kirsner et al. 1991). It was necessary to ensure that the comparison examination of these 119 Australian Vietnam veterans, aged between 19 and 45 in 1969-70, was also sensitive to the diverse range of aetiology related to their respective diagnoses and compared to a carefully matched case controlled group of fellow 1969-70 TAOR combatants.

This research confirmed the in battlefield assessment that was completed for the Experimental group in 1969-70 and that the ongoing study participating veterans in both the Control and Experimental groups identified the same respective traumatic battlefield exposures, which were subsequently confirmed using Australian War Memorial Research Centre data and Department of Veterans' Affairs war service pension entitlement respondent statements. A subsequent telephone interview also confirmed that the repeated reappraisal of the incompatibility and threatening nature of battlefield trauma exposure, even briefly reflected upon in 2006-07, triggered varying frequency and intensity responses from individuals with regard to PTSD symptom manifestations. As the evaluation process continued for most of the veterans involved in the ongoing research a reaffirmation of the chronic nature of delayed onset PTSD was obtained (Dagleish 2004). This indicates that the PTSD sufferers identified in this research are predominantly

delayed onset and chronic cases. A case control research assessment of this type established a higher rate of delayed onset PTSD in non battlefield treatment seeking study participants. Although it is also noted that the Experimental group were identified and subsequently diagnosed with a TSD (incorporating anxiety, depression or substance abuse) which in hindsight identified them as a ‘high risk’ group with respect to PTSD and chronic morbidity. This finding is ratified and supported by previous research work (Zlotnick et al. 2001; Ehlers et al. 1998 and McFarlane 1988).

Interestingly, the in battlefield 35 plus year old documented diary entries of an Australian Army psychiatrist in Vietnam has provided the crucial association with the battlefield trauma exposure and the immediate and delayed demonstrations of psychiatric and physical disharmony in the majority of participants of both the Control and Experimental participants.

The Australian Army psychiatrist’s diary

The 1969–70 in TAOR specialist Australian Army psychiatrist Major Michael Seymour Downey a member of the Royal Australian Army Medical Corps, posted to the 1st Australian Field Hospital from 15/10/1969 to 18/02/1970 evaluations were based on the then-current diagnostic criteria contained in DSM-II and *International Classification of Diseases, Revision 8, Clinical Modification* medical diagnostic instruments. This specialist Australian Army psychiatrist’s diagnostic notes were contained in a personal “Diary”. The information contained in these diary notes was exhaustive in providing a coded and programmed military life history and symptomology of the respective patients.

Also this 'psychiatric history' in a battlefield trauma exposed context of the respective triggers and responsive behaviours presented by the patients provided insight into their then (1969-70) physical and psychological states. This designated Australian Army psychiatrist's evaluations presented personal and military affiliation information on Australian military personnel in Vung Tau and Nui Dat in the Phuoc Tuy Province in South Vietnam on the following (*this is an example of the format the psychiatrist utilised and one of the numerous case notes*);

- specific dates of consultation - *withheld for confidentiality reason*
- case number - *withheld for confidentiality reason*
- enlistment status (regular or volunteer) – *National Service-volunteer*
- the patients' appearance – *nervous, shaking*
- reasons for referral (violent rage outbursts, altered sleep patterns, alcohol abuse, discipline, physical or psychological inability to function effectively within his assigned role in the battlefield) – *physical shakes and nervousness for the past month, a friend of his replaced him in an APC and was killed by a NVC RPG, he had to identify the body remains, wants to go home and has applied to get out*
- referral source (RMO, 1 AFH MO/Surgeon, RAP, Legal Officer, RAP, OC, CO or Chaplin) – *1st AFH RAP MO*
- symptomology at time of referral (suicidal, motor disturbances, speech issues, emotional behaviour variations, changing thought processes, disturbance in thought content, memory alterations of battlefield events and/or psychological orientation fluctuations) – *shakiness for the past two months since leaving Nui*

Dat, no direct physical medical reason for it – kind of intention tremor without any by signs of paralysis

- patients response to being directed to attend the psychiatric session – *Feels OK about it, not moody*
- overall appearance of the patient (mood, talkative or not, level of comprehension, obsession features, phobias, personal insight into their respective conduct – guilt/regrets, memory of battlefield exposure events and physical-eye contact/facial expressions) – *can comprehend what is going on, has a clear recollection of the battle events that resulted in his mate’s death, remembers firing his SLR*
- personal history
 - where born - *Victoria*
 - schooling – *five to sixteen, obtained Intermediate certificate*
 - neurotic traits – *a little apathetic, still shaky, improved over a week, not depressed, I do not consider he is doing well now or into the future*
 - jobs (prior to the military service) – *apprenticeship*
 - marriage status – *single*
 - social behaviours – *enjoys company, drinks with companionship, conscientious of job performance*
 - civilian and military offences and penalties - *nil*
- family history – *close family, always conforming to the family rules, youngest of two*
- past illnesses both physical and psychological – *tonsils and nil*

- mental state and formulation during the psychiatric assessment – *Sustained guilt and grief reactions*
- diagnosis, treatment, action requirement, follow-up schedule and outlook – *Transient Situational Disturbance with anxiety symptoms with conforming individual who felt guilty about leaving his mates, he got a rubbishing because he was showing his nervousness about “going out” on patrol again, now worries about doing the wrong thing about applying to get out of the Army, return to Australia, reassessment there in the immediate future, return to Australia and medically discharge from the military, DSM-II code diagnosis 307*

The diary notes also contained information on the research parameters (nominal variables) for this investigation; which are as follows:

- gender - *male*
- Australian state or territory of enlistment - *Victoria*
- age (specific date of birth) (*withheld for confidentiality reason*)
- sub-unit and unit affiliation (combat responsibility functions) – *direct, intimate exposure to the enemy, APC gunner*
- corps assignment (pre embarkation training) – *normal corps training and jungle warfare training with the current members of his squadron*
- military service affiliation - *Army*
- military employment classification (combat and/or non combat) - *Combat*
- rank (other ranks, non commissioned officers and officers) – *other rank*

- time deployed in the TAOR – *five months*
 - time in the battlefield before psychiatric assessment – *four months*
 - detailed severity of battlefield traumatic exposure situations. – *nervousness and shaking directly related to combat exposure*
- * Psychiatric diary notes about one patient*

This detailed information provided an excellent platform for this study with viable starting points for this and future research projects. The Experimental and Control groups were case controlled and matched exclusively within the above mentioned parameters. It has also been an over arching requirement of this study that all of the answers provided by research participants will remain completely confidential and any personal details, which may identify them in any way **would not** be forwarded to the Department of Veterans’ Affairs. Research participants will not in any way affect any pension, benefits or health services which they are entitled to from DVA, or to which they may become entitled in the future. They could also discontinue their participation in this study at any time.

The 1969–70 specialist psychiatrist evaluation was based on the then-current diagnostic criteria contained in DSM-II and *International Classification of Diseases, Revision 8, Clinical Modification* medical diagnostic instruments. A feasible starting point for this study was established through this initial evaluation of military personnel experiencing life altering traumatic battlefield situations. At that specific time, the individuals’ performance interruption was identified, diagnosed and treated (Kirsner et al. 1991). It was necessary to ensure that the comparison examination of 119 Vietnam veterans, aged

between 19 and 46, was sensitive to the diverse range of aetiology related to their respective diagnoses. This was done by comparing the current DSM-IV with the initial DSM-II personality diagnosis.

The research purpose

The purpose of this research is to quantitatively analyse and qualitatively describe the relationship between battlefield trauma exposure, and the subsequent disruption of psychological and physical health. Thereby testing the null hypothesis:

- *There would be no significant difference in the health and wellbeing outcomes of an Experimental group and Control group that experienced the same traumatic battlefield events during the same tour of duty in Vietnam.*

Subsequently answering the research question:

- *Does battlefield trauma exposure have any long-term, pernicious effects on the psychological and physical wellbeing of the TAOR Vietnam War Australian military personnel diagnosed in 1969-70 as military psychiatric patients compared with other Australian military personnel with the same battlefield exposure experiences?*

This research initially examined the original data collected in Vietnam during 1969–70 of a cohort of 119 military personnel. They presented various physical and emotional symptoms to a military psychiatrist in the tactical area of operational responsibility

(TAOR). These data were documented in the clinical records of the army psychiatrist deployed in Vietnam. Then an intensive longitudinal study examined the impact of the initial trauma exposure. This included an examination of the longitudinal course of their symptoms, their current psychological status. This study did not examine the perceived benefits of subsequent treatment programs over the past 35 years that the research participants have been exposed to.

The specific intention of this research was to examine and compare battlefield psychiatric military personnel diagnosed with a battlefield psychiatric disorder in 1969–70 with their contemporaries in 2006–07 in the following areas.

Adult psychological health

The research investigated the long-term effects of a TSD diagnosis on adult psychological health as defined by DSM-II in 1968 and then PTSD by DSM-IV in 2006–07.

Frequency and intensity levels of PTSD

The research examined a group diagnosed with psychological injury in 1969–70 as a consequence of exposure to traumatic battlefield events. It then compared the frequency and intensity levels of that group's PTSD with those of a group of contemporaries in 2006–07 who were exposed to the same events.

Severity of combat exposure experiences

The research examined a group diagnosed with psychological injury in 1969–70 as a consequence of exposure to traumatic battlefield events. It then compared the severity of that group's combat exposure experiences with that of a group of contemporaries in 2006–07 who were exposed to the same events.

Level of PTSD

The research examined a group diagnosed with psychological injury in 1969–70 as a consequence of exposure to traumatic battlefield events. It then compared that group's level of PTSD with that of a group of contemporaries in 2006–07 who were exposed to the same events.

Quality of marriages and similar dyads

The research investigated a group diagnosed with psychological injury in 1969–70 as a consequence of exposure to traumatic battlefield events. It then compared the quality of that group's marriages and similar dyads with those of a group of contemporaries in 2006–07 who were exposed to the same events.

Presence and severity of depressive symptoms

The research investigated a group diagnosed with psychological injury in 1969–70 as a consequence of exposure to traumatic battlefield events. It then compared that group's

presence and severity of depressive symptoms with that of a group of contemporaries in 2006–07 who were exposed to the same events.

General health of the battlefield exposed

The research investigated a group diagnosed with psychological injury in 1969–70 as a consequence of exposure to traumatic battlefield events. It then compared their general health and wellbeing with a group of contemporaries in 2006–07 who were exposed to the same events.

Research protocols

The Australian Department of Veterans' Affairs provided ethics support for this research. That support was conditional on participants' personal data being strictly protected through an encryption process. The confidentiality of personal information was strictly preserved. Another potential issue considered was the risk that, in contacting the research participants, the memories of past traumatic experiences would be revisited and that this would have a detrimental effect on participants.

It is generally accepted in epidemiological research that this is a legitimate and appropriate field of inquiry. Consequently, it was felt that such interviews would generally be tolerated and would not cause more than transitory distress. In 1997, the Australian Bureau of Statistics (ABS) undertook a very similar methodology and inquiry about traumatic experience. That study conducted by the ABS involved 10 800 participants with little or no detrimental effects being reported during or after the

interview procedures. The recently completed Gulf War Veteran Study also used this methodology with the same distress outcomes.

This issue remained at the vanguard of the principal researcher's concern and all participants were respected at all times. At the beginning of the project, the principal researcher told participants about every possible avenue of medical and emotional support available to them should they consider it necessary to utilise.

Outline of the research methodology and research design

This research methodology is a longitudinal retrospective case controlled matched paired measurement study. This case control design was utilised to examine whether initial TSD and other psychiatric illnesses presented by a group of Australian Vietnam veterans in the Tactical Area of Operational Responsibility (TAOR) resulted in the onset of specific, pernicious symptoms of PTSD and delayed onset PTSD.

This acronym TAOR and other military terms were often discovered in research documents and used by the veterans during times of discussion. These and other military acronyms are included in Appendix B. Although many of these abbreviated terms were specifically excluded from this research they are an insight into another form of language communication restricted to the military culture.

A Control group was also identified for ongoing case control matched paired comparison and examination research. Relying on the existing literature indicates that the

Experimental group participants who manifested TSD and other psychiatric symptom reactions in the battlefield should predominately go on to develop delayed onset PTSD. There should also be many Control group participants who suppressed these 1969-70 diagnosed TSD and other psychiatric adult adjustment symptom reactions for whatever reason who now experience delayed-onset PTSD.

This longitudinal retrospective case control matched paired measurement design study of the two groups of veterans—that is the Experimental and Control groups—were then compared using a battery of psychometric questionnaires. The questionnaires aimed to identify any differences in the prevalence of disorders as well as identifying the timing of the onset of these conditions. The psychometric questionnaires were followed up with individual telephone interviews with all consenting research participants. The study questionnaire builds on the instruments used by Professor Brian O’Toole in the Australian Vietnam Veterans Health Study (AVVHS) (O’Toole et al. 1996).

This psychometric questionnaire provided a comprehensive, structured, standardised instrument for assessing mental disorders according to, and using, the definitions and criteria of ICD–10 and DSM–IV. It is fully structured to allow administration by lay interviewers and scoring of diagnoses by statistical analysis. This compiled instrument also provided current and lifetime histories of psychiatric disorders covering high prevalence conditions such as major depression, PTSD, and panic disorder.

The psychometric questionnaire contains the following instruments which are drawn from the AVVHS:

- the Centre for Epidemiological Studies–Depression (CES–D)—this is designed to measure depressive symptoms (Orme et al. 1986)
- the Spanier Dyadic Adjustment Scale—this is designed to assess the quality of marriage/partnership relationships and other dyads (Spanier 1976)
- the Australian adaptation of the SF–36 health survey provides a measure of general health and quality of life (Ware & Sherbourne 1992 and Ware et al. 1998)
- the PTSD Checklist – Military (PCL–M) (Blanchard et al. 1996b)—this measures the level of PTSD that corresponds to the PTSD symptoms identified in the *Diagnostic and Statistical Manual of Mental Disorders* (DSM)
- the Wilson and Krauss 21-Item Combat Index (Wilson & Krauss 1985).

These were all used to assess problems and complaints experienced in response to stressful military experiences. They also include general questions about relationships, social activities and social support, brushes with the law, background and home life. Finally during the telephone interview, the Clinician Administered PTSD Scale (CAPS–2) (Blake et al. 1995) was administered to assess research participants for current symptoms of PTSD. The test focused on references to the specific frequency and intensity symptoms of re-experiencing, avoidance and arousal behaviour traits exhibited.

Phases of research

This research was designed and conducted over the four phases described below.

Research design

This research is an unusual and distinctive contribution on the subjects of the effects of battlefield trauma exposure, subsequent delayed onset PTSD and the significant evolution of PTSD symptom clusters. It is based on exposure to actual traumatic battlefield events and the accuracy of an in-battlefield diagnosis. This research evolved from an examination of the 1969–70, original recorded traumatic events of 119 Vietnam veterans. These veterans made up the Experimental group, and their experiences were compared with those of a case controlled group. This initial examination established the control foundation for the ongoing longitudinal study of the actual PTSD symptom presentations of the veterans from 1969–70 to now. This longitudinal study also examined the changing psychological state of these veterans suffering from battlefield exposure and PTSD. It also examined the prevailing attitudes to psychological trauma in 1969–70 and now—as seen and reported by these specific veterans. This study was conducted over four phases—as detailed in the proposed sequence of data analysis—utilising a battery of research instruments.

Phase I: initial analysis and matching of data

The initial analysis of recorded data from 1969–70 of 119 Vietnam servicemen utilised the within-sub unit/unit case control design (Heppner et al. 1992). This provided the

foundation for the individual respondents (Experimental group) to be matched specifically with another individual/s from a group of peers from the same initial statistical base of military recruitment (Control group). The Control group was selected and case controlled from contemporaneous records held at the Australian War Memorial Research Centre Vietnam Veteran Records. There were at least two Control research participants and in some cases three for every Experimental research participant.

Phase II: invitation to participate and completion of research instruments

The Experimental and Control group research participants received: an invitation to participate letter, an explanation letter (Appendix C), the research instrument questionnaire booklet (Appendix D), a research contact consent form (Appendix E) with an enclosed stamped envelope for returning the research instrument questionnaire booklet, and a signed contact consent form.

The research instrument questionnaire booklet contained the Centre for Epidemiologic Studies Depression Scale (CES-D), the Spanier Dyadic Adjustment Scale, Short Form 36 (SF-36), the military version of the PTSD Checklist (PCL-M), and Wilson and Krauss' 21-item combat index (Vietnam version). The research instrument questionnaire booklet and the research contact consent form provided the researcher with the appropriate data and a contact phone number for interested participants. This meant they could be contacted to enhance the collected data via a phone interview. The principal researcher gave his phone number to interested participants so they could make

immediate direct contact if required. The principal researcher retrieved all the messages within two hours and contacted interested participants immediately.

During the phone responses, the principal researcher explained the research requirements again, what would be involved and the projected time commitment for each participant. Participants were told, 'I am doing the research with men who have been involved in the Vietnam War during the period 1969–70 and exposed to a variety of battlefield traumas.' A further component of the telephone interview process explored respondents' current and lifetime symptoms of a range of psychiatric disorders utilising the Clinician-Administered PTSD Scale (CAPS-2).

Phase III: contact interviews

During the interview, respondents were asked about their 1969-70 combat exposure incidents and the individual symptoms of their combat fatigue or ASD as they experienced them at the time of their Vietnam service. This interview used the structured interview booklet, which was developed specifically for this research.

The study involved completing the research instrument questionnaire booklet. This addressed: the severity of current depressive symptoms; the quality of marriage and other similar dyads; the general health of participants, considering different current medical conditions; the severity of PTSD, corresponding to the 17-item DSM-III-R (revised) PTSD diagnosis), and the severity of the combat exposure experienced.

During the telephone interview the principal researcher administered another research instrument (CAPS-2). The telephone interview established, based on the participant's memory, the most traumatic event or events that they experienced. It also determined the frequency and intensity of PTSD symptoms, and concluded with an examination of the propensity of the individual participant to be classified as being diagnosed with delayed onset PTSD. The principal researcher sincerely thanked each participant for participating. He also told them that the information provided would remain confidential and that they may be contacted in the future for another interview. The participant's intention to participate in the future was noted on file for future research opportunities.

Phase IV: compilation and analysis of data

This phase of research involved compiling and analysing the appropriate data files. This quantitative and qualitative process also involved an examination of historical military reports from 1969–70 of the relevant military unit involvement in battlefield areas of Vietnam.

The goal for the ongoing analysis was to provide descriptive and statistical tests results for the Experimental and Control group participants over a range of psychological measures. The strategy involved analysing the presented demographic variables, and obtaining the respective means, standard deviations and medians for continuous variables for both groups from data obtained from 1969–70. This was then repeated with participants in both groups who responded to the invitation letter and completed the questionnaire in 2006–07.

For categorical variables, frequency tables were constructed comparing the Experimental and Control group participants. Chi-square tests were also performed. When the assumptions of the chi-square test were violated, Fisher's exact test was performed. For the substantive variables, group differences in continuous variables were analysed by t-test or the Wilcoxon rank sum test for continuous variables with a non-normal distribution. Any respondent who had missing data was excluded from this analysis on a test-by-test basis. All analysis was done on unweighted data with SAS version 9.1. Research data were examined and the results reported. The results and inferences are presented and described in Chapters Four, Five and Six.

Procedure

This study used a longitudinal retrospective case control design. Experimental group participants had battlefield psychiatric analysis and treatment by the same military psychiatrist on, or at, the Australian Task Force medical facility within the TAOR. Participants from both groups completed the above-described pencil and paper questionnaires and were interviewed over the phone during 2006–07. Due to the sensitive nature of the information being sought, the principal researcher asked participants to provide more information and offered that they be subsequently debriefed if this was required. During the telephone interview if participants reported more than one type of PTSD symptom—as described in DSM-IV—they were also asked to indicate which symptom affected them the most. They were also asked which battlefield experience affected them the most.

Sample

The 119 Experimental group participants were initially selected and then the Control group participants were case control selected. At least two Control research participants were identified from every military sub unit or unit that the Experimental research participants served with, or were attached to, during their combat commitments in Vietnam during 1969–70. Participants were identified using the Kish grid based on age ranking (Kish 1949).

Selection was further refined by selecting: the corresponding date of birth, surname similarity, regimental number, and state of enlistment, military rank, military unit, employment specialty and their possible prospective position on the parade group during each morning role call during training and while in Vietnam. The same information was obtained for the Control group from the military records maintained at the Australian War Memorial. This process required two years of searching through the archival data files. It was used for comparison, examination and ongoing evaluation. This information may also provide the cornerstone for possible future examinations of case control matched comparison group analysis from current specific battle exposure experiences. Thus, the findings of future examinations might be able to be evaluated, based on the outcomes of this study.

Consent and follow-up

During 2006-07, informed consent was obtained after the research was described to the respondents. As noted above, in 1969–70 there were 119 military personnel were diagnosed by the same military psychiatrist at the Australian TAOR medical facility in South Vietnam—Experimental group $n=119$. These 119 Australian military personnel presented with a variety of psychological disorders in the battlefield specifically related to battlefield traumatic exposure. This resulted in at least an initial one-hour consultation and diagnosis appraisal with the Australian military psychiatrist.

The follow-up research and interview process involved identifying a Control group ($n=275$). Those members of this group that agreed to continue with the ongoing research completed a paper and pencil psychometric questionnaire in 2006–07, and participated in a telephone interview. At that time, the principal research collected all of the comparative data for analysis. All research participants were male, as were all participants included in the planned research; $n=394$.

The Experimental group cohort for this longitudinal research comprised two groups. Two-thirds, or 66 per cent, were Regular Service or volunteer soldiers, while one-third, or 34 per cent were National Service or conscripted soldiers. All were on active combat duty in Vietnam during 1969–70, and 99 per cent were enlisted soldiers rather than officers.

In 1969–70, the mean age of the Control group was 24 years, with a minimum age of 19 years and a maximum age of 46 years. The mean age of the Experimental group was also 24 years with a minimum of 19 years and a maximum of 45 years. All research participants who could be found were contacted by mail. Those unavailable, or not wanting to participate in the research, were under no obligation to contact the principal researcher.

After all signed consents were returned and confirmed, a total of 97, or almost one-quarter of the initial group identified for the planned research, completed the questionnaire and signed the contact consent form. This return rate was higher than expected. The group distribution of the returns were 21 (17.65%) Experimental group and 76 (27.6%) agreed to be research participants and were contacted by telephone and the final research instrument was administered during this contact interview. The remaining possible participants were part of several subgroups. Twelve men had died in the intervening years. No contact was possible with another 92. They were not registered and had no follow contact details. The remaining possible participants did not return the mailed survey participation invitations. The demographic characteristics of interviewed and non-interviewed respondents from 1969–70 data and 2006–07 were compared. Data variables revealed no significant differences in age, gender, relationship health, time in the TAOR, marital status, military rank, combat exposure experience or Vietnam War combat exposure. Each 2006-07 Experimental group participant had at least one case control matched (Control) group participant.

The advantages of the follow-up contact were evident during the telephone interview phase of the research. This sample of Vietnam War veterans represented a clinically important mix of older veterans. They had not been previously contacted or studied, but most had been exposed to severe battlefield traumatic events. They were not seeking medical treatment nor were they in search of any type of compensation. Their primary focus was to help others—a point driven home by all of them in the interviews. Many who agreed to be interviewed were having major problems and some indicated they were skeptical about the value of their individual contribution to the research. These veterans were all fervent when relating their stories. The final administered research instrument, the CAPS-2, provided an excellent measure of the reflected problems in the older veterans' respective lives as they experience them in 2006-07 (Hyer et al. 92 and 96).

Method of analysis

There is a prevailing interest in addressing the accelerating scientific studies into life traumas and their precise effect on military veterans. These studies examine, specifically, the broad colourful spectrum of battlefield stressors that put military personnel at risk and the subsequent readjustment issues. Researchers can exercise great diligence and precise care when they collect and analyse data. However, the ultimate reliability and subsequent value of the data depend totally on respondents' truthfulness in their answers to questionnaires in the research programs. The extraordinary and distinctive characteristic of this research is that the same respondents, the Experimental group, were identified from archival data collected when they were interviewed in 1969–70. At that time, they were diagnosed with TSD as specified and determined by DSM-II.

The same group was evaluated again in 2006–07 using a comparison symptom diagnostic program that compared the DSM-II diagnosis data from 1969–70 with that of a DSM-IV diagnosis made in 2006–07.

Experimental and Control group personnel were invited, and agreed, to participate in this follow-up research, which employed a variety of research instruments initially described in this chapter.

The analysis of the 1969–70 archival psychiatric assessment data provided a matchless non-reactive means to collate and merge evidence on the efficacy of the initial diagnostic prognosis conducted in the battlefield and the resulting outcomes in 2006-07. The following co-variant demographic variables were examined for the Experimental group: age, gender, marital status, years in the military, whether they were conscripted or volunteer regular servicemen, military rank, employment and corps categories in the military, duration of service in Vietnam, previous medical complaints, trauma exposure and family circumstances (Regehr et al. 2002).

These co-variant variables were observed during the initial consultation in 1969–70 and confirmed again in 2006–07 with those who agreed to contribute to the ongoing research. They were also included because of their possible, significant co-variant association with PTSD in the National Co-morbidity Survey (Kessler et al. 1999). The data also addressed exposure to critical incidents and their accuracy compared to official contemporaneous reports stored at the Australian War Memorial. The data was also

standardised by the initial diagnosis of military psychiatrist of each Experimental group participant.

Two sets of psychiatric symptoms were considered to be relevant to this study: specific TSD and the possible delayed onset PTSD. This pristine reservoir of data helped enhance the validity of the identified symptoms of battlefield psychiatric patients and the later delayed onset PTSD manifestations and behaviours. This observation-based research, coupled with the comparison paired case control design results, provide valuable data. In many ways, it is also essential to discovering the various reasons for the immediate and later generic behaviour responses by battlefield-exposed military personnel.

This foundation data also ensures that personal inferences are not permitted to seep into the research. Operational clarity in communication and definitions are standardised by relying on DSM-IV, the *International Classification of Diseases, 11th Revision, Clinical Modification* and the military-era language. The research case control design assisted greatly in determining the direction and extent of the changes psychologically and physically, for individuals over a protracted period of more than 35 years.

This research also permitted an exhaustive examination of the reasons behind the attitude and/or behaviour changes displayed in the individual respondents. The design also assisted in determining the impact a battlefield environment had, and continues to have, on those who have been exposed.

A Control group of individuals who did not present TSD symptomatic response clusters during their respective military service deployments was selected and invited to participate— $n=275$. Many agreed to participate in the ongoing research and were subsequently examined utilising the same research instruments as those administered to the Experimental group. The Control group selection was based on the same co-variant demographic variables combined with the corresponding battlefield exposure activities and time in the TAOR. The following demographic variables for the group were also used in the matching process with the Experimental group: military rank, respective regimental numbers, Christian and surnames, military position allocations, employment and corps categories, and specific battlefield exposure levels. The preceding literature review strongly supports the need for an extensive longitudinal comparison paired case control designed study to examine the development of battlefield stress responses and the possible timing of delayed onset PTSD. The longitudinal comparison is especially important to establish the pervasiveness of delayed onset PTSD. It applies to all military participants who display an immediate, or in situ, reaction and to those who do not after exposure to traumatic battlefield experiences. This study also provides a distinctive contribution on battlefield trauma, battlefield stress reactions and subsequent delayed onset PTSD. While other research has focused on veterans from different wars and battlefield traumatic exposures and focused on the PTSD symptoms common to them all (Miller et al. 1992). This research examines the links between the same veterans, with the same battlefield trauma exposure experience/s with similar psychological and physical outcomes.

This current research investigates the relationship between an Experimental and a Control group's demonstrated and recorded battlefield stress reactions in 1969–70 and their current physical and psychological state in 2006-07. Sometimes individuals' memories about actual and symbolic traumatic events evolve and change over time. To counter any inaccuracies caused by this alteration of memory, the original 1969–70 records of the traumatic events experienced by the 119 Vietnam veterans were re-examined by comparing the diagnostic reports with Australian War Memorial records. The initial examination established the control foundation for the ongoing longitudinal comparison paired case controlled designed study of the actual and symbolic battlefield stress reactions and PTSD behaviours of the veterans from 1969–70 to 2006-07. This study also examined the changing psychological state of these veterans suffering from battlefield exposure and PTSD.

All participants for this research were verified and secured by an initial examination of Vietnam veterans' personnel role military records held at the Australian War Memorial and from the Australian Electoral Commission. The invitation contact with group participants began with the principal researcher sending them an information pack (endorsed by the Department of Veterans' Affairs ethics committee). Each pack included an introduction letter, an information synopsis detailing the purpose of the research, points of contact, timeframe and personal commitment constraints, and an information survey research booklet, incorporated elements of the battery of psychometric research

instruments. The research synopsis, research response form and booklet are reproduced in Appendixes C, D and E. Follow-up contact was made by phone after the initial pack was sent to the group members' respective addresses and a contact research response permission form was received. As detailed previously from the mail-out of 394 information packs, a total of 21 Experimental group and 76 Control group personnel agreed to participate. This response rate was higher than expected and extremely encouraging.

Individual and organisational non-response is usually the result of individuals or organisations not wanting to divulge confidential information or being unwilling to expend the time involved (Tomaskovic-Devey et al. 1994). Participation in this research was voluntary, confidentiality was guaranteed and the Department of Veteran's Affairs fully endorsed participation by the veterans. As stated previously, the targeted population of Vietnam veterans consisted of 394 regular volunteer and conscripted national servicemen. The data were analysed using SAS Version 9.1—a statistical analysis program designed specifically for use in the social sciences.

The results reported here primarily involve analysing and reporting descriptive and frequency data, as well as correlation analyses aimed at assessing the relationship between the variables. Data were obtained through the administration of an extensive range of questionnaires. These contained scales that measured: the frequency and intensity of PTSD symptom clusters and qualitative manifestation and readjustment issues, the severity of Combat Exposure Experiences, the type of combat exposure, the

level of PTSD (symptoms correspond with the 17 items the DSM-III (revised), the Quality of Marriage and similar Dyads, the Presence and Severity of Depressive Symptoms, and finally the General Health of Participants.

Research survey instruments

The research survey incorporated the following instruments.

- Clinician-Administered PTSD Scale (CAPS-2). This measures the different presentation and intensity levels of PTSD and specifically examines the unique symptom clusters that are manifested with its onset (Laufer et al. 1985b). It was administered (during the telephone interview) to the Experimental and Control group participants in 1969–70 who responded to a research request in 2006–07.
- Wilson and Krauss combat index. This measures the severity of combat exposure experiences in the Experimental and Control group participants in 1969–70 who responded to a research request in 2006–07.
- Military version of the PTSD Checklist (PCL-M). This measures the level of PTSD; the 17 items correspond with the DSM-III (revised) PTSD symptoms. The recorded scores can range from 17 to 85 with a cut off score of 50 indicating a PTSD diagnosis (the higher the score the more severe the PTSD).
- Spanier Dyadic Adjustment Scale. This assesses the quality of marriage and similar dyads in the Experimental and Control group participants in 1969–70 who responded to a research request in 2006–07. The higher the score, the higher the quality of the participants' dyads.

- Centre for Epidemiologic Studies Depression Scale (CES-D). This measures the presence and severity of depressive symptoms in the Experimental and Control group participants in 1969–70 who responded to a research request in 2006–07. Participants with a score of 16 or more are considered to have clinically significant depression.
- Short Form 36 Questionnaire (SF-36), authorised Australian version (Ware & Sherbourne 1992). This measured the general health of Experimental and Control group participants in 1969–70 who responded to a research request in 2006–07. It is an especially good measure for participants with different medical conditions (Garratt et al. 1993).

Clinician-Administered PTSD Scale (CAPS-2)

CAPS-2 has been applied to older veterans with combat experience. This is an independent interviewer-rated scale, which has been used as the standard measure of PTSD. It performs well. In addition, the psychometric properties of this scale were similar to those in the Hovens et al. 1993 and 1994; and Blake et al. 1990 and 1995 research studies. CAPS-2 has good internal consistency. All items contribute to the whole construct of PTSD; and each DSM category possesses a high alpha. This suggests good conceptual convergence for each category. CAPS-2 was also shown to be an instrument with high specificity, sensitivity, positive and negative predictive power. The overall efficiency rate was high at 93 per cent. Using the standard cutoff scores for each category as suggested by the DSM-III-R (revised), older veterans would be correctly classified with a PTSD diagnosis (Hyer et al. 1996).

It assesses the frequency and intensity of each symptom using standard prompt questions and explicit, behaviour-anchored rating scales. CAPS-2 also yields both continuous and dichotomous scores for current and lifetime PTSD symptoms. It is a structured, clinical interview designed to assess adults for the 17 symptoms for PTSD outlined in DSM-IV. It also measures associated features, such as: guilt, dissociation, depersonalisation and reduction in awareness of surroundings.

Wilson and Krauss 21-Item combat index

The Vietnam version of the combat exposure index was measured with a 21-item questionnaire developed by Wilson and Krauss (1985). Veterans' combat exposure experience scores can range between: Never to Rarely (once) =0–21; Rarely (once) to Occasionally (25 times) =21-42; Occasionally (2–5 times) to Often (6–10 times) =42-63; Often (610 times) to Very Often (11+ times) =63-84. This specific combat index (Wilson & Krauss 1985) was administered to provide an insight into the individual's perceived threat and present an accurate measure of real combat exposure.

Military version of the PTSD Checklist (PCL-M)

The PCL-M is a self-report rating scale for assessing PTSD (Weathers et al. 1991). It consists of 17 items, which correspond to the DSM-III (revised) symptoms of PTSD. This modified scale was developed to measure the severity as well as the frequency of PTSD symptoms (Foa et al. 1993).

Research participants were instructed to indicate how much they have been bothered by each symptom in the past month using a 1–5 scale. The anchors for the severity ratings range from ‘Not at all or only one time’ to ‘extremely, five or more times per week or almost always’. This instrument provides clinical frequency, severity and limitation scores that discriminate between participants with and without PTSD. The range of frequency, severity and total range scores are as follows: 0–51, 0–68 and 0–119, respectively. This instrument also provided a categorical score, which identified either the presence or absence of PTSD. It has an internal consistency of treatment (.96) and a community (.97) sample, as well as a concurrent validity with the structured clinical interview for the DSM-III (revised) (Falsetti et al. 1993 and Spitzer et al. 1987). There are two versions of the PTSD Checklist—the PCL-C (civilian) and the PCL-M (military). Re-experiencing symptoms are written specifically for military experiences.

The PCL-M can be modified easily to fit specific assessment needs. For example, to assess symptom severity repeatedly in the context of a treatment protocol, the timeframe of one month can be changed to ‘the past week’ instead of ‘the past month’. Similarly, the wording of the items can be modified to reflect a specific traumatic event or to include the phrase ‘your military experiences’ (Weathers et al. 1993).

The PCL-M is useful in a variety of clinical and research assessment contexts, especially when information about PTSD symptoms is desired but administering a structured interview is not feasible. It can be used as a continuous measure of PTSD symptom severity by summing scores across the 17 items. It can also be used to derive a PTSD diagnosis by considering a score of three (moderately) or more as a symptom; then

following the DSM-III (revised) diagnostic rule—1 B symptoms, 3 C symptoms, and 2 D symptoms) (Weathers et al. 1993). This diagnostic rule was applied in this research study.

The Spanier Dyadic Adjustment Scale (DAS)

The Spanier DAS is a research measurement scale designed to assess the quality of marriage and similar dyads (Spanier 1976). The 22-item DAS used in this research assessed the quality of marriages and partnerships. Response categories vary on different portions of the scale. Items one to 15 asked questions about agreement on various marital problems and issues and were scored on a six-point scale ranging from 0 (always disagree) to 5 (always agree). Items 16 to 22 assessed positive and negative feelings about the partnership. They were scored on a six-point scale from 0 (all the time) to 5 (never). Higher scores represented greater satisfaction with the marriage or partnership relationships (Aaronson et al. 1992).

Centre for Epidemiologic Studies Depression Scale (CES-D)

Depressive disorders are common in patients with PTSD. Depression is a particularly important concern in participants with early or late onset of PTSD and may affect treatment adherence. The CES-D is a 20-item self-report scale used to measure the presence and severity of depressive symptoms in general population studies (Radloff 1977). The CES-D items sample different components of: symptoms, depressed moods, feelings of guilt and worthlessness, feelings of helplessness and hopelessness, psychomotor retardation, loss of appetite and sleep disturbance. Respondents indicate

the frequency of each symptom's occurrence in the past week. The CES-D has been demonstrated to measure depressive symptoms and not merely general psychological distress. It has also been scrutinized to confirm its' factorial and discriminant validity (Orme et al. 1986). The CES-D is rated on a four-point scale, with a minimum score of zero and a maximum score of 60. Items are summed after reverse scoring of items 4, 8, 12 and 16. Total scores range from 0 to 60. Higher scores indicate higher levels of general depression.

Individuals are asked to report the frequency of how they felt in the previous week on parameters such as crying spells, loneliness, self-esteem and sleep. Scores of 16 or more are traditionally interpreted as suggestive of clinically significant depression (McDowell and Newell 1996). It is not clear whether the traditional cutoff score is the best one for medically ill populations. The traditional cutoff of 16 or more was about 75 per cent predictive of a depressive disorder in this population of battlefield-exposed participants. The predictive value for major depression was about 60 per cent (Radloff 1977).

Short Form 36 (SF-36)

SF-36 was originally designed in the United States to help understand how its health care system affects health. It is a multi-purpose, short-form health survey with only 36 questions that can be used throughout the world to evaluate the health of individuals (Bell and Kahn 1996). It yields an 8-scale profile of functional health and wellbeing scores, as well as psychometrically-based physical and mental health summary measures and a preference-based health utility index (Jenkinson et al. 1994). It is a generic

measure, as opposed to one that targets a specific age, disease or treatment group.

Accordingly, SF-36 has proven useful in surveys of general and specific populations. It compares the relative burden of diseases and differentiates the health benefits produced by a range of different treatments (Ware et al. 1998).

It now has a wider application. It is used to measure the general health of populations throughout the world as well as to compare the health of patients with different medical conditions such as ASD and PTSD (Brazier et al. 1992). The classification of items and concepts underlying the construction of the SF-36 scales and summary measures establishes its validity for use with an elderly population (Lyons et al. 1994). It has three classification levels: items; eight scales that aggregate two to 10 items each; and two summary measures that aggregate scales. All but one of the 36 items—self-reported health transition—was used to score the eight SF-36 scales. Each item is used in scoring only one scale (McHorney et al. 1993).

The eight scales form two distinct higher-ordered clusters due to the physical and mental health variance they have in common (Anderson et al. 1993). The interpretation of results has been made much easier with the standardisation of mean scores and standard deviations for all SF-36 scales. Specifically, norm-based scoring has proven to be very useful when interpreting differences across scales in the SF-36 profile and for monitoring disease groups over time (McHorney et al. 1994).

Linear transformations were performed to transform scores to a mean of 50 and standard deviations of 10 in research populations. This transformation achieves the same mean and standard deviation for all eight scales, and for the physical and mental summary measures. In norm-based scoring, each scale was scored to have the same average (50) and the same standard deviation (10 points) (Hays et al. 1993). Without referring to norms, it is clear that anytime a scale score is below 50, health status is below average; each point is one-tenth of a standard deviation. Differences in scale scores much more clearly reflect the impact of the mental or psychological disorder. Clinicians can more quickly and appropriately interpret the effect of combat or battlefield exposure on an SF-36 health profile. This is because the physical and mental component summary measures take into account the correlation among the eight SF-36 scales (McHorney et al. 1993).

Qualitative data collection

Finally, a qualitative summary of the telephone interviews was compiled and included. This provided an insight into the irreplaceable individual stories of the respective research participants. Individual names are disguised to protect the identity of the research participants. Only participants who agreed to have their conversations recorded are included in Appendix A.

Summary

The battlefield exposure identified in 1969–70 and referred to in the research participants' responses to the questionnaire were correlated and confirmed with information from the Australian War Memorial. This analysis of research participants'

dyad status, the ongoing severity of depression and the effects of combat exposure during 1969–70—compared with the current status in 2006–07—provided the bedrock for the research. The purpose of this research was to discover if there are pernicious outcomes for individuals—whether volunteers or conscripts—after being exposed to traumatic battlefield experiences. It also aimed to discover if there is a possible relationship between battlefield exposure, early medical intervention in the battlefield and the subsequent lapse of time (35 years) since the exposure. The question is whether that group had different outcomes to a group that experienced the same battlefield trauma but did not ask for, or receive, early medical intervention.

An analysis of certain demographic variables was implemented to discover if there were any inter-correlations. It determined the means, standard deviations and medians for those continuous variables for the 196-70 Experimental group ($n=119$) and the 2006-07 Experiment and Control groups that responded in 2006-07 ($n=97$). The Experimental group participant's experiences were analysed according to the following criteria: age; type of enlistment (volunteer or conscript); state of enlistment, corps assigned for tour in Vietnam; actual battlefield employment category and the time in the battlefield before receiving a psychiatric diagnosis and treatment. These results were then compared with a case controlled match (Control group) and analysed. The analysis was done in conjunction with the correlated analysis of the veterans' general health, and the severity and persistence of PTSD symptoms—especially the main three scale scores pertaining to the three DSM-IV symptom clusters (re-experiencing, avoidance and hyper-arousal). These were calculated by administering the CAPS-2. Averaging across their respective

symptom cluster totals provided total scores that could also be analysed for the possible significant differences. These scale scores were then used as indicators for the variable of delayed onset PTSD.

Appendix A is the qualitative research summary, devoted to the vignettes of the respective case notes of acquiescent research participants involved in the telephone interviews conducted by the principal researcher during 2007 (Neuman 1991). Much of what is referred to in the qualitative responses revolves around veterans commenting on re-experiencing events from the battlefield exposure, and the physical and emotional effects of the re-experiencing. For example, veterans report: becoming very distressed and upset; having nightmares (Smaldino 1991) of experiences in the battlefield; suddenly acting as if or feeling as though they cannot move on with their lives; getting anxious, panicky and out of breathe; sweating and trembling. They also expressed either being confused a lot or super alert to everything. These veterans often have trouble controlling their anger (Zimering et al. 1998) and often feel estranged from those around them. They also often only find a modicum of peace and comfort on their own or with a few other veterans from their sub units in Vietnam.

Conclusion

This research is a distinctive contribution on the subjects of the effects of battlefield trauma exposure, subsequent delayed onset PTSD and the significant evolution of PTSD symptom clusters. It is based on exposure to actual traumatic battlefield events and the accuracy of an in-battlefield diagnosis. This research methodology evolved from an

examination of the 1969–70, original recorded traumatic events of 119 Australian Vietnam veterans. These veterans made up the Experimental group, and their experiences were compared with those of a case controlled group. This initial examination established the control foundation for the ongoing longitudinal study of the actual PTSD symptom presentations of the veterans from 1969–70 to now. The methodology adopted in this longitudinal study also examined the changing psychological state of these veterans suffering from battlefield exposure and PTSD. It also examined the prevailing attitudes to psychological trauma in 1969–70 and now—as seen and reported by these particular veterans. The methodology of this study was conducted over four distinct phases—as detailed in the proposed sequence of data analysis—utilising a battery of validated research instruments. The following Chapters 4 and 5 provide initially a detailed summary of the research results and subsequently the identifiable variable and research instrument data outcomes relevant to this structured methodology.

Picture 4



1969-70

Aerial photo indicates the location of 6 Platoon, B Company accommodation areas in relation to 9 Battalion Conference Room in the 1st ATF TAOR.

CHAPTER 4

'The individual combatant's preparedness to take risks, determination to succeed, and, ability to endure are the fundamental moral qualities essential for a fighting force and ultimately, military success.' (Holmes 2003)

RESULTS

Introduction

This study obtained and utilised psychiatric battlefield diagnosis data of veterans and matched this representative sample population with veterans with the same demographic profiles who could plausibly have stood next to them on parade grounds and experienced the same battlefield traumatic incidents in the Australian TAOR during 1969-70. Initially the Experimental group veterans recorded trauma history is presented and the respective 1969-70 diagnoses are divided into groups based on the diagnosis type; Transient Situational Disturbance (TSD) being (shown through this study as being a dynamic diagnosis not a benign diagnosis as thought in 1969-70 by psychiatrists in that period) in conjunction with other disorders (anxiety, depression or alcohol addiction) the predominant diagnostic prognosis for these veterans. In Chapter 1, Table 1 it is presented as DSM-II diagnosis TSD (other diagnostic categories or influences) and DSM-II diagnosis other psychiatric disorders. The primary objective of this study was to track and compare the Vietnam veterans 1969-70 psychiatric diagnoses with their current reported PTSD profiles, combat exposure recollections, dyad status, states of depression and their general health and wellbeing. At the same compare the reported symptoms and states of the matched Control group. This longitudinal research investigated the following fundamental null hypothesis that:

- *There would be no significant difference in the health and wellbeing outcomes of an Experimental group and Control group that experienced the same traumatic battlefield events during the same tour of duty in Vietnam.*

This brief chapter presents the cumulative summary of quantitative research results that document the experienced battlefield traumatic exposure and the resulting outcomes after 35 plus years for both Experimental and Control group participants.

This chapter also provides an insight into the following research question:

- *Does battlefield trauma exposure have any long-term, pernicious effects on the psychological and physical wellbeing of the TAOR Vietnam War Australian military personnel diagnosed in 1969-70 as military psychiatric patients compared with other Australian military personnel with the same battlefield exposure experiences?*

The chapter is separated into two main portions covering, a case control matched sample and the corresponding detailed sample size descriptions. The selected samples, collected data and analysis of the relevant data are also presented. Including the correlation of exact examination parameters identified in the invitation to participation documentation to the outcomes of the administration of the research questionnaires. Where $n < 10$ the statistical presentations should be regarded as descriptive. Also with regard to the diagnosis made in 1969-70 the inter-rater reliability of the clinician battlefield interviews and assessments are also noted.

Selection

This case control study is exceptional in that the participants are recruited from a group of veterans that were diagnosed (by the same psychiatrist) in the battlefield with a variety of psychological reactions (anxiety, depression, rage, alcohol and drug abuse) predominantly in combination with the overarching psychiatric diagnosis of Transient Situational Disturbance (TSD) as a consequence of battlefield exposure incident/s. These individuals were matched with a control sample of veterans who were the same age, rank, gender, had the same length of time in the TAOR, corps allocation, battlefield job status, combat/battlefield exposure/s and yet in 1969-70 in the TAOR did not seek or were not directed too and consequently did not receive any psychiatric support for the same battlefield traumatic exposures. All of the selection processes, preparatory induction, recruit training; corps training, job training and embarking procedures would have been the same for all of the Experimental and matched Control research participants. Due to the detailed case control matching of the research participants it is conceivable that they had been standing next to each other on parade grounds in Australia and Vietnam and throughout the phases of their military experience during 1969-70.

The research interest of this study was also whether there would be any difference in the onset and prevalence of the whole range of other effects as a consequence of the battlefield trauma exposures between these two groups after 35 years. A synopsis of these research outcomes are presented in Tables 2, 3, 4, 5 and Table 6.

Demographic variables

A presentation of the demographic variables is presented in Tables 2 and 3. Foundation trauma groupings, group comparisons for both conscripted and volunteer recruit specific measures, and lastly mental health comparison between the Experimental group of veterans and the case control identified Control group veterans from the same sections, troops, platoons, field batteries, squadrons, companies, battalions, task force groups, formation and other ancillary units.

Table 2: Experimental group demographic feature comparison 1969-70 and 2006-07

Demographic feature	Group <i>n</i> = value	Experimental Group <i>n</i> = 119 (%)	Experimental Group <i>n</i> = 21 (%)
	Contact times	1969-70	2006-07
Battlefield trauma	Yes	58 (48.74)	20 (95.24)
	No	61 (51.26)	1 (4.76)
Battlefield Psychiatric Treatment	Australian TAOR	6.31 mths (std dev 4.08)	6.32 mths (std dev 3.66)
Type of enlistment	Volunteer	80 (67.22)	16 (76.19)
	Conscripted	39 (32.88)	5 (23.81)
State of enlistment	Aust States / Territories	119 (30.20) <i>n</i> = 394	21 (21.65) <i>n</i> = 97
Marital Status	Married	7 (33.33)	6 (28.57)
	Single	14 (66.67)	15 (71.43)
Age	Years	24.04 (std dev 5.87)	24.62 (std dev 5.46)
Rank	Pte - Lt	119 (30.20) <i>n</i> = 394	21 (21.65) <i>n</i> = 97
Corps	Combat	74 (62.18)	12 (57.14)
	Non combat	45 (37.82)	9 (42.86)
Job	Combat	74 (61.18)	14 (66.66)
	Non combat	45 (37.82)	7 (33.33)
DSM-II diagnosis status Transient Situational Disorder	Volunteer	61 (51.26)	13 (61.90)
	Conscripted	32 (26.89)	4 (19.05)
DSM-II diagnosis status Other psychiatric disorders	Volunteer	19 (15.97)	2 (9.52)
	Conscripted	7 (5.88)	2 (9.52)
DSM-IV PTSD diagnosis	Yes	Not available	19 (90.48)
	No		2 (9.52)
TPI classification	Yes	Not available	17 (80.95)
	No		4 (19.05)
Military pension	Yes	Not available	19 (90.52)
	No		2 (9.52)

ATF = Australian Task Force, TAOR = Tactical Area of Operational Responsibility

Table 3: Control group demographic feature comparison 1969-70 and 2006-07

Demographic feature	Group <i>n</i> = value	Control Group <i>n</i> = 275 (%)	Control Group <i>n</i> = 76 (%)
	Contact times	1969-70	2006-07
Battlefield trauma	Yes	Unknown	69 (90.79)
	No	Unknown	7 (9.21)
Battlefield Psychiatric Treatment	Australian TAOR	Not sought	Not sought
Type of enlistment	Volunteer	185 (67.27)	52 (68.42)
	Conscripted	90 (32.73)	24 (31.58)
State of enlistment	Aust States / Territories	275 (69.80) <i>n</i> = 394	76 (78.35) <i>n</i> = 97
Marital Status	Married	No response	No response
	Single		
Age	Years	23.88 (std dev 5.38)	23.21 (std dev 4.75)
Rank	Pte - Lt	275 (69.80) <i>n</i> = 394	76 (78.35) <i>n</i> = 97
Corps	Combat	181 (65.82)	49 (64.47)
	Non combat	94 (34.18)	27 (35.53)
Job	Combat	180 (64.45)	49 (64.47)
	Non combat	95 (34.55)	27 (35.53)
DSM-II diagnosis status Transient Situational Disorder	Volunteer	Not available	Not available
	Conscripted		
DSM-II diagnosis status Other psychiatric disorders	Volunteer	Not available	Not available
	Conscripted		
DSM-IV PTSD diagnosis	Yes	Not available	57 (75.00)
	No		19 (25.00)
TPI classification	Yes	Not available	51 (67.11)
	No		25 (32.89)
Military pension	Yes	Not available	57 (75.00)
	No		19 (25.00)

ATF = Australian Task Force, TAOR = Tactical Area of Operational Responsibility

Instrument administration results

The range and nature of PTSD symptom clusters—that is, re-experience; avoidance and arousal behaviour—that develops after exposure to traumatic battlefield events is also presented – CAPS-2 (Table 4). In addition battlefield (combat) trauma exposure is the common denominator in this study which is also presented – Wilson Krauss Combat Index (Table 5). In conjunction with, comparisons in relation to the veteran research participants’ the level of PTSD – PCL-M; the quality of marriage and similar dyads – Spanier Dyadic Adjustment Scale; presence and severity of depression – CES-D; and their general health and wellbeing – SF-36 Health Survey (Table 6).

Table 4: The range and nature of PTSD symptom clusters after battlefield exposure - 2006-07

Research Instrument	Group <i>n</i> = value	Experimental Group <i>n</i> = 21 (%)	Control Group <i>n</i> = 76 (%)
	Contact times	2006-07	2006-07
CAPS-2: PTSD diagnosis	Yes	19 (90.48)	64 (84.21)
	No	2 (9.52)	12 (15.79)
CAPS-2: criteria totals (frequency)	Yes	19 (90.48)	68 (89.47)
	No	2 (9.52)	8 (10.53)
CAPS-2: criteria totals (intensity)	Yes	19 (90.48)	60 (78.95)
	No	2 (9.52)	16 (21.05)
CAPS-2: Criterion A: traumatic battlefield exposure	Yes	20 (95.24)	69 (90.79)
	No	1 (4.76)	7 (9.21)
CAPS-2: Criterion B: the traumatic event is persistently re-experienced (frequency)	Yes	20 (95.24)	69 (90.79)
	No	1 (4.76)	7 (9.21)
CAPS-2: Criterion B: the traumatic event is persistently re-experienced (intensity)	Yes	18 (85.71)	57 (75.00)
	No	3 (14.29)	19 (25.00)
CAPS-2: Criterion C: persistent avoidance (frequency)	Yes	20 (95.24)	67 (88.16)
	No	1 (4.76)	9 (11.84)
CAPS-2: Criterion C: persistent avoidance (intensity)	Yes	19 (90.48)	62 (81.58)
	No	2 (9.52)	14 (18.42)
CAPS-2: Criterion D: persistent arousal (frequency)	Yes	20 (95.24)	68 (89.47)
	No	1 (4.76)	8 (10.53)
CAPS-2: Criterion D: persistent arousal (intensity)	Yes	19 (90.48)	60 (78.95)
	No	2 (9.52)	16 (21.05)
CAPS-2: social functioning	Extreme/Severe	19 (90.48)	63 (82.89)
	Moderate or less	2 (9.52)	13 (17.11)
CAPS-2: occupational functioning	Extreme/Severe	19 (90.48)	62 (81.58)
	Moderate or less	2 (9.52)	14 (18.42)
CAPS-2: global severity	Extreme/Severe	19 (90.48)	61 (80.26)
	Moderate or less	2 (9.52)	15 (19.74)
CAPS-2: global improvement *	Slight Improvement	19 (90.48)	68 (89.47)
	Moderate or more	2 (9.52)	8 (10.53)
CAPS-2: validity	Excellent	9 (42.86)	46 (60.53)
	Good	12 (57.14)	30 (39.47)
CAPS-2: significant impairment total	Significant > 10	17 (80.95)	67 (88.16)
	Not significant < 10	4 (19.05)	9 (11.84)

Table 5: Battlefield (combat) trauma exposure - 2006-07

Research Instrument	Group n = value	Experimental Group n = 21 (%)	Control Group n = 76 (%)
	Contact times	2006-07	2006-07
	Std dev	(13.41)	(18.75)
	Never – Rarely in (Less than 2 times in 12mths)	2 (9.52)	20 (26.32)
	Rarely - Occasionally (2 – 5 times in 12mths)	4 (19.05)	30 (39.47)
	Often (6 – 10 times in 12mths)	13 (61.91)	21 (27.63)
	Very often (greater than 10 times in 12mths)	2 (9.52)	5 (6.58)
Wilson and Krauss' combat index *	How often did you make contact with the enemy? (mean) 3=Often (6 – 10 times in 12mths)	3.09	2.8
	How often did you fire your weapon at the enemy? (mean) 3=Often (6 – 10 times in 12mths)	3.04	2.64
	In your opinion, how often were you in danger of being killed or wounded in Vietnam? (mean) 3=Often (6 – 10 times in 12mths)	3.67	3.01

Table 6: The level of PTSD; the quality of marriage and similar dyads; presence and severity of depression; their general health and wellbeing - 2006-07

Research Instrument	Group <i>n</i> = value	Experimental Group <i>n</i> = 21 (%)	Control Group <i>n</i> = 76 (%)
	Contact times	2006-07	2006-07
The total of PCL-M variation	PCL-M Totals (mean)	58.90 (std dev 19.72)	50.33 (std dev 19.88)
	Intrusion: variation (mean)	16.95 (std dev 6.80)	14.22 (std dev 6.59)
	Avoidance: variation (mean)	23.29 (std dev 7.68)	19.58 (std dev 7.87)
	Arousal: variation (mean)	18.66 (std dev 6.58)	16.53 (std dev 6.55)
Spanier Dyadic Adjustment Scale	Quality of Dyads	44.24 (std dev 28.78)	55.5 (std dev 26.12)
Centre for Epidemiologic Studies Depression Scale (CES-D)	Significant depressive symptoms >16 *	17 (80.95)	55 (72.37)
	Not Significant depressive symptoms < 16	4 (19.05)	21 (27.63)
	(std dev)	(18.31)	(17.62)
SF-36 Health Survey Questionnaire results	General Health Poor (mean)	62.48 (std dev 8.82)	64.13 (std dev 7.34)

Conclusion

These cohort populations provide a rare opportunity to examine psychological and physical outcomes from the initial battlefield diagnosis provided by one psychiatrist in the battlefield. This extraordinary situation combined with a long-term perspective rather than from the immediate, or short-term, diagnostic timeframes outside of the battlefield makes this research original. The research also provides an opportunity to understand how military personnel adapt to exposure to traumatic battlefield events over an extended period having been discharged from military decades earlier. Examining the records of those who presented with symptoms of acute battlefield stress reactions, combat fatigue,

ASD, TSD and later on PTSD informs knowledge about the development of and efficacy of symptom- exclusive identification, therapy and prospective treatment programs for PTSD.

The majority of both groups now suffer from PTSD symptoms. The majority of both groups reached the diagnostic levels to be diagnosed with PTSD, although in the interview session 7 of the 64 Control group diagnosed with PTSD underreported their symptom profiles (which created a false positive difference in this segment of the analysis). This contradicted their instrument responses. Both groups underreported their battlefield trauma exposure experiences when compared to resource documentation and the Experimental group's 1969-70 psychiatric reports. The Experimental group did indicate a significant difference in the severity of their combat exposure to that of the Control group generally. On the whole the majority of both groups suffer from depression, have had terrible dyads (many are totally isolated or fluctuate between relationships) and are in poor physical health especially when compared to men of the same age in the general community. This is borne out in Appendix A which provides contemporary qualitative vignettes (obtained during the telephone interview phase of the study) on what veterans remember of Vietnam and how they are dealing with their lives today.

Anecdotal observation conclusions

The nature of battlefield combat exposure/s impacts on an individual is that it has a lasting effect and from the results of this research for the majority of the participants the

effects are pernicious to their health and wellbeing. The collation, inspection and analysis of in battlefield clinician patient notes have provided rare, unusual and accurate data. Comparatively due to the detailed case control of the research participants there is a fascinating result in that there are not significant differences between the groups in the predominant areas of research comparisons (an outcome not expected). The Experimental group recorded generally higher mean scores in all of the focused analysis. Especially, the Experimental group focused analysis responses to the overall CAPS-2 frequency and intensity PTSD symptom constellations.

Both groups' vivid recollections of their combat exposures were also remarkable; considering the time that has passed and their understanding that these exposures have a direct correlation to how they feel psychologically and physically today. The majority of both groups registered scores to satisfy the PTSD diagnosis classification. The Experimental group was considerably higher than that of the Control group. The Control group had marginally better dyads than those members that agreed to continue with the research. Although after examining the dyad status of the Experimental group in 2006-07 there was not a significant difference in the single/married comparison from 1969-70 yet dynamic and number of dyads has fluctuated dramatically over the years for these respondents. Depression levels and health status reported by the majority of the Control group were marginally better than that of the Experimental group participants. Many members of both groups told of how they would consume 24 to 48 cans of beer a day, smoke one to three packets of cigarettes a day and frequent clubs they would not have thought of going to in Australia. They would have been too young to get in if such clubs

existed in Australia then anyway. “Why worry I will be dead soon.” A comment often made to me during the interview phase of the research. The majority of both groups had a pervading sense of doom. Which reinforced what I was often reminded by them of how isolated and in some instances how betrayed they felt in Vietnam and on return to Australia from their tour of duty in 1970. A psychological and in some cases physical state of isolation and betrayal that remains with many of them to this day. Many of these veterans underreported their symptoms during the telephone interview which was evident when I compared their statements to their psychometric questionnaire and CAPS-2 responses. In a way they wanted to appear strong not vulnerable (weak) to me (these are their comments). I was to a man also struck by their sincerity and forthright nature. As stated previously: they did not want recognition for their participation in the study, irrespective of their medical status. Nor at anytime did anyone of them seek compensation for their time. They just wanted to help so other younger veterans did not have to go through what they had gone through over the past 35 plus years. This may be viewed as a population statistical bias. Alternatively from a qualitative stand point I was immediately forced to see them not as men in their late fifties or sixties; rather, I was drawn to young men, many just out of school still not permitted in Australia to go into the front bar of a pub confronting the horrors and uncertainty of war. Then returning home to be shunned by the community they thought they were protecting and would be proud of them for their sacrifice. I ask you the reader the question: How would you deal psychologically in their situation in 1970?

Picture 5



1969-70

9 Battalion Conference Facilities
in the 1st ATF TAOR

CHAPTER 5

'Security is mostly a superstition. It does not exist in nature, nor do the children of men as a whole experience it. Avoiding danger is no safer in the long run than outright exposure. Life is either a daring adventure or nothing.' (Helen Keller)

BATTLEFIELD RESULTS

Research focus

An area of critical interest is a systematic examination of the range and nature of PTSD symptom clusters—that is, re-experiencing avoidant and arousal behaviour—that develops after exposure to traumatic battlefield events. These PTSD symptom clusters may identify the initial aetiological indicators of an individual's vulnerability to the onset of delayed PTSD (Solomon et al. 1996). This study examined the specific nature of PTSD symptoms and how detrimental they are to soldiers' long-term adaptation to life. It focused on the current status of the Experimental and Control group's current PTSD symptom clusters, combat exposure, severity of depression, their respective relationship status, PTSD ratings and finally their general health and well being.

Gaining a better understanding of the relationship between the diagnoses of transient situational disturbance (TSD) stress reactions in 1969-70 and the onset of PTSD was of specific interest in this research. Another area of interest that this study examined in

detail was how long-term, pernicious psychological outcomes—after exposure to multiple traumatic battlefield events—manifested in both groups.

The original group was selected and matched from data collected in 1969–70 and recorded on files held at the Australian War Memorial. The final 2006-07 sample size of the Experimental group ($n=21$) represents 18 per cent of the original 1969-70 Experimental group and the 2006-70 Control group ($n=76$) represents 28 per cent of the 1969-70 matched original Control group. The 2006–07 research sample ($n=97$) was large enough to provide significant results. Especially where within the research sample the subset $n > 10$. Collectively, the group sample distribution was large enough to provide a significant response when presented for statistical analysis (Miller 2006).

This statistical analysis provided a rare opportunity to examine battlefield exposure outcomes from the initial psychiatric diagnosis recorded in the battlefield in 1969–70 to today’s Experimental group participants. The research also examines how both the Experimental and Control cohorts respond today with a long-term perspective (>35 years) rather than within the framework of the immediate or short-term diagnostic timeframe and response rate. An area for future research is the development of symptom-specific therapy and treatment programs for severe psychopathology syndromes. This would require access to more specific confidential detailed treatment data. Military personnel are often exposed to traumatic battlefield events over a long period. Understanding how they adapt, while presenting with symptoms of psychiatrically diagnosed PTSD, will help inform knowledge for this future research.

Additional analyses were conducted to examine and compare the robustness of the present findings to several alternative measurement constructions. Initially, the Enlistment group diagnoses, including all diagnoses by the consulting psychiatrist, were examined based on diagnostic information in the *Diagnostic and Statistical Manual of Mental Disorders, Second edition* (DSM-II) (American Psychiatric Association 1968). The DSM-II diagnoses of TSD and other psychiatric manifestations and disorders in the Experimental group ($n=119$) were descriptively evaluated according to the type of enlistment. Then compared with a demographically matched Control group ($n=275$). Following that, the 1969–70 case notes were read again—with participants’ details encrypted—and a diagnosis established using *Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition* (DSM-IV) American Psychiatric Association 1996. These diagnoses were then compared with the diagnoses of participants in the Experimental and Control groups that accepted the invitation to participate in the ongoing research. Then another analysis was conducted comparing the ages of veterans in 1969–70 with the ages of ongoing research participants. Their respective states of enlistment, corps, specific job employment categories, and their time in the battlefield before receiving a psychiatric diagnosis and treatment were also compiled, matched and analysed.

The current study aimed to investigate the impact of battlefield trauma exposure on a group of Vietnam War veterans that presented in 1969-70 in the TAOR to a military psychiatrist a variety of psychological reactions to their war experience (Experimental

group) and a military matched Control group. By using six different measures at the 35 plus year Vietnam deployment anniversary of these veteran's lives, namely; the veteran's PTSD level and its' impact on their lives Clinician-Administered PTSD Scale (CAPS-2); the veteran's combat exposure level (Wilson & Krauss Combat Index); the current PTSD symptom manifestation (PCL-M); their dyad status (Spanier Dyadic Adjustment Scale); the presence and severity of depressive symptom variations (The Centre for Epidemiologic Studies Depression Scale) CES-D; and the state of their health and well being (Short Form-36 health survey questionnaire). The null hypothesis is that:

- *There would be no significant difference in the health and wellbeing outcomes of an Experimental group and Control group that experienced the same traumatic battlefield events during the same tour of duty in Vietnam.*

This next part of this chapter outlines the quantitative research methods used to investigate and document the experienced battlefield traumatic exposure and the resulting outcomes after 35 years for both Experimental and Control group participants. It is separated into six main portions covering; sample selection (Explanations are provided for the research case control design and focus which includes a description of the research participants in 1969-70 and in 2006-07) and the corresponding sample size descriptions. The selection, collecting and analysis of the relevant data are also presented. Including the correlation of specific examination parameters identified in the invitation to participation documentation to the outcomes of the administration of the research questionnaires. Where $n < 10$ the statistical presentations should be regarded as

descriptive. A description of the demographic variables, foundation trauma groupings, group comparisons for both conscripted and volunteer recruit specific measures, and lastly mental health comparison between the Experimental group of veterans and the case controlled Control group veterans from the same formation, section, troop, platoon, field battery, squadron, company, battalion, task force group and other ancillary units. This case control study is distinctive in that the participants are recruited from a group of veterans that were diagnosed in the battlefield with a psychiatric disorder triggered by battlefield exposure incidents and matched with a control sample of veterans who were the same age, rank, gender, had the same length of time in the tactical area of operational responsibility (TAOR), battlefield job status, corps allocation, combat/battlefield exposure/s and yet in 1969-70 did not request, require or receive psychiatric support.

Finally, the Experimental group veterans recorded trauma history is analysed and the respective 1969-70 diagnoses is divided into groups based on the diagnosis type with TSD being the predominant diagnostic outcome. Battlefield (combat) trauma exposure is the common denominator in this study which is also observed.

Members of the Experimental group were diagnosed in 1969-70 with a variety of psychological reactions prevalent in conjunction with TSD during the Vietnam War. The matched Control group did not seek and were not treated for a psychiatric disorder during their 1969-70 tour of Vietnam. The research interest of this study was also whether there would be any difference in the onset and prevalence of the whole range of other psychiatric disorders between these two groups after 35 years as a consequence of their

traumatic battlefield exposures. These research outcomes are presented in tabulated form in Chapter 4 and are detailed in this Chapter.

Australian military recruit selection

The recruitment screening procedures used in the Australian Defence Forces in 1969 are very similar to those employed today. This recruit screening process establishes a commonality for all the research participants in this study. The screening process establishes a range of predictive issues through exhaustive psychological and physical assessments; such as individual leadership potential and the:

- individual's understanding about the demands of military life
- capacity of his or her family to cope with the dislocations of deployments
- ability to be a participant in the group culture of the military.

The individual's academic capacity and inclination for particular areas of work are also assessed during this induction assessment. Recruiting psychologists canvas many of these and other issues in recruitment interview process. There are instruments administered that cover current symptoms of distress. These measures do not cover in depth some of the areas that would be necessary to exclude all the risk factors for post traumatic stress disorder (PTSD). These interviews are used for a range of purposes and their sensitivity, and specifically their ability to identify individuals at risk of PTSD, has never been established. The inter-rater reliability of these interviews has never been rigorously examined in the same way that the inter-rater reliability of most medical assessments is not tested. The main aim of these recruiting interviews is to assess an

individual's suitability to participate in the military culture rather than to exclude individuals with a risk of developing PTSD. This was also the situation with the inter-rater reliability of the 1969-70 clinician battlefield interviews and assessments conducted in the Vietnam TAOR. It is significant to note that this is only the being of a multi-phased selection process which fundamentally in 1969-70 concluded with soldiers being sent to Vietnam to fight.

There is no established, reliable procedure to exclude individuals who may be at risk of developing PTSD. Ultimately, it would be extremely difficult to develop such a screening procedure. Earlier identification of battlefield trauma-exposed sufferers, and specific treatment, may be a more appropriate way of dealing with this issue. Consequently this research aimed to provide descriptive and statistical test results on Experimental and Control groups' psychological, physical and relationship status. The research addresses the null hypothesis to get an answer to the primary research question:

- *Does battlefield trauma exposure have any long-term, pernicious effects on the psychological and physical wellbeing of the TAOR Vietnam War Australian military personnel diagnosed in 1969-70 as military psychiatric patients compared with other Australian military personnel with the same battlefield exposure experiences?*

Analysis strategy

This research identified specific demographic variables and determined the means, standard deviations, and medians for those continuous variables for the Experimental and

Control groups identified from 1969–70 ($n=394$). This strategy was replicated for participants in the Experimental and Control groups who responded to the invitation to complete a battery of psychometric questionnaires and consented to a follow-up telephone interview conducted in 2006–07 ($n=97$). Categorical variables were determined by the particular frequency tables for the Experimental and Control group participants.

For the Experimental group, means, standard deviations, and inter-correlations for:

- age
- gender
- marital status
- time in the tactical area of operational responsibility before visiting a psychiatrist
- battlefield job status
- corps allocation
- combat/battlefield exposure
- military pension allocation
- Department of Veterans' Affairs totally and permanently incapacitated classification
- the onset of TSD 1969–70.

These were compared with the Control group and their possible subsequent PTSD symptom presentations in 2006–07. These variables were also evaluated for possible inclusion as co-variants in the research. The demographic variables were significantly

correlated with combat exposure and/or the presentation of PTSD symptoms in 1969–70 and in 2006–07. The onset of PTSD recorded in 2006–07 during the follow-up telephone interviews was modeled as a latent variable with three manifest indicators. These pertained to re-experiencing, avoidance and numbing, and hyper-arousal symptoms. Each indicator measured the frequency and intensity of each selected subcategory item of the CAPS–2 to best measure the appropriate DSM-IV symptoms for the specific symptom clusters.

For the substantive variables, Experimental and Control group differences in continuous variables were analysed by t–test or the Wilcoxon signed rank sum test for continuous variables with a non-normal distribution. Chi–square tests were used for categorical variables. When the assumptions of the chi–square tests were violated, Fisher's exact tests were performed and applied.

Research participants

As a result of the longitudinal nature of this study the number of research participants available during 2006-07 was not expected to be high. This expectation was inaccurate. The number of subjects involved in the study that completed the psychometric questionnaire and then agreed to participate in the ongoing research totalled 97 personnel 24.62% of the original Experimental and matched Control group. This is consistent with other research of this type (Miller 2006).

The initial Experimental participants are 119 Vietnam War veterans. The matched Control group participants are 275 Vietnam War veterans who were selected—using Australian War Memorial Research Centre Data—from the same military:

- sections
- troops
- platoons
- field batteries
- squadrons
- companies
- battalions
- task force groups
- other ancillary units;

that were deployed in Vietnam in the same period as the Experimental group participants (frequency Table 7). All participants are male and were serving in the TAOR in the Australian sector in South Vietnam in 1969–70. Those that agreed to participate in the ongoing research are presented in frequency Table 8.

Table 7: Vietnam TAOR Unit / sub Unit / Job distribution during 1969–70 of Experimental and Control group participants

(Experimental group - n, %, Control group - n, %)

Corps	Frequency	%	Cumulative frequency	Cumulative %
ALSG / AOD / Field Park / Store man and Clerk	19	15.97	19	15.97
	39	14.18	39	14.18
Bn / Coy / Pl / Sect 2IC / Rifleman	39	32.77	58	48.74
	98	35.64	137	49.82
Fd Regt / Fd Bty / BDR and GNR	10	8.40	68	57.14
	31	11.27	168	61.09
OSU / Storeman and Clerk	2	1.68	70	58.82
	3	1.09	171	62.18
Const Sqn / Field Engr	5	4.20	75	63.03
	10	3.64	181	65.81
Sig Sqn / Signaller	7	5.88	82	68.91
	14	5.09	195	70.91
Aust Field Hosp / Med Assist	5	4.20	87	73.11
	7	2.55	202	73.45
Fd Amb / Med Assist	2	1.68	89	74.79
	4	1.45	206	74.91
HQ 1 ATF / Rifleman	4	3.36	93	78.15
	12	4.36	218	79.27
Cav Regt / Sqn / Tp / Trooper	6	5.04	99	83.19
	14	5.09	232	84.36
Air Desp Sqn / Air Despatcher	2	1.68	101	84.87
	5	1.81	237	86.18
Sup Coy/ Combat Supply Pl / Section	3	2.52	104	87.39
	8	2.91	245	89.09
Small Ships	2	1.68	106	89.07
	4	1.45	249	90.55
HMAS Vendetta	1	0.84	107	89.91
	2	0.72	251	91.27
SQN / Recce Flt	3	2.52	110	92.43
	6	2.18	257	93.45
Dental Attch / Tech	1	0.84	111	93.23
	2	0.72	259	94.17
Fd Eng / Pk Sqn / Eng Wkshp	8	6.72	119	100.00*
	16	5.81	275	100.00*

*, * = Rounded off.

**Table 8: Vietnam TAOR Unit / sub Unit / Job distribution during 1969–70
of Experimental and Control group participants who were
involved in the ongoing research in 2006–07
(Experimental group - n, %, Control group - n, %)**

Corps	Frequency	%	Cumulative frequency	Cumulative %
ALSG / AOD / Field Park / Store man and Clerk	4	19.05	4	19.05
	<i>14</i>	<i>18.42</i>	<i>14</i>	<i>18.42</i>
Bn / Coy / Pl / Sect 2IC / Rifleman	8	38.09	12	57.14
	<i>23</i>	<i>30.26</i>	<i>37</i>	<i>48.68</i>
Fd Regt / Fd Bty / BDR and GNR	1	4.76	13	61.90
	<i>6</i>	<i>7.89</i>	<i>43</i>	<i>56.57</i>
Const Sqn / Field Engr	0	0.00	0	61.90
	<i>3</i>	<i>3.95</i>	<i>46</i>	<i>60.52</i>
Sig Sqn / Signaller	0	0.00	0	0.00
	<i>3</i>	<i>3.95</i>	<i>49</i>	<i>64.47</i>
Aust Field Hosp / Med Assist	1	4.76	14	66.66
	<i>3</i>	<i>3.95</i>	<i>52</i>	<i>68.42</i>
Fd Amb / Med Assist	0	0.00	0	66.66
	<i>2</i>	<i>2.63</i>	<i>54</i>	<i>71.05</i>
HQ 1 ATF / Spt Staff	2	9.52	16	76.19
	<i>4</i>	<i>5.26</i>	<i>58</i>	<i>76.31</i>
Cav Regt / Sqn / Tp / Trooper	1	4.76	17	80.95
	<i>6</i>	<i>7.89</i>	<i>64</i>	<i>84.20</i>
Air Desp Sqn /Air Despatcher	0	0.00	0	80.95
	<i>3</i>	<i>3.95</i>	<i>67</i>	<i>88.15</i>
Sup Coy/ Combat Supply Pl / Section	1	4.76	18	85.71
	<i>2</i>	<i>2.63</i>	<i>69</i>	<i>90.78</i>
Small Ships	0	0.00	0	85.71
	<i>2</i>	<i>2.63</i>	<i>71</i>	<i>93.42</i>
HMAS Vendetta	0	0.00	0	85.71
	<i>1</i>	<i>1.32</i>	<i>72</i>	<i>94.74</i>
SQN / Recce Flt	1	4.76	19	90.47
	<i>1</i>	<i>1.32</i>	<i>73</i>	<i>96.06</i>
Dental Attch / Tech	1	4.76	20	95.24
	<i>1</i>	<i>1.32</i>	<i>97.37</i>	<i>97.37</i>
Fd Eng / Pk Sqn / Eng Wkshp	1	4.76	21	100.00*
	<i>2</i>	<i>2.63</i>	<i>76</i>	<i>100.00*</i>

*, * = Rounded off.

Clinician administered PTSD scale (CAPS-2)

The American Psychiatric Association first acknowledged PTSD as a legitimate diagnostic subcategory in DSM-III (American Psychiatric Association 1980). Many early studies in this field supported alternative propositions to explain the symptoms of PTSD. These included that the traumatic battlefield exposure victims were malingering to gain financial compensation (Atkinson et al. 1982) or that the symptoms reflected other types of post-combat psychopathology such as alcohol abuse (Atkinson et al. 1982; Sparr & Pankratz 1983). Other researchers suggested that the presentation of PTSD symptoms were not delayed, nor that their detection or acknowledgement was delayed. They suggest that clinicians failed to recognise the disorder and, consequently, failed to diagnose it (Pary et al. 1986). Some have even suggested that immediate combat stress reaction symptoms may be masked by the high levels of alcohol and drug use common in the military, both during and after deployment (Kofoed et al. 1993 and McFall et al. 1992). To date, delayed or late onset PTSD is generally accepted as a valid diagnosis provided that there is a latency period of at least six months before the onset of the symptoms (American Psychiatric Association 1994). Any veteran who presents with symptoms before this time is not recognised, or supported, as having a truly delayed onset of PTSD. Consequently, this type of research is extremely relevant in establishing the development pathways of this disorder.

The CAPS-2 research instrument was administered to the Experimental and Control group participants (in 1969–70) who responded to a research request in 2006–07. Those

members of the Experimental and Control groups that confirmed they were exposed to traumatic battlefield exposure event/s (dead bodies, mutilated bodies, grotesque injuries, wounded or witness wounded comrades and the frequency), all reported experiencing more than one event.

CAPS-2 PTSD classification 2006-07

Of the respondents that participated in the ongoing research program no significant difference was found between the groups. Ninety per cent of the Experimental group participants, or 19 of 21, met the criteria to be diagnosed with PTSD. The figure for the Control group was 84 per cent, or 64 of 76. There was also no significant difference to the overall rating of PTSD by group. In the chi-square analysis, 1 df = 2.6665, $p = .1025$ (Table 9). Also there is no significant difference in the DSM-IV battlefield diagnosis provided in the earlier reported presentation of symptoms (Chapter 4) that would warrant a change in the initial PTSD diagnosis. At this time during the interview phase of the research the Experimental group registered the same 19 of 21 and the Control group underreported and registered moderately less; 57 of 76 participants stated that they had been diagnosed with PTSD (Chapter 4, Table 6). The overall PTSD diagnosis confirmed by the recorded responses with 19 of 21 Experimental group participants meeting the diagnostic requirement and 64 of 76 Control group participants meeting the same diagnostic specifications (Table 10). Also both the Experimental group PTSD symptom cluster total frequency (57.33) and intensity (55.29) mean scores although not significantly different are higher than those of the Control group frequency (51.14) and intensity (49.98) Solomon et al. 1995 (Figure 1).

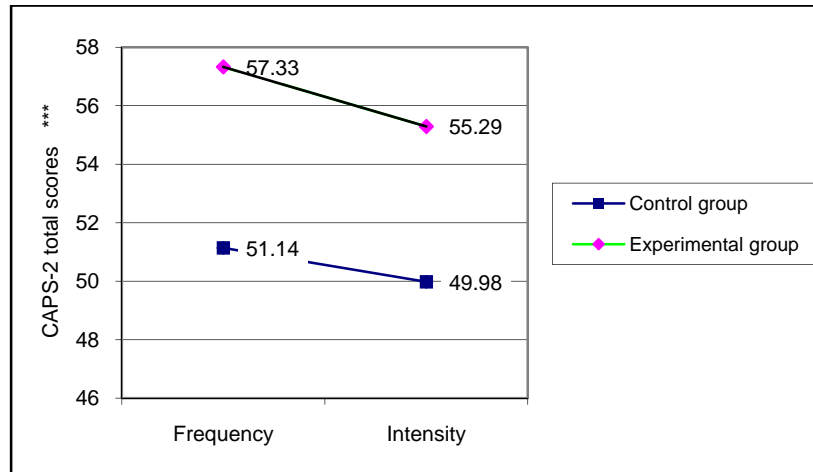
Table 9: CAPS-2: PTSD diagnosis in 2006–07: chi-square analysis

Statistic	DF	Value	Probability
Chi-square	1	2.6665	0.1025
Likelihood ratio chi-square	1	2.7742	0.0958
Continuity adj chi-square	1	2.2452	0.1340
Mantel-Haenszel chi-square	1	2.6597	0.1029
Phi coefficient		-0.0823	
Contingency coefficient		0.0820	
Cramer's V		-0.0823	

Table 10: CAPS-2: PTSD diagnosis in 2006–07

CAPS-2: PTSD diagnosis	Analysis	Group		Total
		Control	Experimental	
No	Frequency	12	2	14
	%	12.37	2.06	14.43
	Row %	85.71	14.29	
	Col %	15.79	9.52	
Yes	Frequency	64	19	83
	%	65.98	19.59	21.07
	Row %	77.11	22.89	
	Col %	84.21	90.48	
Total	Frequency	76	21	97
	%	78.35	21.65	100.00

Figure 1: CAPS-2: PTSD diagnosis in 2006–07: Total (frequency and intensity)



The majority of the Control group PTSD symptom cluster manifestations are delayed onset. This reaction is supported in many research works (Bryant & Harvey 2002). Delayed or late onset PTSD symptoms is defined in the DSM-IV (American Psychiatric Association, 1994), as a disorder meeting the diagnostic criteria for PTSD which is present after a post trauma adjustment period of at least six months, during which time the diagnostic criteria were absent or sub-threshold (Buckley et al. 1996). The prevalence of delayed onset PTSD has been reported in a variety of trauma population sample research studies.

Two studies of motor vehicle accidents reported that prevalence rates of delayed PTSD ranged from 13 per cent nine months after the accident (Epstein 1993), to 32 per cent one year after the accident (Mayou et al. 1993). In a research population sample of 158 motor vehicle accident victims, 7 per cent met the criteria for delayed onset PTSD at one year. All of these subjects met criteria for sub-syndrome PTSD at initial assessment—three

days after the accident. The average interval from the day of the accident to developing full PTSD was 8.5 months (Buckley et al. 1996). Other similar research reported that only 6.3 per cent or 34 of 549, of motor vehicle accident victims who did not meet the criteria for PTSD at three months reported PTSD at one year.

Studies with other trauma populations have shown similar prevalence rates (Ehlers et al. 1998). In a longitudinal study of the victims of the Buffalo Creek Dam disaster, 11 per cent of the sample met the criteria for delayed onset PTSD 12 years following the disaster. A high proportion, 44 per cent, of this group was black (Green 1996 & et al. 1990c). Research into fire fighters exposed to the 1983 South Australian Ash Wednesday bushfires reported that 20 per cent, or 63 of 315 of the fire fighters exposed, experienced delayed onset PTSD (McFarlane 1988). Of these 63 fire fighters, 27 per cent were symptomatic at 11 months but not at 29 months. Fifty-six per cent only became symptomatic by 29 months, while the remaining 13 per cent remained symptomatic on both occasions. This indicates that the majority of the delayed onset cases emerged in the second year after the disaster; and that only 48 per cent of the cases that had emerged at 11 months remained chronic. This research indicates that a significant number of the veterans did not indicate any PTSD symptom manifestations in 1969–70. However, in 2006–07, 64 of 76 met the diagnostic criteria to be classified as suffering from chronic PTSD.

This type of delayed or late onset of PTSD symptoms has been reported extensively in combat veterans. Early research investigated the prevalence of delayed onset PTSD in a

sample of 150 veterans who were treated between six months and five years after the Lebanon war (Solomon et al. 1989a-d). These research data revealed that 10 per cent of the sample was suffering from a delayed onset PTSD, with latency periods ranging from several weeks to several years. In another research sample of 63 veterans with PTSD, 49 per cent of the participants reported a delay of at least six months before PTSD symptoms first appeared (Watson et al. 1988). Earlier research studies into delayed onset include: survivors of concentration camps (Chodoff, 1963); a 20-year follow-up study of Second World War veterans (Archibald & Tuddenham 1965); survivors of the Holocaust (Ben Shoshan 1985); and Vietnam veterans (Boulanger, 1985).

Several case studies reporting late onset PTSD have also been published. They are generally characterised by extremely long latency periods of up to 30 years. (Van Dyke et al. 1985; Herrmann & Eryavec 1994; Pomerantz 1991 and Lim 1991). The problem with many of these earlier studies is that conclusions were made without original diagnostic documentation of the individual's symptoms or specific, on-site diagnostic data when the traumatic exposure occurred. It was quite possible that the individual may not have recalled accurately the traumatic episode/s or the PTSD symptoms, given that their recollections, in some cases, extended back many decades.

This overall CAPS-2 result analysis outcome supports the null hypothesis for this study. Also with regard to ongoing research it also indicates and confirms that more de-identified data provided from organisations such as the Department of Veterans' Affairs to be made available for future investigation would negate any possible skewed outcomes from sample sets of randomly selected participants.

CAPS-2: validity

No significant difference was established between the groups $1 \text{ df} = 2.0923, p = 0.1480$ (chi-square Table 11). Both groups averaged scores in the range between excellent (no reason to suspect invalid responses) and good (factor/s are present that may adversely affect validity) Figure 2. Forty-three per cent of the Experimental group participants registered responses were in the excellent category and 57 per cent in the good category of validity rating. The figures for the Control group were 60 per cent registered an excellent and 39 per cent in the good categories (frequency Table 12). This does indicate that the Experimental group's reporting may be slightly overstated. When put into the context of them suffering with an existing psychiatric manifestation in 1969-70 the battlefield traumatic events may for them as individuals be more severe.

Table 11: CAPS-2: validity in 2006–07: chi-square analysis

Statistic	DF	Value	Probability
Chi-square	1	2.0923	0.1480
Likelihood ratio chi-square	1	2.0763	0.1496
Continuity adj chi-square	1	1.4345	0.2310
Mantel-Haenszel chi-square	1	2.0707	0.1501
Phi coefficient		0.1469	
Contingency coefficient		0.1453	
Cramer's V		0.1469	

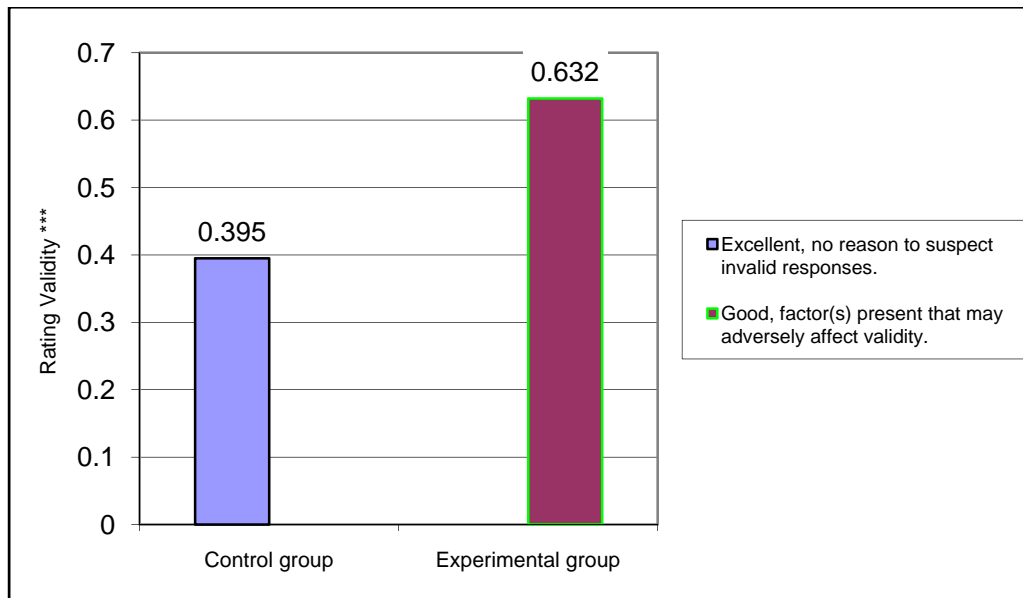
Table 12: CAPS-2: validity in 2006–07

Rating validity	Analysis	Group		Total
		Control	Experimental	
Excellent	Frequency	46	9	55
	%	47.42	9.28	56.70
	Row %	83.64	16.36	
	Col %	60.53	42.86	
Good	Frequency	30	12	42
	%	30.93	12.37	43.30
	Row %	71.43	28.57	
	Col %	39.47	57.14	
Total	Frequency	76	21	97
	%	78.35	21.65	100.00

Table 13: CAPS-2: validity in 2006–07: Fisher’s exact test

Cell (1,1) Frequency (F)	46
Left-sided Pr <= F	0.9546
Right-sided Pr >= F	0.1158
Table probability (P)	0.0704
Two-sided Pr <= P	0.2132

Figure 2: CAPS-2: validity in 2006–07



CAPS-2: Criterion A: traumatic battlefield exposure

Ninety-five per cent of Experimental group participants reported being exposed to traumatic battlefield events, while 91 per cent of the Control group reported having the same or similar experience/s (frequency Table 15). No significant difference was established between the groups in the Fisher's exact test, one-tailed, $p = .4481$ (Table 16). There is a limitation to this finding because in both the Experimental and Control group no response samples $n < 10$ (Figure 3). The author concludes that the sample is too small; thereby the limitation on the inference that can be deduced is to be confined to that of a descriptive analysis.

Table 14: CAPS-2: Criterion A: chi-square analysis (2006-07)

Statistic	DF	Value	Probability
Chi-square	1	0.4303	0.5118
Likelihood ratio chi-square	1	0.4829	0.4871
Continuity adj chi-square	1	0.0432	0.8353
Mantel-Haenszel chi-square	1	0.4259	0.5140
Phi coefficient		0.0666	
Contingency coefficient		0.0665	
Cramer's V		0.0666	

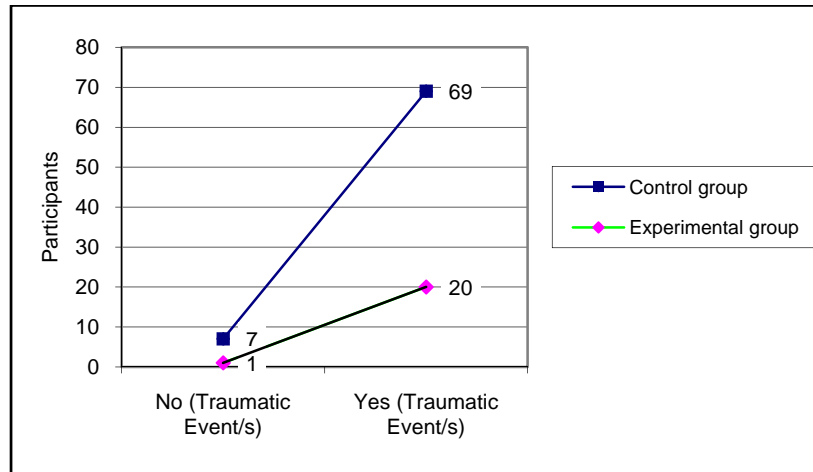
Table 15: CAPS-2: Criterion A: traumatic battlefield exposure (2006-07)

Traumatic event/s (combat/mutilation/wounded)	Analysis	Group		Total
		Control	Experimental	
No	Frequency	7	1	8
	%	7.22	1.03	8.25
	Row %	87.50	12.50	
	Col %	9.21	4.76	
Yes	Frequency	69	20	89
	%	71.13	20.62	91.75
	Row %	77.53	22.47	
	Col %	90.79	95.24	
Total	Frequency	76	21	97
	%	78.35	21.65	100.00

Table 16: CAPS-2: Criterion A: Fisher's exact test (2006-07)

Cell (1,1) Frequency (F)	7
Left-sided Pr <= F	0.8695
Right-sided Pr >= F	0.4481
Table probability (P)	0.3177
Two-sided Pr <= P	1.0000

Figure 3: CAPS-2: Criterion A: traumatic battlefield exposure (2006-07)



CAPS-2: Criterion B: the traumatic event is persistently re-experienced (frequency) 2006-07

No significant difference was established between the groups in the chi-square, with 1 df = 2.3811, p = .1228 (Table 17). Of the respondents that participated in the ongoing research program 95 per cent of Experimental group participants and 90 per cent of the Control group participants reported they re-experienced the traumatic event frequently (frequency Table 18).

Table 17: CAPS-2: Criterion B: chi-square analysis (frequency)

Statistic	DF	Value	Probability
Chi-square	1	2.3811	0.1228
Likelihood ratio chi-square	1	2.4638	0.1165
Continuity adj chi-square	1	1.9934	0.1580
Mantel-Haenszel chi-square	1	2.3751	0.1233
Phi coefficient		-0.0777	
Contingency coefficient		0.0775	
Cramer's V		-0.0777	

Table 18: CAPS-2: Criterion B: traumatic event is persistently re-experienced (frequency)

The traumatic event is persistently re-experienced (frequency)	Analysis	Group		Total
		Control	Experimental	
No	Frequency	7	1	8
	%	7.22	1.03	77.41
	Row %	87.50	12.50	
	Col %	9.21	4.76	
Yes	Frequency	69	20	89
	%	71.13	5.33	22.59
	Row %	77.53	22.47	
	Col %	90.79	95.24	
Total	Frequency	76	21	97
	%	78.35	21.65	100.00

CAPS-2: Criterion B: the traumatic event is persistently re-experienced (intensity) 2006-07

No significant difference was reported between the groups in the chi-square, with 1 df = 1.6908, $p = 0.1935$ (Table 19). Eighty six per cent of Experimental group participants and 75 per cent of the Control group participants reported they re-experienced the traumatic event intensely (frequency Table 20).

Table 19: CAPS-2: Criterion B: chi-square analysis (intensity)

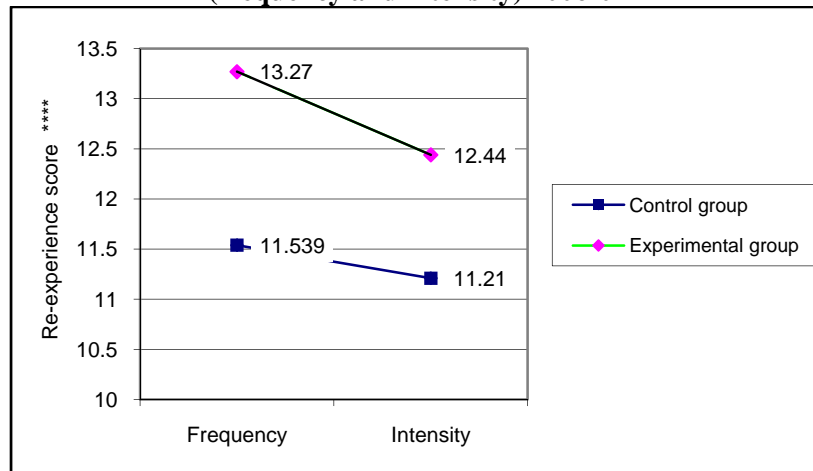
Statistic	DF	Value	Probability
Chi-square	1	1.6908	0.1935
Likelihood ratio chi-square	1	1.7493	0.1860
Continuity adj chi-square	1	1.3469	0.2458
Mantel-Haenszel chi-square	1	1.6865	0.1941
Phi coefficient		-0.0655	
Contingency coefficient		0.0654	
Cramer's V		-0.0655	

Table 20: CAPS-2: Criterion B: traumatic event is persistently re-experienced (intensity)

The traumatic event is persistently re-experienced by group (intensity)	Analysis	Group		Total
		Control	Experimental	
No	Frequency	19	3	22
	%	19.59	3.09	80.96
	Row %	86.36	13.64	
	Col %	25.00	14.29	
Yes	Frequency	57	18	75
	%	58.76	18.56	19.04
	Row %	76.00	24.00	
	Col %	75.00	85.71	
Total	Frequency	76	21	97
	%	78.35	21.65	100.00

As graphically represented in Figure 4 the Experimental group mean frequency (13.27) and intensity (12.44) scores for Criterion B re-experiencing the event are higher than those of the Control group (frequency 11.54; intensity 11.21). This may again be due to the prior diagnosis of psychiatric episodes in the battlefield during 1969-70.

Figure 4: CAPS-2: Criterion B: Persistently re-experienced (frequency and intensity) 2006-07



CAPS-2: Criterion C: persistent avoidance (frequency) 2006-07

No significant difference was reported between the groups for chi-square with 1 df = 2.7568, $p = 0.0968$ (Table 21). Ninety five per cent of Experimental group participants and 88 per cent of the Control group participants met the criteria (frequency Table 22).

Table 21: CAPS-2: Criterion C: persistent avoidance (frequency): chi-square analysis

Statistic	DF	Value	Probability
Chi-square	1	2.7568	0.0968
Likelihood ratio chi-square	1	2.8642	0.0906
Continuity adj chi-square	1	2.3351	0.1265
Mantel-Haenszel chi-square	1	2.7498	0.0973
Phi coefficient		-0.0836	
Contingency coefficient		0.0834	
Cramer's V		-0.0836	

Table 22: CAPS-2: Criterion C: persistent avoidance (frequency)

Persistent avoidance (frequency) of stimuli associated with the trauma or numbing of general responsiveness (not present before the trauma)	Analysis	Group		Total
		Control	Experimental	
No	Frequency	9	1	10
	%	9.28	1.03	10.31
	Row %	90.00	10.00	
	Col %	75.64	83.19	
Yes	Frequency	67	20	87
	%	69.07	20.62	89.69
	Row %	77.01	22.99	
	Col %	88.16	95.24	
Total	Frequency	76	21	97
	%	78.35	21.65	100.00

Even with the best available knowledge, and optimal clinical practise, there are significant barriers to providing mental health care to soldiers exposed to traumatic battlefield events. Ideally, the military would be able to identify soldiers at potential risk,

intervene to remove them from the traumatic environment, and provide appropriate psychological treatment when the traumatic exposure occurs.

Avoidant behaviour is a primary psychological mechanism employed in the combat zone, and after redeployment, for dealing with painful and distressing battlefield exposure experiences (McCarroll et al. 1995b). This behaviour can take various forms and may have a distinct predictive value for early intervention treatment (Shalev 1992) or the possible onset of PTSD. When an individual is in primal survival mode during actual combat, the subsequent reflection and exploration of meaning of experience has little validity for them. Their focus and interest are on what they have to do to survive. Another reason for employing avoidant behaviour is the intricate dynamics of belonging to a group that relies on the individual's self-sacrifice for the benefit of the group. Personal denial of perceived psychological weakness is a critical element of combat units' unspoken codes of behaviour, thereby cloaking the symptoms of PTSD (Epstein 1993).

CAPS-2: Criterion C: persistent avoidance (intensity) 2006-07

No significant difference was reported between the groups for chi-square with 1 df = 2.2013, $p = 0.1379$ (Table 23). Of the respondents that participated in the ongoing research program 90 per cent of Experimental group participants and 81 per cent of the Control group participants met the criteria (frequency Table 24).

Table 23: CAPS-2: Criterion C: persistent avoidance (intensity): chi-square analysis

Statistic	DF	Value	Probability
Chi-square	1	2.2013	0.1379
Likelihood ratio chi-square	1	2.2829	0.1308
Continuity adj chi-square	1	1.8169	0.1777
Mantel-Haenszel chi-square	1	2.1957	0.1384
Phi coefficient		-0.0747	
Contingency coefficient		0.0745	
Cramer's V		-0.0747	

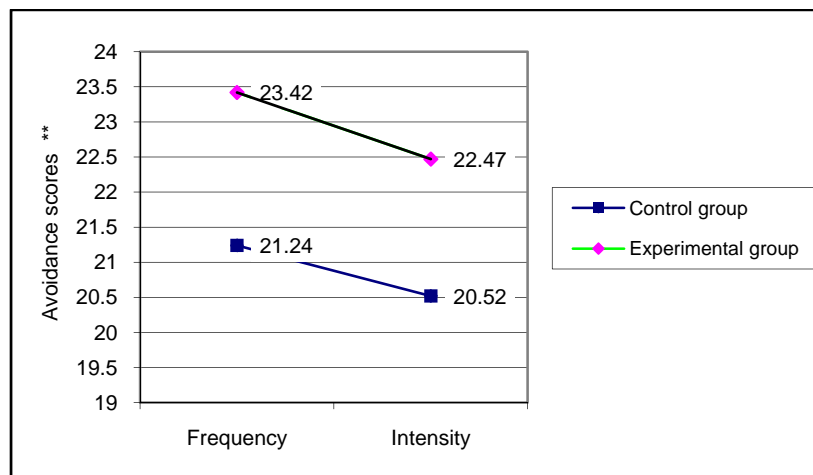
Table 24: CAPS-2: Criterion C: persistent avoidance (intensity)

Persistent avoidance (intensity) of stimuli associated with the trauma or numbing of general responsiveness (not present before the trauma)	Analysis	Group		Total
		Control	Experimental	
No	Frequency	14	2	16
	%	14.43	2.06	16.49
	Row %	87.50	12.50	
	Col %	18.42	9.52	
Yes	Frequency	62	19	81
	%	63.92	19.59	83.51
	Row %	76.54	23.46	
	Col %	81.58	90.48	
Total	Frequency	76	21	97
	%	78.35	21.65	100.00

For many soldiers, their immediate personal concern is that they have survived possible death. Concern about their long-term psychological adjustment was not the focus of clinical practice in the immediate aftermath of survival. There was a sense of relief at surviving and a belief that when they returned to the safety of civilian life, their strained nerves would relax. It is only in the last decade that there has been a major shift in clinical interest in this area in the armed services (Friedman 2006a). Veteran's ongoing avoidant behaviour frequency and intensity traits are of special interest. Confronting the

experiences that they have had in the battlefield seems to be for many too difficult. Although not significant the recorded mean scores are higher generally for the Experimental group when compared to those of the Control group (Figure 5). This may be due to an anticipatory reaction honed in the battlefield. Experimental group participants expected to experience the horror while the Control group participants generally may not have (McCarroll et al. 1995b)

Figure 5: CAPS-2: Criterion C: Persistent avoidance (frequency and intensity) 2006-07



CAPS-2: Criterion D: persistent arousal (frequency) 2006-07

No significant difference was reported between the groups for chi-square with 1 df = 3.0039, $p = 0.0831$ (Table 25). Of the respondents that participated in the ongoing research program 95 per cent of Experimental group participants and 89 per cent of the Control group participants met the criteria (frequency Table 26). Both groups reported high results in frequency and intensity 35-plus years after the initial battlefield exposure.

This is consistent with the data outcome from the longitudinal research into the fire fighter study (McFarlane & Papay 1992).

Table 25: CAPS-2: Criterion D: Persistent arousal (frequency): chi-square analysis

Statistic	DF	Value	Probability
Chi-square	1	3.0039	0.0831
Likelihood ratio chi-square	1	3.1253	0.0771
Continuity adj chi-square	1	2.5646	0.1093
Mantel-Haenszel chi-square	1	2.9963	0.0835
Phi coefficient		-0.0873	
Contingency coefficient		0.0870	
Cramer's V		-0.0873	

Table 26: CAPS-2: Criterion D: Persistent arousal (frequency)

Persistent symptoms of increased arousal not present before the trauma	Analysis	Group		Total
		Control	Experimental	
No	Frequency	8	1	9
	%	8.25	1.03	9.28
	Row %	88.88	11.11	
	Col %	10.53	4.76	
Yes	Frequency	68	20	88
	%	70.10	20.62	90.72
	Row %	77.27	22.73	
	Col %	89.47	95.24	
Total	Frequency	76	21	97
	%	78.35	21.65	100.00

A longitudinal study of disaster victims suggested that delayed PTSD is uncommon and that the typical course of PTSD is to begin in the immediate aftermath of the trauma and to continue. In 1992, McFarlane and Papay conducted a retrospective study of fire fighters. They studied 469 fire fighters who had an intense exposure to a major Australian bushfire disaster and found that, in the majority of those with a chronic course of PTSD, the symptoms fluctuated significantly over time (McFarlane and Papay 1992). Most

retrospective studies have not produced similar data. Delayed onset of PTSD was rare and some who reported this symptom pathway failed to recall their acute PTSD symptoms.

This observational data indicated that an individual's current mental state frames how they report their immediate reaction. In this research sample of fire fighters only 15 per cent had a PTSD in the absence of an anxiety disorder or major depression. This indicated that PTSD is only one several psychiatric disorders that arise when individuals are confronted with such disaster circumstances. A structured diagnostic interview was administered 42 months after the disaster. The symptom clusters remained in 56 per cent of those who had a PTSD immediately after the fire. However, when followed up 96 months after the disaster, only 4 per cent continued to satisfy the diagnostic criteria for a diagnosis of PTSD. At this later stage, 60 per cent still had significant intrusive symptoms, and the symptoms of disordered arousal were as common as they had been at the first follow-up.

Failure to reach the diagnostic threshold of avoidance and estrangement was the main reason the other initial sufferers did not qualify for a PTSD diagnosis. In addition, the intensity of intrusive symptoms decreased significantly, particularly in the first 24 months after the disaster. Intrusive symptoms were also less specific to PTSD than avoidance and a disordered arousal symptom cluster. At 96 months, the disordered arousal symptom cluster was the most prominent clinical feature. This suggests that anxiety and depressive

symptoms were the most prominent residual effect of the disorder. These changes occurred in the absence of treatment in all but a small minority of the subjects.

This contrasted with a clinical population who were followed up after the same disaster. Those participants' intrusive and avoidance symptoms tended to be much more stable. This comparison suggests that quite different images can emerge from community and clinical samples studied after the same event. It may be the case that there is a different longitudinal course in PTSD according to the initial severity of the traumatic exposure. In the most severe forms, the symptoms may become relatively stable over time. With the less intense forms, however, the specific trauma-related symptoms of intrusion and avoidance decrease while the disordered affect and arousal symptom cluster still remains significant.

CAPS-2: Criterion D: persistent arousal (intensity) 2006-07

No significant difference was reported between the groups for chi-square with 1 df = 1.7743, $p = 0.1829$ (Table 27). Of the respondents that participated in the ongoing research program 90 per cent of Experimental group participants and 79 per cent of the Control group participants met the criteria (frequency Table 28). Again the Experimental group responses are on average higher than those of the Control group (Figure 6).

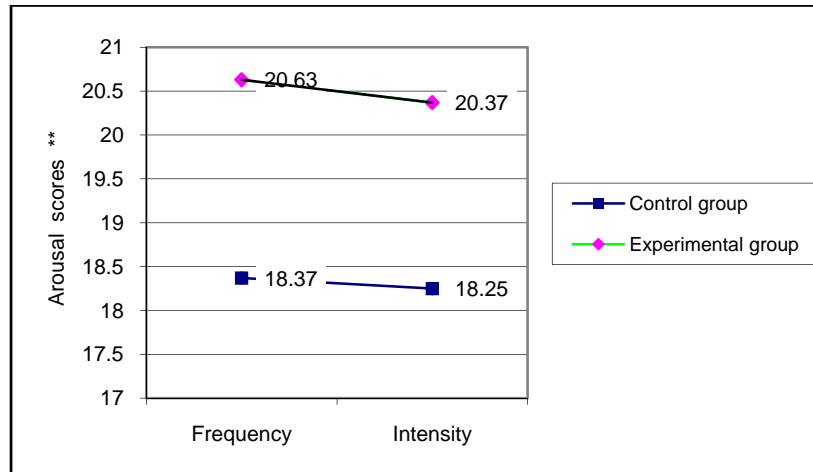
Table 27: CAPS-2: Criterion D: Persistent arousal (intensity): chi-square analysis

Statistic	DF	Value	Probability
Chi-square	1	1.7743	0.1829
Likelihood ratio chi-square	1	1.8339	0.1757
Continuity adj chi-square	1	1.4280	0.2321
Mantel-Haenszel chi-square	1	1.7698	0.1834
Phi coefficient		-0.0671	
Contingency coefficient		0.0670	
Cramer's V		-0.0671	

Table 28: CAPS-2: Criterion D: Persistent arousal (intensity)

Persistent symptoms of increased arousal (not present before the trauma)	Analysis	Group		Total
		Control	Experimental	
No	Frequency	16	2	18
	%	16.49	2.06	18.55
	Row %	88.88	11.11	
	Col %	21.05	9.52	
Yes	Frequency	60	19	79
	%	61.86	19.59	81.45
	Row %	75.95	24.05	
	Col %	78.95	90.48	
Total	Frequency	76	21	97
	%	78.35	21.65	100.00

Figure 6: CAPS-2: Criterion D: Persistent arousal (frequency and intensity) 2006-07



Conclusion: Re-experience, Avoidance and Arousal

The case controlled data of research participant's responses to the CAPS-2 outcomes for re-experience, avoidance and arousal were analysed. No significant differences between the groups were found. The analysis supported the null hypothesis. Results of the testing do confirm that the majority of both groups could be diagnosed with PTSD. Group differences in the severity of the PTSD symptom clusters do show that the Experimental group are suffering more frequently and intensely across the range of symptom clusters as defined by CAPS-2. These results also support research conducted by Wolfe et al. 1999 and Southwick et al. 1995.

CAPS-2: social functioning

The groups report no significant difference in Fisher's exact test ($p = .2212$) Table 29. However, most Experimental group participants (90 per cent) are extremely affected, withdrawn from social contact and severely impaired socially, compared to 78 per cent of

Control group participants (frequency Table 30). The Experimental group's average score was at the upper range of severe and almost in the extreme range, while the Control group's score fluctuated between moderate and severe (Figure 7). This data confirms and supports the results of the research conducted into the effect of combat exposure on social functioning (Solomon et al. 1989b).

Traumatic battlefield exposure can cause military personnel to experience severe combat stress reactions accompanied by a broad spectrum of distress and non-PTSD psychiatric symptoms (Solomon 1993a and Solomon et al. 1995). PTSD is only one of a range of post-traumatic adaptations. Combat stress reactions may have extensive damaging effects on the interaction ability of veterans' emotional lives and social functioning (Figley 1978 and DeFazio et al. 1975). In conjunction with these results previous literature presented in Chapter 2 dealing with the significant role that social support has with; veterans overcoming social phobias and their resilience and recovery rates (King et al. 1998) presents a conundrum. Battlefield trauma exposure interferes with an individual's social functioning capability which thereby limits his or her social support networks which in turn impedes recovery and may exacerbate the effect of the exposure (Buckley et al. 1996). Stress-reaction casualties have also reported more problems in work performance, family functioning, sexual functioning, and various aspects of social functioning than those in control groups (Solomon 1993a). The consuming impact that traumatic exposure has on social functioning is that it does not abate with time. Except for problems in family functioning, they maintain their potency for many years after the exposure. Three years after the war, fewer soldiers reported problems in family functioning than at the end

of the first year (Solomon & Mikulincer 1992). This study supports the research into the impact of battlefield traumatic exposure on the research participants social functioning. This is also the case with regard to the respective dyads the study participants have had. This will be presented in detail later in this chapter.

Table 29: CAPS-2: impact on social functioning in 2006-07: Fisher’s exact test

Table probability (P)	0.0023
Pr <= P	0.2212

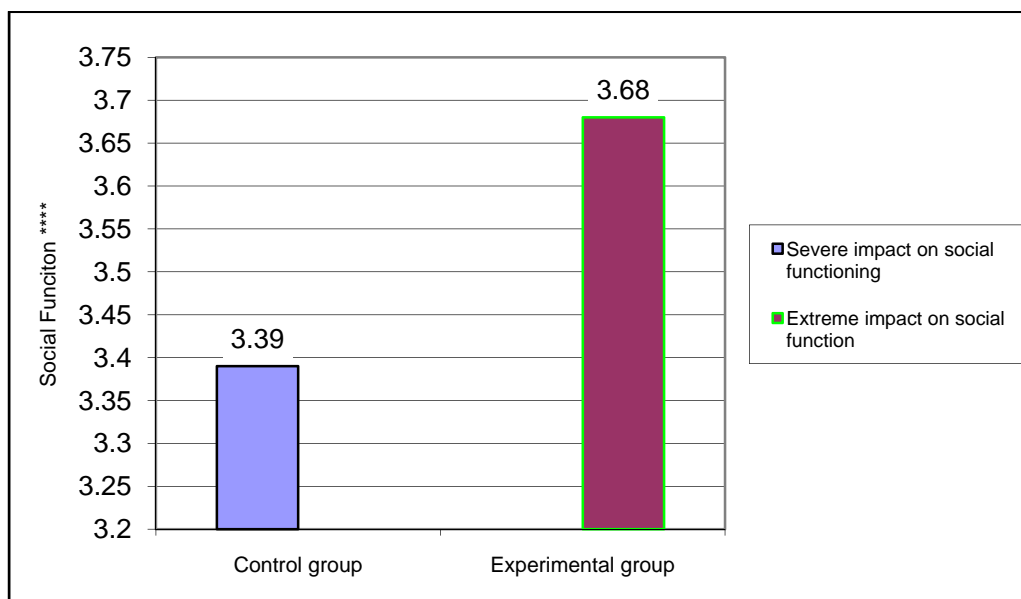
Table 30: CAPS-2: impact on social functioning in 2006-07

Impact on social functioning	Analysis	Group		Total
		Control	Experimental	
None	Frequency	5	1	6
	%	5.15	1.03	6.19
	Row %	83.33	16.67	
	Col %	6.58	4.76	
Mild	Frequency	3	0	3
	%	3.09	0.00	3.09
	Row %	100.00	0.00	
	Col %	3.95	0.00	
Moderate	Frequency	5	1	6
	%	5.15	1.03	6.19
	Row %	83.33	16.67	
	Col %	6.58	4.76	
Severe	Frequency	12	0	12
	%	12.37	0.00	12.37
	Row %	100.00	0.00	
	Col %	15.79	0.00	
Extreme	Frequency	51	19	70
	%	52.58	19.59	72.16
	Row %	72.86	27.14	
	Col %	67.11	90.48	
Total	Frequency	76	21	97
	%	78.35	21.65	100.00

Table 31: CAPS-2: impact on social functioning in 2006-07: chi-square analysis

Statistic	DF	Value	Probability
Chi-square	4	5.5657	0.2340
Likelihood ratio chi-square	4	8.6846	0.0695
Mantel-Haenszel chi-square	1	1.8688	0.1716
Phi coefficient		0.2395	
Contingency coefficient		0.2329	
Cramer's V		0.2395	

Figure 7: CAPS-2: Impact on social functioning in 2006-07



CAPS-2: occupational functioning

This research did not show a significant difference between either of the groups in Fisher's exact test ($p = .7756$) Table 32. Both groups averaged scores in the upper range of moderate impact on occupational functioning (frequency Table 33). The Experimental group participants' mean scores tended to the extreme end of the severe category while the Control group participants' mean score was at the lower end of the severe category.

Other research has concluded that a higher percentage of battlefield combat stress casualties than control population samples reported higher rates of somatic complaints and behaviours potentially detrimental to their health. This, in turn, affects their occupational functioning (Solomon 1988 and Solomon & Mikulincer 1987). Due to the deliberate detailed matching of the Experimental and Control group participants the cited research does not have the same veracity when applied to this study.

Generally, the battlefield combat stress casualties reported poorer health than the control population samples and found occupational functioning difficult (Solomon et al. 1994). The most common and conspicuous long-term consequence of traumatic battlefield exposure is combat stress in soldiers and the possible resulting PTSD. This resulting impact due to its' insidious nature will impact on an individual's occupational functioning in most scenarios. Following an acute reaction, some individuals regained their psychological equilibrium and coped well with their daily lives. Or as was the situation in some of the cases in this study the respective participants gained their equilibriums by moving in occupations that mirrored the military (prison guards, fire-fighters and security organisations). For many veterans, however, a traumatic battlefield stress reaction marks the beginning of long-term chronic distress and puts them at high risk for subsequent stress. This is the situation for most of both Experimental and Control groups. For other veterans, a traumatic battlefield stress reaction was a transient episode of psychological struggle that they were able to deal with. This statement was made by three participants during this study.

Table 32: CAPS-2: impact on occupational functioning in 2006-07: Fisher's exact test

Table probability (P)	0.0239
Pr <= P	0.7756

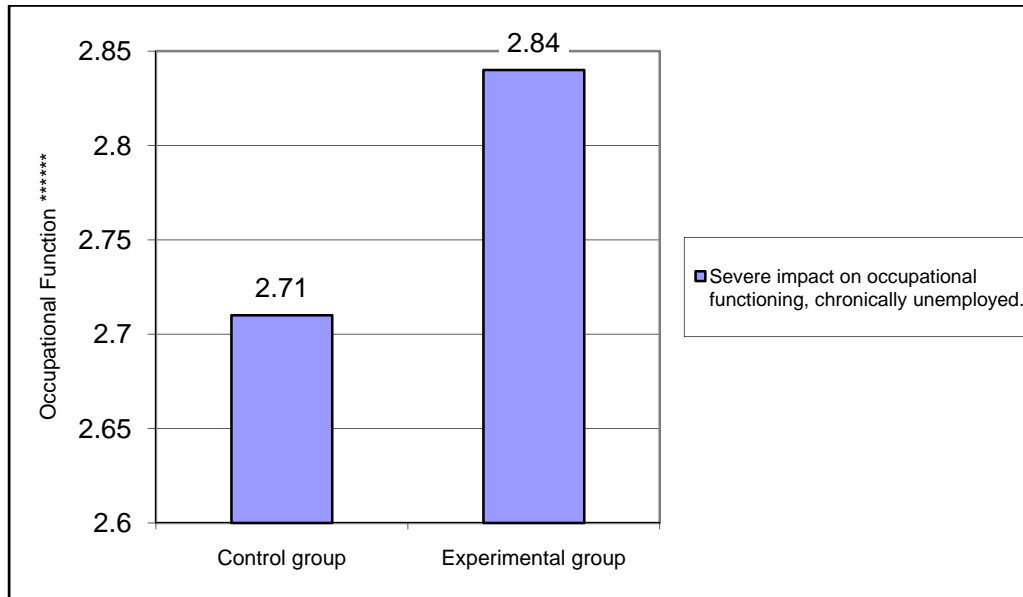
Table 33: CAPS-2: impact on occupational functioning in 2006-07

Impact on Occupational Functioning	Analysis	Group		Total
		Control	Experimental	
None	Frequency	4	0	4
	%	4.12	0.00	4.12
	Row %	100.00	0.00	
	Col %	5.26	0.00	
Mild	Frequency	2	1	3
	%	2.06	1.03	3.09
	Row %	66.67	33.33	
	Col %	2.63	4.76	
Moderate	Frequency	8	1	9
	%	8.25	1.03	9.28
	Row %	88.89	11.11	
	Col %	10.53	4.76	
Severe	Frequency	60	19	79
	%	61.86	19.59	81.44
	Row %	75.95	24.05	
	Col %	78.95	90.48	
Extreme	Frequency	2	0	2
	%	2.06	0.00	2.06
	Row %	100.00	0.00	
	Col %	2.63	0.00	
Total	Frequency	76	21	97
	%	78.35	21.65	100.00

Table 34: CAPS-2: impact on occupational functioning in 2006-07: chi-square analysis

Statistic	DF	Value	Probability
Chi-square	4	2.7571	0.5993
Likelihood ratio chi-square	4	4.0917	0.3937
Mantel-Haenszel chi-square	1	0.6461	0.4215
Phi coefficient		0.1686	
Contingency coefficient		0.1662	
Cramer's V		0.1686	

Figure 8: CAPS-2: Impact on occupational functioning in 2006-07



CAPS-2: global severity

There was no significant difference between the groups for Fisher's exact test ($p = .5792$)

Table 35. The Experimental group had 81 per cent of its participants in the extreme category while the Control group had 60.5 per cent in this category (frequency Table 36).

Table 35: CAPS-2: global severity in 2006–07: Fisher's exact test

Table probability (P)	0.0048
Pr <= P	0.5792

Table 36: CAPS-2: global severity in 2006–07

Global severity	Analysis	Group		Total
		Control	Experimental	
None	Frequency	4	1	5
	%	4.12	1.03	5.15
	Row %	80.00	20.00	
	Col %	5.26	4.76	
Mild	Frequency	5	0	5
	%	5.15	0.00	5.15
	Row %	100.00	0.00	
	Col %	6.58	0.00	
Moderate	Frequency	6	1	7
	%	6.19	1.03	7.22
	Row %	85.71	14.29	
	Col %	7.89	4.76	
Severe	Frequency	15	2	17
	%	15.46	2.06	17.53
	Row %	88.24	11.76	
	Col %	19.74	9.52	
Extreme	Frequency	46	17	63
	%	47.42	17.53	64.95
	Row %	73.02	26.98	
	Col %	60.53	80.95	
Total	Frequency	76	21	97
	%	78.35	21.65	100.00

Table 37: CAPS-2: global severity in 2006–07: chi-square analysis

Statistic	DF	Value	Probability
Chi-square	4	3.6496	0.4555
Likelihood ratio chi-square	4	4.8210	0.3062
Mantel-Haenszel chi-square	1	1.8446	0.1744
Phi coefficient		0.1940	
Contingency coefficient		0.1904	
Cramer's V		0.1940	

PTSD is a disorder that has been shown to persist over long periods of time with different degrees of severity. In some cases, symptoms develop immediately following the trauma and last for only a month or so. This is acute PTSD. Other individuals may experience a

delayed onset of symptoms that occur anytime from a few months to several years after the traumatic exposure.

Research has identified five variations of the severity and longitudinal course of PTSD; namely: acute, delayed, chronic, intermittent or recurrent (Blank 1993). The type of course that is apparent in the individual is influenced by a multitude of factors. Co-morbidity issues also need to be considered. It is common for victims of trauma exposure to also develop other disorders such as depression and anxiety. These can influence the course of PTSD by causing new symptoms to develop or the reactivation of prior distress and hyper-arousal (McFarlane 1997; Kessler et al. 1995 and Kulka et al. 1990).

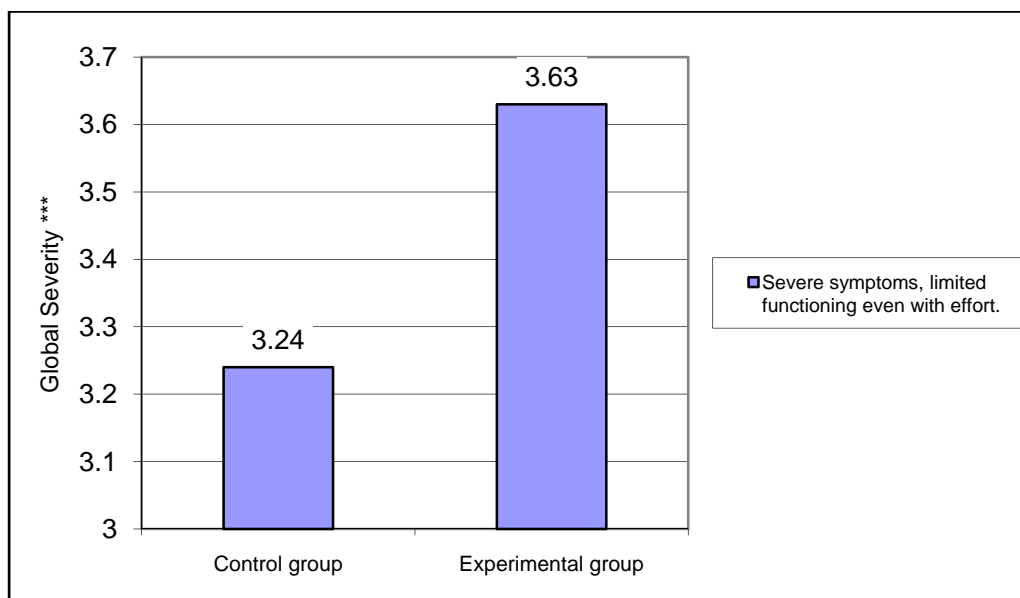
The course of PTSD is highly variable. Data obtained from prospective research tends to be significantly different from retrospective studies. In the retrospective studies, the recollection is of a steady progression. In reality, for a significant number of these patients, the intensity of their symptoms fluctuates.

It is difficult to predict the severity or course of individuals' disorders on the basis of the current information. It is clear there is a range of outcomes. However, there is a paucity of research and the answer to these questions will only come from using multiple points of examination of trauma-exposed research participants. The impact of treatment is also a factor that disrupts the capacity of any characteristics to predict the severity of the disorder. The majority of patients—if required to recall their symptoms—will give a history of a prolonged and continuous disorder of increasing severity. When the disorder

becomes severe enough, they seek treatment and an overall PTSD severity is established. The evidence from longitudinal data on symptom sets is that a fluctuating course is more common (Solomon 1989 and McFarlane 1988). This indicates there is a major problem for veterans seeking Department of Veterans' Affairs compensation for traumatic battlefield exposure. This is because personal recollections are not always reliable. In this study the initial battlefield diagnosis provided the bedrock for the analysis. Yet as is the situation with the normal regime for determining the diagnoses about the onset and progression of symptoms—on which medical opinions for remuneration are based—are made solely on the basis of veterans' recollections of historical battlefield information and if some documented evidence can be found. A causal link has to be established to warrant remuneration.

In relation to their experiences and the impact of PTSD, both groups averaged scores in the severe symptoms range in the global severity. This resulted in an observation that most participants with severe PTSD have only limited functional ability even with effort (Figure 9).

Figure 9: CAPS-2: global severity in 2006–07



CAPS-2: global improvement

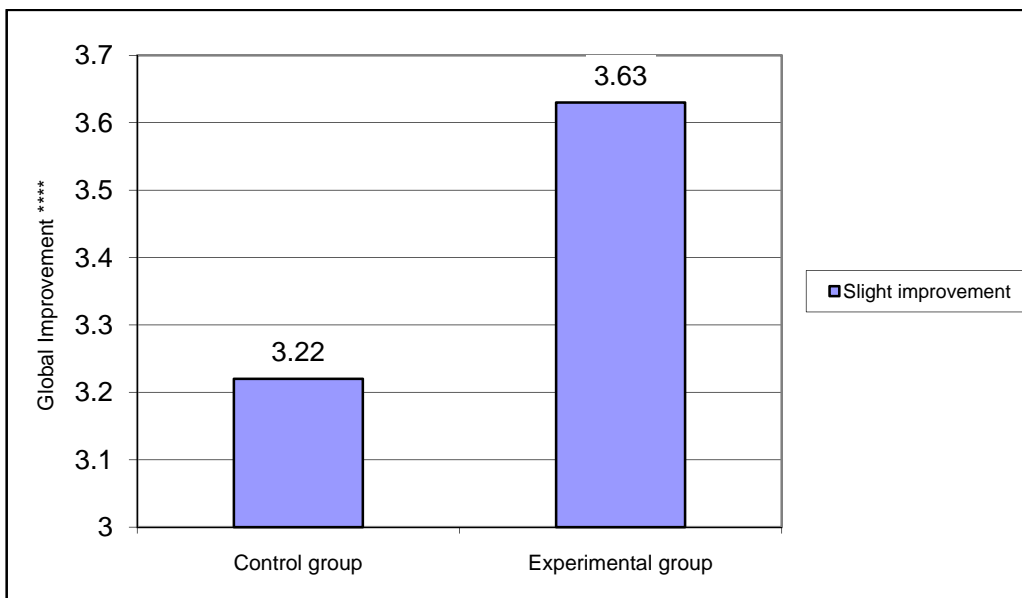
There was a significant difference identified in this research between the groups for this portion of the collected data—Fisher's exact test result was $p = .00015$ (Table 38).

Table 38: CAPS-2: global improvement in 2006–07: Fisher's exact test

Pr <= P	.00015
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Both groups averaged scores in the slight symptoms range. Consequently, the Experimental group participants' scores congregated in the no improvement over the period from 1969–70 to 2006–07 response area of the instrument. While the Control group presented results in the range of slight to moderate improvement (Figure 10).

Figure 10: CAPS-2: global improvement in 2006–07



The Control group participants' majority of responses were severe category or below at 51 per cent of the total responding group. They are significantly different to virtually all of the responding Experimental group participants, where 86 per cent registered in the extreme (no improvement) category of the CAPS-2 global improvement rating of a veteran's prognosis (frequency Table 39). This reflects past suffering and is an indication of the future for these 1969–70 Vietnam War veterans.

Table 39: CAPS-2: global improvement in 2006–07

Global improvement	Analysis	Group		Total
		Control	Experimental	
None	Frequency	1	1	2
	%	1.03	1.03	2.06
	Row %	50.00	50.00	
	Col %	1.32	4.76	
Mild	Frequency	2	0	2
	%	2.06	0.00	2.06
	Row %	100.00	0.00	
	Col %	2.63	0.00	
Moderate	Frequency	5	1	6
	%	5.15	1.03	6.19
	Row %	83.33	16.67	
	Col %	6.58	4.76	
Severe	Frequency	39	1	40
	%	40.21	1.03	41.24
	Row %	97.50	2.50	
	Col %	51.32	4.76	
Extreme	Frequency	29	18	47
	%	29.90	18.56	48.45
	Row %	61.70	38.30	
	Col %	38.16	85.71	
Total	Frequency	76	21	97
	%	78.35	21.65	100.00

Table 40: CAPS-2: global improvement in 2006–07: chi-square analysis

Statistic	DF	Value	Probability
Chi-square	4	17.9154	0.0013
Likelihood ratio chi-square	4	21.2633	0.0003
Mantel-Haenszel chi-square	1	4.4861	0.0342
Phi coefficient		0.4298	
Contingency coefficient		0.3948	
Cramer's V		0.4298	

Recognising the early indicators of the onset of PTSD is important because intervention or early treatment may prevent the long-term, significant psychosocial impairments mentioned earlier—alcoholism, divorce, suicide, violence, difficulty in holding

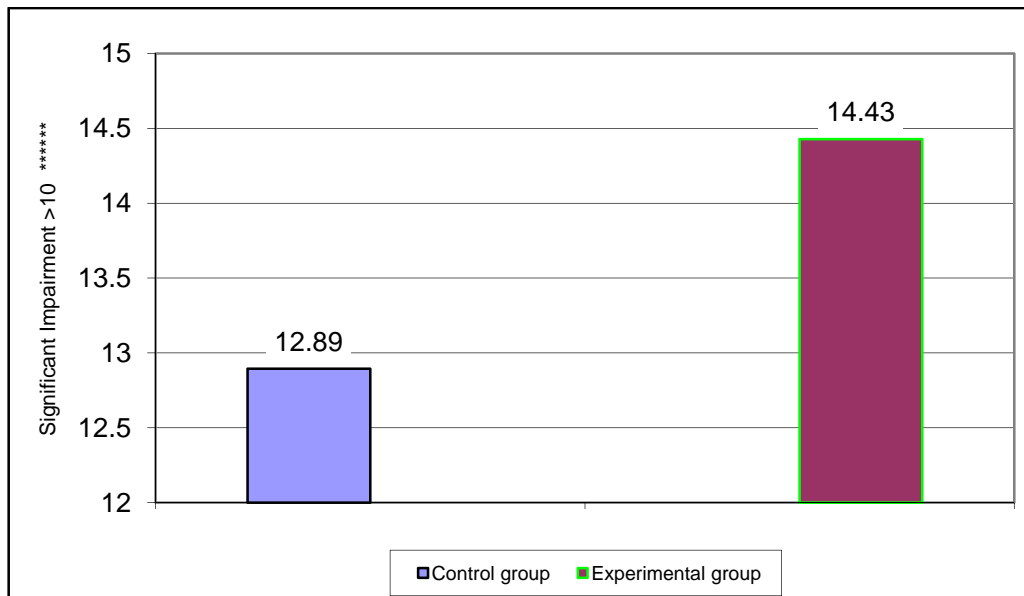
employment (Kessler & Frank 1997). Misdiagnosis or no diagnosis can also expose sufferers to improper treatments and consequently interfere with their improvement.

PTSD is often confused with other anxiety disorders, alcoholism and various depressive reactions. It may co-exist with any of the above, or with other psychiatric disorders, and often it is easier to treat the other psychological manifestations rather than inquire more extensively (Kalman et al. 2004). In the past, medical practitioners have been insensitive, and given scant attention, to the condition of PTSD. They were usually only aware of it when presented with its acute form of ASD. This usually happened during wartime when veterans presented with severe manifestations or when civilians presented with ASD and/or PTSD symptom clusters following major catastrophes. The problem also stems from the nature of the psychopathology. Most military sufferers often intend to, and successfully, avoid all inquiries concerning their exposure to traumatic battlefield experiences. They seldom spontaneously offer information. When questioned, they often evade with generalities or denial. Both conscious and unconscious mental processes are at work during this evasion process. There are several reasons for this evasive behaviour. They include: fear of shaming by military superiors, peers or examiners and others; and the desire to suppress reports which arouse strong emotional responses. Former soldiers often want to avoid any display of behaviour that might impugn their masculinity. Thereby place them in a position where their improvement is impeded or stunted. This situation was encountered often when interviewing the study participants. Confirming with them often that their identities would be guarded had a profoundly positive effect on the rate and quality of their responses.

CAPS-2: significant impairment total

As state previously in this research, the administered questionnaire was linked to a guarantee of anonymity. This provided data, which indicated that the majority of participants in both the Control and Experimental groups had experienced (savage) traumatic events in the battlefields of Vietnam during wartime deployment in 1969–70. A substantial impairment for social and/or occupational functioning in a participant was warranted if the rating was greater than 10 with regard to the results of the administration of this segment of the research instrument. Both groups reflected considerable impairment with the Control group registering a mean score of 13 and the Experimental group registering a mean score of 14 (Figure 11).

Figure 11: CAPS-2: significant impairment in 2006–07



CAPS-2 Conclusion

Military and civilian psychiatrists today routinely ask their patients if they had experienced a violent event in which they perceived that their life was threatened. This question was not often asked of veterans in Australia on their return from the Vietnam War — even in hospitals that dealt with Veterans specifically. Rather veterans were confronted with protests, a community that shunned them and a Korea and World War II veteran population that did not often recognise Vietnam Veterans as war veterans. Vietnam was regarded by many during that time as a police action. When it is asked of Veterans today, an affirmative response immediately alerts the questioner to the possible presence of the early onset of the constant symptoms of PTSD. Which if untreated will produce long term significant impairment in the sufferer. Then questions asked about sleep, dreaming and nightmares, as well as dream content, will usually and quickly uncover the constant frightening repetition of the traumatic event/s. Questions about the content of daydreams generally uncover the intrusive rethinking of the terror-ridden experience. This is often associated with startling fantasies, flashbacks of the experiences and suicidal plans—even if these are only fantasised about, they are important. These developed PTSD pathways become more evident the more analysis is done. The astute examiner will detect the various attempts at restitution of personality function in the use of whatever personality assets or defences the victim employs and has available to him or her to deal with this type of recollection and mourning without resorting to substance abuse (Smaldino 1991). Often by the time the sufferer is identified it is too late.

The frequency and severity of combat exposure experience variation between the Control and Experimental groups in 2006–07

The combat exposure measure for the present research is the combat index developed by Wilson and Krauss (1985) using items from the Vietnam experience portion of the National Vietnam Veteran's Readjustment Study interview protocol. The 21 items measure veterans' exposure to a variety of war-related events and circumstances. These were designated as more 'objective' incidents reflecting a traditional or stereotypical perspective on traumatic battlefield exposure experiences. The questions were selected from statements and confirmed as being the most representative of traditional combat stressors related to PTSD assessment and treatment programs. The questions derived include:

- How often did you make contact with the enemy?
- How often were you in a contact?
- How often did you fire your weapon at the enemy?
- In your opinion, how often were you in danger of being killed or wounded in Vietnam? (Wilson & Krauss 1985).

Differences in the number of response options among the items required conversion to a common overall score that was averaged and subsequently totaled. The overall total score was then calculated as the sum across all 21 item scores. Higher values are indicative of exposure to more intense severe combat. The scale has a demonstrated strong relationship with PTSD.

The combat index was used to measure the frequency and severity of combat exposure experiences in the Experimental and Control group participants (in 1969–70). These participants had responded to a research request in 2006–07.

The analysis of participants' scored responses concluded that there was a significant difference between the Experimental and Control groups where $t, 95 \text{ df} = -2.49, p = .0144$ (t-test Table 41).

Table 41: Wilson and Krauss' combat index: the t-test procedure: measures the severity of combat exposure experiences in the Experimental and Control group participants responses in 2006–07

Variable	Method	Variances	DF	t- Value	Pr > t
Combat exposure	Pooled	Equal	95	-2.49	0.0144
Combat Exposure	Satterthwaite	Unequal	44	-3.01	0.0044

Experimental group participants also had overall a significantly higher mean score (46.619) than the Control group participants (35.679) Table 42.

Table 42: Wilson and Krauss' combat index: the t-test procedure: measures the severity of combat exposure experiences in the Experimental and Control group participants responses in 2006–07

Variable	Group	N	Lower CL mean	Mean	Upper C L mean	Lower C L Std dev	Std dev	Upper C L Std dev	Std Er r	Min	Max
Combat exposure	Control	76	31.412	35.697	39.982	16.172	18.752	22.319	2.151	0	71
Combat exposure	Experimental	21	40.511	46.619	52.727	10.266	13.418	19.377	2.9281	7	69
Combat exposure	Diff (1-2)		-19.62	-10.92	-2.228	15.556	17.762	20.704	4.379		

The Experimental group participants reported they were often exposed to combat during their 12-month deployment, while the Control group reported being exposed to combat only occasionally (Table 43 & Figures 12 and 13). Historical and current research has consistently established that the severity of war-related PTSD symptoms is positively associated with the intensity of exposure to traumatic battlefield stress. Combat exposure is the unique form of stress most commonly studied and understandably so (King et al. 1999 and Green et al. 1990a & b). However, traumatic battlefield stress can be defined as a combination of both objective and subjective interpretive factors.

Figure 12: Wilson and Krauss’ combat index: measures the severity of combat exposure experiences from the Group responses in 2006–07

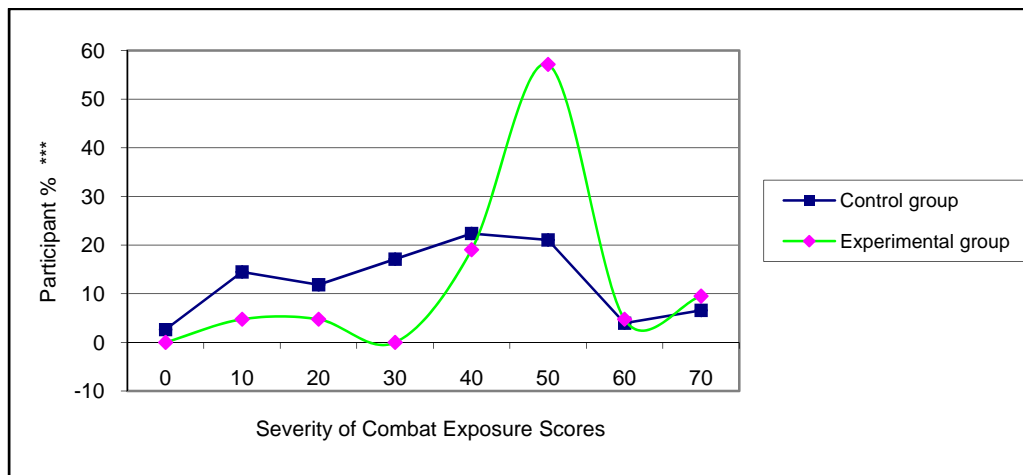
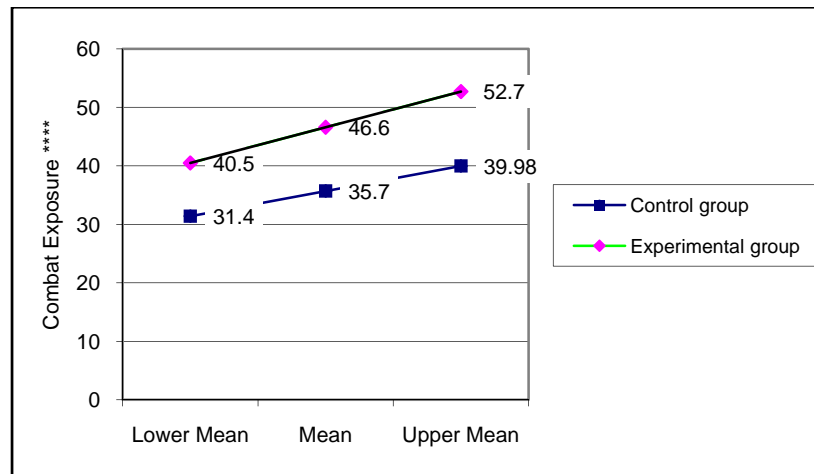


Table 43: Wilson and Krauss’ combat index: equality of variances: measures the severity of combat exposure experiences in the Experimental and Control group participants responses in 2006–07

Variable	Method	Num D F	Den DF	F Value	Pr > F
Combat Exposure	Folded F	75	20	1.95	0.0934

Figure 13: Wilson and Krauss' combat index: mean score range: measures the severity of combat exposure experiences from the Group responses in 2006–07



Objective factors include direct traumatic battlefield combat experience and exposure to, or participation in, battlefield atrocities. Subjective factors, however, include perceived threats such as listening to mortars, feeling rifle and machine gun fire on the outside of your bunker and deprivation in the battlefield. This can be, for example, the lack of a sense of safety, good food, being able to go to the toilet when you want to and being able to do as you wish without the ongoing threat of harm purely because of the proximity of the battlefield.

Each of these types of battlefield stress differentially affects PTSD symptom clusters (King et al. 1995). Factors occurring before and after the war also affect traumatic battlefield stress and PTSD symptom clusters. These factors, as mentioned previously, can include:

- demographic variable such as age
- service and responsibility factors such as rank

- duration in the battlefield
- employment in the battlefield
- the presence of other mental illnesses and substance dependence (Brewin et al. 2000; Wolfe et al. 1999; Frueh et al. 1998; King et al. 1996; Davidson et al. 1991 and Green et al. 1990a).

The age of males when they enter the military service is also significant. Those who are younger when they enter and are deployed to a tactical area of operational responsibility intrinsically experience more frequent and more intense levels of traumatic battlefield combat than those who are older at entry (King et al. 1996). The older soldiers may be hardier (King et al. 1998 and Kobasa 1979). This might also be due to the respective job and corps employment categories. Younger recruits tend to be deployed to the infantry, while older recruits are deployed to logistics jobs. Yet in Vietnam the combat corps (infantry, armour and artillery) were often deployed side by side combat support corps (catering, transport and medical) personnel in fire support bases (FSB).

Recent research indicates that—after adjusting for the effects of exposure to combat and witnessing atrocities—most of the individual participants suffering from PTSD would not meet the criteria for a PTSD diagnosis (Sareen et al. 2007b). Therefore, there is a direct correlation between the onset of PTSD in the research participants and the severity of the exposure to battlefield combat exposure or witnessing battlefield atrocities. Also those individuals who have already presented symptoms of anxiety, stress, depression or a general sense of doom (as is the case with 19 of the 21 Experimental group

participants) often report after exposure to combat higher rates of intensity of the respective experience/s than those that are not suffering from those types of psychological inflictions (Wolfe et al. 1999 and Southwick et al. 1995). This may account for the significant difference between the two groups.

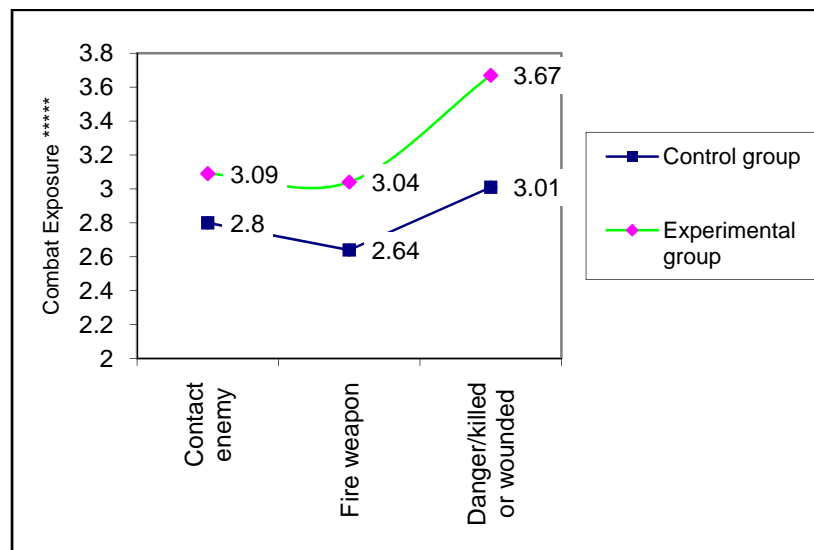
Also, Harvey and Bryant (2000) have examined the retrospective recall of symptoms. They found that individuals with high levels of symptoms tend to over-report early distress. In contrast, individuals whose symptoms tend to be less severe report fewer early symptoms than they experienced. Such findings suggest that the accuracy of memory of symptoms is less accurate than is often presumed in legal and clinical settings.

The evidence suggests that retrospective recall of symptoms can lead to both exaggeration and diminution of severity. A retrospective study of Gulf War veterans examined rates of PTSD in a sample of 2949 army personnel (Wolfe et al. 1999). It found that PTSD doubled in the two years after combat. This provided support for the concept of delayed onset PTSD and for the claim that symptom severity increases over time. This is why this research is rare. In this situation the higher mean scores reported by the Experimental group indicates that due to established psychological disruptions during their respective deployment to Vietnam in 1969-70 their recall of the traumatic event/s may be more acute than that of veterans that did not present with these disruptions to self during this timeframe.

Combat exposure experience key question variation between the Control and Experimental groups in 2006–07

The rationale for this segment of the study was to determine if there was a statistical significance in the groups' responses to these three key questions contained in the Wilson and Krauss combat index. The following questions were taken from the data to compare responses from ongoing research participants in the Experimental and control groups (Figure 14).

Figure 14: Wilson and Krauss' combat index: three key questions: measures the severity of combat exposure experiences from the Group responses in 2006–07



- How often did you make contact with the enemy?
- How often did you fire your weapon at the enemy?
- In your opinion, how often were you in danger of being killed or wounded in Vietnam?

Fisher's exact test results for the questions indicated there were no significant differences between the groups. The results were:

- frequency of contact with the enemy, $p = .44$
- frequency of firing of the individual's weapon, $p = .42$
- the individual rating his sense of frequency of danger, $p = .28$.

Even though there was not a significant difference between the respective group scores it should be noted that the Experimental group participants did register in all three areas more frequent and sever contact with the enemy, firing their weapon and their sense of danger. Given their known psychological history it could be concluded that the experiences were more intense due to their alert psychological states at the time of administration of the instrument. Also research supports the significance of the combat events in a participants recall to be emphasised and are more highly reported in PTSD sufferers as reported in a two year follow up study in Gulf War 1 veterans (Southwick et al. 1995) and other work by Wolfe et al. 1999 as previously cited.

PTSD checklist-military version (PCL-M)

This part of the research investigated the PTSD symptom clusters. Participants were assessed using the military version of the PTSD Checklist (PCL-M) (Blanchard et al. 1996b and Weathers et al. 1993). The checklist measures the concentration/severity of PTSD symptom clusters utilising the 17 indicators that correspond with the PTSD symptoms specified in DSM-III-R (American Psychiatric Association 1987). To register

as suffering from PTSD the diagnostic mediation score of 50 has to be obtained. The higher the recorded score from the administration of the instrument, the more severe the PTSD suffered by the participant.

There are three main subcategories or symptom clusters: intrusion, avoidance and arousal in the PCL-M. An overall classification of PTSD or Not PTSD is determined by the score. On average, the Experimental and Control group participants' scores were higher than 50. That is, the majority could be diagnosed as suffering from PTSD with just the administration of this instrument.

The total of PCL-M variation between the Control and Experimental groups in 2006–07

All participants completed the PCL-M total category analyses (Figure 15). The author concluded—by using the two-tailed Wilcoxon two-sample test—that there was not a significant difference between the Experimental and Control group research participants where $z = 1.8512$, $p = .0641$ (Table 44).

Figure 15: PCL-M analysis of the totals: Group responses in 2006–07

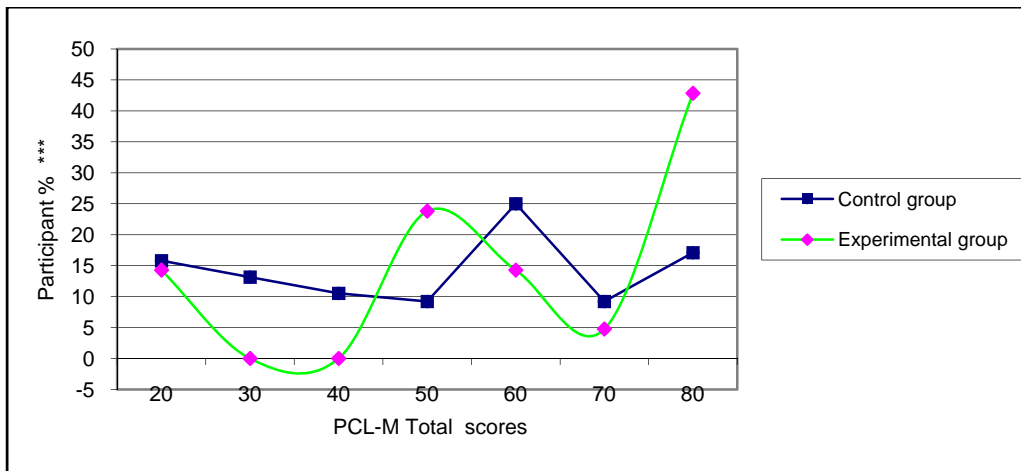


Table 44: PCL (M) Wilcoxon two-sample test for the totals: difference between the groups in 2006–07

Statistic	1240.5000
Normal Approximation	
Z	1.8512
One-Sided Pr > Z	0.0321
Two-Sided Pr > Z 	0.0641
t Approximation	
One-Sided Pr > Z	0.0336
Two-Sided Pr > Z 	0.0672
Z includes a continuity correction of 0.5.	

The analysis between the two groups indicated that the Experimental group had higher registered scores in the 75th Pctl. While the Control had lower registered scores in the 25th Pctl. Four of the 21 Experimental group did not register 50 or above. In the Control group 29 of the 76 did not register 50 or above during the administration of this instrument (Table 45). The Experimental group participants tended to have higher scores than the Control group participants. The Experimental group's mean and median were 59 and 63, respectively, while the Control groups' were 50 and 56.5, respectively (Table 45).

Table 45: PCL-M analysis of the totals: difference between the groups in 2006–07

Group	N Obs	Mean	Std dev	Median	25th Pctl	75th Pctl
Control	76	50.3289474	19.8832513	56.50r	33.50r	68.00r
Experimental	21	58.9047619	19.7203062	63.00r	51.00r	75.00r

Intrusion: variation between the Control and Experimental groups in 2006–07

All participants completed the intrusion analyses subcategory in the PCL-M (Figure 16).

The author then concluded the analysis by utilising the two-tailed Wilcoxon two-sample test to ascertain that there was a significant difference between the Experimental and Control research participants— $z = 1.6483$, $p = .0993$ (Table 46).

Figure 16: Analysis of variable intrusion: Group responses in 2006–07

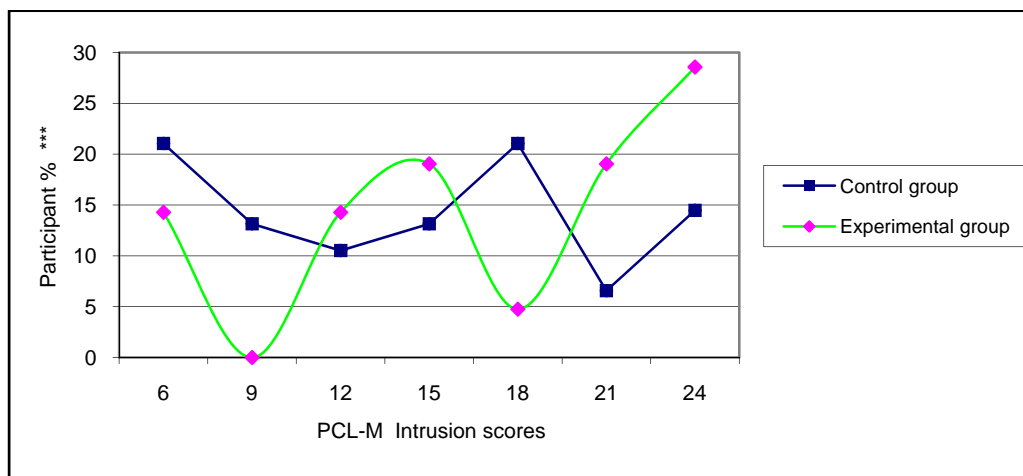


Table 46: PCL (M) Wilcoxon two-sample test for intrusion variation in 2006-07

Statistic	1217.0000
Normal Approximation	
Z	1.6483
One-Sided Pr > Z	0.0497
Two-Sided Pr > Z 	0.0993
t Approximation	
One-Sided Pr > Z	0.0513
Two-Sided Pr > Z 	0.1026
Z includes a continuity correction of 0.5.	

The intensity of intrusions immediately following exposure is probably not a good measure of their psychopathological significance. It is unclear when traumatic memories develop the typically fixed and irreconcilable quality with the associated sense of re-traumatisation that is often experienced in PTSD. The inflexible quality of these traumatic memories represents a failure to resolve the issue of meaning (van der Kolk 1996). At this stage, these intrusive phenomena lack specificity and sensitivity as indicators of PTSD because they are experienced by many individuals who do not develop any disorder. The quality and the nature of the recollections that differentiate those whose distress escalates have not been elucidated to date. In some individuals there is an active process of creating other associations and meanings in the aftermath of the traumatic exposure. That enables the individual to live with the fear or horror that confronted him or her during the event. These uncertainties about the nature of the acute traumatic memories create difficulties in using these phenomena as predictors of PTSD. Further, the literature that exists about this subject has focused more specifically on PTSD than on other disorders.

Avoidance: variation between the Control and Experimental groups in 2006–07

All participants completed the avoidance analyses subcategory in the PCL-M (Figure 17) and the author concluded—by using the two-tailed Wilcoxon two-sample test — that there was a significant difference between the Experimental and Control research participants where $z = 1.9496$, $p = .0512$ (Table 47).

Figure 17: PCL-M analysis of the avoidance variable: Group responses in 2006–07

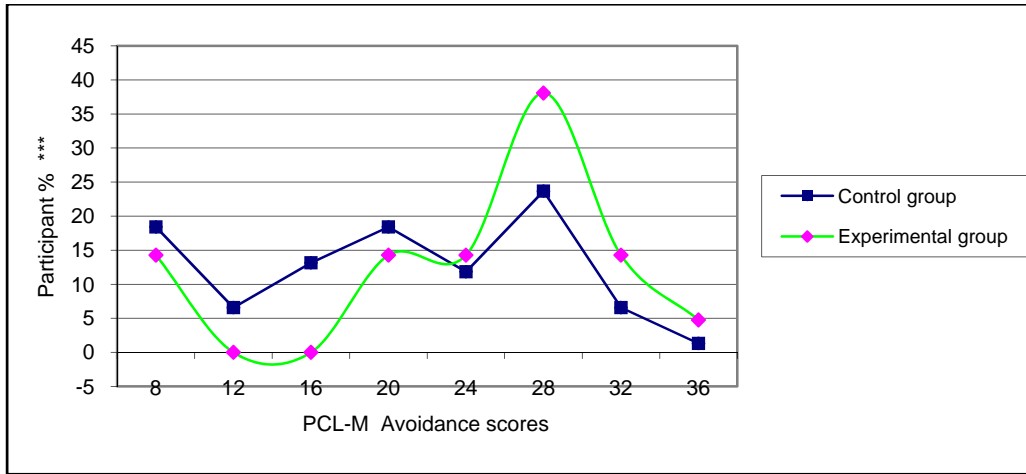


Table 47: PCL (M) Wilcoxon two-sample test for the avoidance variable in 2006–07

Statistic	1251.5000
Normal approximation	
Z	1.9496
One-sided Pr > Z	0.0256
Two-sided Pr > Z 	0.0512
t approximation	
One-sided Pr > Z	0.0271
Two-sided Pr > Z 	0.0541
Z includes a continuity correction of 0.5.	

A corollary of the significance of avoidance behaviour demonstrated by these particular research participants is the process that leads to the onset of the avoidance phenomenon. One view is that avoidance is a defence that modulates the emotions associated with intense traumatic cognitions. Thus, it is an integral part of the immediate trauma response (Janet 1889; Lindemann 1944 and Horowitz 1986b). Shalev (1992) suggested that avoidance only emerges after the individual is unable to work through these phenomena. These findings are supported, in part, by the work of Solomon (1993a and b) and

McFarlane (1992). They have suggested that intrusions are common to many who have experienced traumatic events and are not specific to PTSD. Their research also suggests that avoidance is a phenomenon that emerges during the months after the trauma. They claim that it is characteristic of having developed the disorder, rather than of having been exposed to a potentially traumatic stressor. This observation emphasises the difference in significance of these phenomena at different times.

Again there have not been enough longitudinal studies of these phenomena for them to be sufficiently sensitive and specific for screening purposes. The nature of these reactions may also vary according to the type of event. Thus, symptoms that might be predictive in a group of motor accident victims may have little relevance in a group of combat soldiers. Soldiers can be subjected to multiple traumatic exposures. When this happens, they must adapt to the continuing threat to their survival. They do this by modifying their reactions to the threat and by using a series of highly skilled attack and defence behaviours.

Arousal: variation between the Control and Experimental groups in 2006–07

All participants completed the arousal analysis subcategory in the PCL-M (Figure 18) and the author concluded—by using the two-tailed Wilcoxon two-sample test—that there was not a significant difference between the Experimental and Control research participants where $z = 1.459$, $p = .1445$ (Table 48).

Figure 18: PCL-M analysis of the arousal variable: Group responses in 2006–07

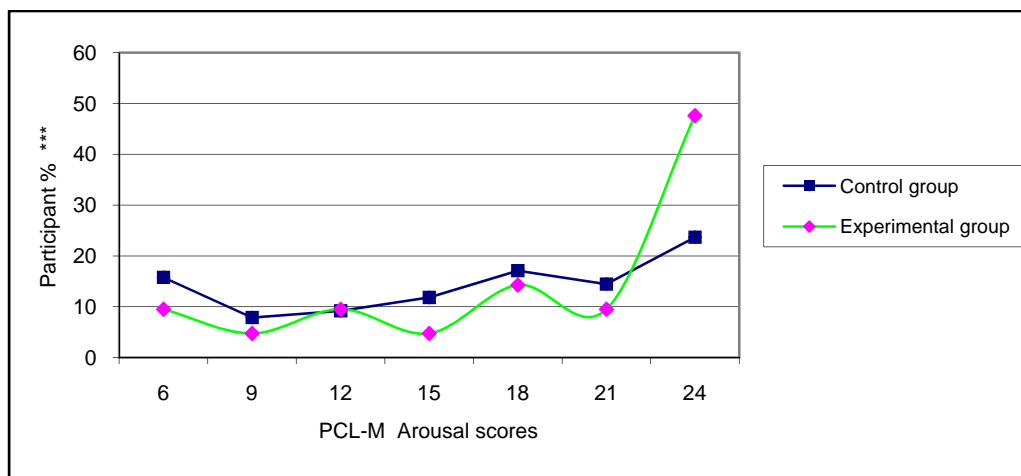


Table 48: PCL (M) Wilcoxon two-sample test analysis of the arousal variable in 2006–07

Statistic	1195.5000
Normal approximation	
Z	1.4593
One-sided Pr > Z	0.0722
Two-sided Pr > Z 	0.1445
t approximation	
One-sided Pr > Z	0.0739
Two-sided Pr > Z 	0.1477
Z includes a continuity correction of 0.5.	

An observation that came out of this study with regard to the arousal responses in participants who had experienced battlefield trauma exposure was that most said that what was most destructive about the traumatic event was that it confirmed a long-held, feared belief rather than presenting them with a novel incongruity (Janoff-Bulman 1992). Even with the knowledge that they were going to confront an enemy on the battlefield this did not modify or alter their respective arousal rates. The participants especially the

majority of the Experimental group could not ratify the exposure/s with either their training or their psychological, pragmatic knowledge bases. Exposure to a traumatic event can trigger an acute, traumatic reaction; the normalisation of an individual's arousal is a critical process in the long-term adaptation to an exposure. A range of biological and psychological factors influences the modulation of acute arousal. In the initial days after a traumatic event, distressing and intrusive recollections of it are universal and indicate an ongoing process of a normal reappraisal of the experience. In this process various representations of the trauma are constructed and an attempt is made to integrate these with existing psychological schemata. Paradoxically, the transformation of the memory allows the individual to mitigate the traumatic experience. This replaying of memories can also enable the development of unusual constructs, which are not part of the individual's inner world at the time of the traumatic experience. There are two phenomena that differentiate the victims of traumatic experience who develop PTSD. First is the recurring, disturbed memories or 'parasites of the mind' (Charcot 1887). Second is the emergence of an enduring and exaggerated startle response (Kolb 1991), hyper-vigilance, increased irritability, sleep disturbance and concentration (McFarlane 1992 and Weisaeth 1989c). What happens to a traumatised individual in the immediate aftermath of an event is critical. Often, the reality of many aspects of a trauma only becomes apparent after a few days. For example, the significance of physical injuries may take some time to become apparent. Similarly, the extent of both the destruction of property and the number of deaths may only become clear at the end of extensive rescue and containment efforts. The ultimate meaning of the experience will be constructed from its impact on a variety of domains. These perceptions are influenced by previous life

experiences, habitual coping skills and general arousal ability (Freedy et al. 1992). The ability to mobilise appropriate relationships and support is another critical issue at this stage of the process of adaptation. For the study participants the exposure to the battlefield was ever present during their time in Vietnam and many now it is still present.

Conclusion: PTSD checklist – military version (PCL-M)

The progression from a state of distress to more severe symptoms is influenced by the severity of the distress. Flashbacks, the exposure to triggers that recall the distress (Pynoos et al. 1997) and other adversities that befall the individual also influence the progression, if any, to more severe symptoms and the possible development of PTSD and other disorders. These lead to the progressive sensitisation of the individual's reactivity. There appears to be an initial period of cognitive appraisal of the traumatic experience and the associated self-regulation. During that time, the traumatised individual processes and re-works the experience, elicits social support and tries to integrate the horror of the experience and the losses suffered. The relationship between intrusive cognition and arousal is less apparent in the immediate aftermath of the trauma (Shalev 1992), and avoidance symptoms only emerge over time (Hopper et al. 2007). Over several weeks, symptoms begin to manifest and become more entrenched. Finally, a great deal of attention has been paid to the role of memory in PTSD. Researchers have observed that the intrusive phenomena are relatively non-specific and that they become less dominant in the phenomenology of the disorder with the passage of time. This suggests that the emphasis on the role of memory should not exclude consideration of the other dimensions of the disorder. When someone who has been exposed to a traumatic event develops a

chronic disorder, their selective attention and working memory are disturbed. It is possible that in a chronic disorder intrusive memories are a secondary consequence. McFarlane et al. (1993) support the view that memory is solely a primary imprinting of traumatic experience memories. This suggests understanding these counter-intuitive relationships is one of the challenges of understanding the complexity of the evolution of PTSD and its chronicity. Also the accuracy of memories is often disputed (Morgan et al. 2004).

Quality of Marriage and similar dyad variation between the Control and Experimental groups in 2006–07

The Spanier Dyadic Adjustment Scale was used to assess the quality of marriage and similar dyads in the Experimental and Control group participants (from 1969–70) who responded to the research request in 2006–07. The higher the score registered by a participant, the higher the quality of the dyads they are, or have been, involved in. The mean and median for the Control group were 55.5 and 63, respectively (shown in Figures 19 and 20).

Figure 19: Spanier Dyadic Adjustment Scale—2006–07, assessing the quality of marriage and similar dyads (the higher the score, the higher the quality of the dyads)

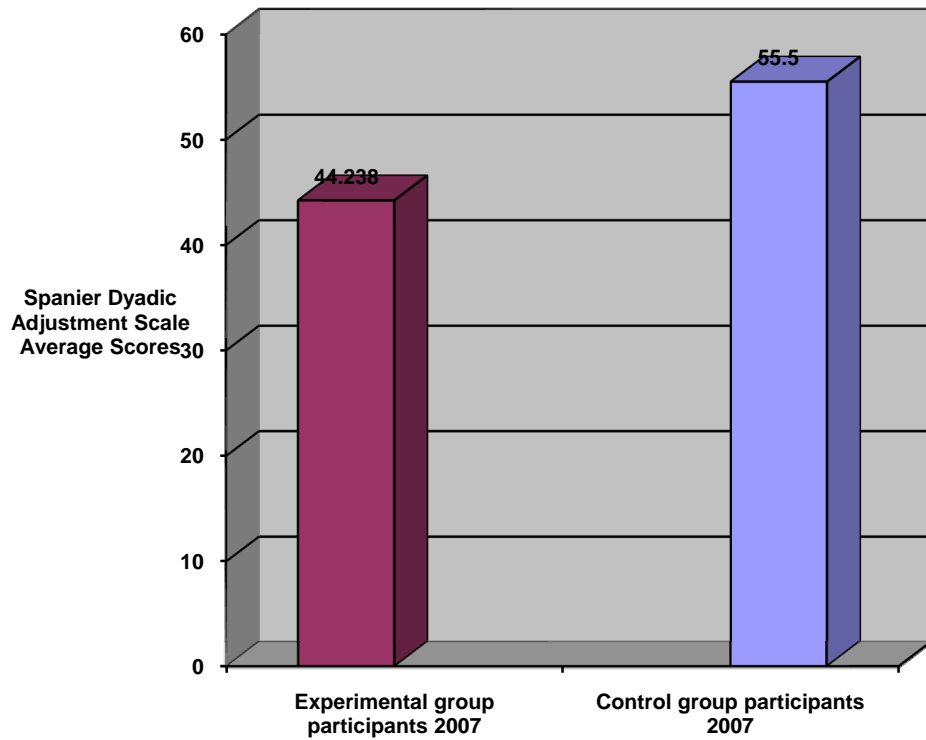
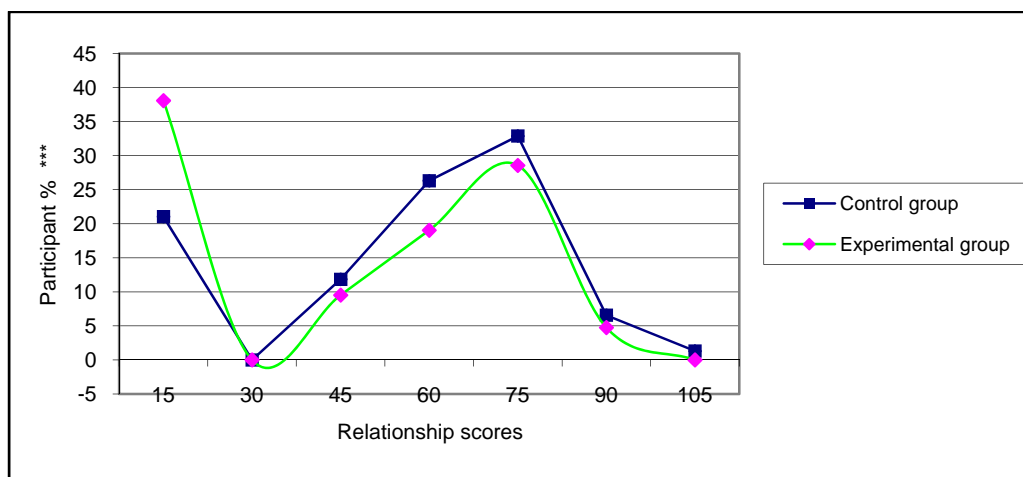


Figure 20: The Spanier Dyadic Adjustment Scale, measuring the health of relationships in 2006–07



The analysis by group, of all participants, confirmed that the distributions were not normal, so the Wilcoxon two-sample test was used. The test confirmed there was not significant difference between the Experimental and Control research participants where— $z = -1.496$ and $p = .1347$ (shown in Table 49).

Table 49: Wilcoxon two-sample test for variable Spanier Dyadic Adjustment Scale in 2006–07

Statistic	859.0000
Normal approximation	
Z	-1.4957
One-sided Pr < Z	0.0674
Two-sided Pr > Z	0.1347
t approximation	
One-sided Pr < Z	0.0690
Two-sided Pr > Z	0.1380
Z includes a continuity correction of 0.5.	

However, Experimental group participants showed lower scores overall than the Control group. The Experimental group’s mean and median were 44 and 55, respectively. This moderate correlation identifies that the overall status of relationships is poor for both groups (Table 50).

Table 50: Wilcoxon scores (rank sums) for variable Spanier Dyadic Adjustment Scale, classified by variable group

Group	N	Sum of scores	Expected under H0	Std dev under H0	Mean score
Control	76	3894.0	3724.0	113.328402	51.236842
Experimental	21	859.0	1029.0	113.328402	40.904762

Veterans’ perceived relationship support network or the health of their personal dyads has long been acknowledged as an important influence on their physical and mental

wellbeing (Cohen & Matthews, 1987; Sarason and Sarason 1985; Cohen & Wills 1985; and Cobb 1976). Research supports the view that social support relationships ameliorate the effects of stress (Buckley et al. 1996)—including battlefield exposure—on individuals' physical and mental wellbeing (Cobb 1976). Similarly, other research observed that higher levels of personal social support appeared to alleviate physical symptoms and enhance perceived health for a sample of sexual assault victims. Other research found that a lack of personal social support was related to somatisation, depression and anxiety in a sample of flood victims (Cook & Bickman 1990) and motor vehicle accident victims (Buckley et al. 1996). Additionally, later research reported that relationship support mediated the link between traumatic battlefield stressors and PTSD for the National Vietnam Veterans Readjustment Study sample (King et al. 1998). This result is consistent with previous research on military veterans (Solomon & Mikulincer 1990; Card 1987; Keane et al. 1985a; Frye & Stockton 1982 and Egendorf et al. 1981). Traditionally research has focused on the development of individual symptoms in those who have experienced trauma directly. However, this has led to only a mediocre effort to address the interpersonal impact of traumatic battlefield exposure. Case studies in current research report data on the dyads of 45 male United States soldiers, who recently returned from active service deployments on Operation Iraq Freedom and Operation Enduring Freedom, and their female spouses/partners. The results indicated that these soldiers manifested increased traumatic symptoms. These included sleep problems, dissociation and severe sexual problems. This led to significantly lower marital and relationship satisfaction for both the soldiers and their female partners. These results suggest that exposure to traumatic battlefield events impacts negatively on relationship satisfaction in

military couples in which the male partner has been traumatised by his war deployment experience (Goff et al. 2007).

Other researchers have argued that stressful events and relationship support are not independent and that severe stressors affect the perceptions of those exposed to the traumatic event/s of the support actually available. General disillusionment and other effects of exposure to traumatic events often accompany highly negative experiences. This is especially the case when a negative experience extends over time. When this happens, it may alter a sufferer's interpretations of the helpful behaviour of others—especially partners. This, in turn, can lead to deterioration in perceived dyad support. Consequently, the individual's physical and mental wellbeing are adversely affected by these lowered perceptions. Similarly, highly stressful life events might deplete an individual's resilience (King et al. 1998). Also, when an individual is in a battlefield situation—the presence of extreme life threatening stressors—the individual's sense of coherence, mastery over day-to-day life, and optimism are likely to diminish. This can certainly be the case for some military personnel. They might spend several intense and unrelenting months of service in a battlefield combat zone. As a result, they might experience diminished vitality and an altered, if not distorted, outlook on life. In the immediate post-battlefield experience, a veteran might feel a lack of relationship support and a loss of control over his/her life. This could subsequently become an ingrained pattern of behavioural and emotional responding with long-term consequences, the development of PTSD (Taft et al. 1999).

Other research has also examined specific disorders such as social phobia. It found that social anxiety and social phobia are important problems that are also frequently unrecognised. This, in turn, means they are not diagnosed and are consequently lost in clinical settings and treatment regimes for veterans and other PTSD sufferers (Orsillo et al. 1996).

The longitudinal course of PTSD highlights the complexity of the matrix onto which any research into the combined effects of traumatic battlefield exposure is superimposed on the functional quality of veterans' relationships. First, the differential course of PTSD in different research participants suggests that there may be a range of different modifying factors. These could be reflected in the individual's prior exposure social interaction profiles; however, this was not evident in a majority of the research participants. Second, the differential course of the intrusive, avoidant and hyper-arousal subcategories of symptoms suggests that there may not be a unifying predictor of this disorder. Given this, perhaps future analysis should be directed into the relationship between each of these symptom subcategories and dyad health. These major dyad dysfunctions imply that the individuals had poor social support structures in the community when they returned to Australia in 1970. In addition, they were also in a state of sensitisation where their psychological regulatory systems were in overdrive.

Presence and severity of depressive symptom variation between the Control and Experimental groups in 2006–07

The CES-D measures specifically the presence and severity of depressive symptoms in research participants. Participants with a score of 16 or more are considered to have clinically significant depression (presented in Figures 21 & 22).

Figure 21: CES-D Control and Experimental group responses in 2006–07

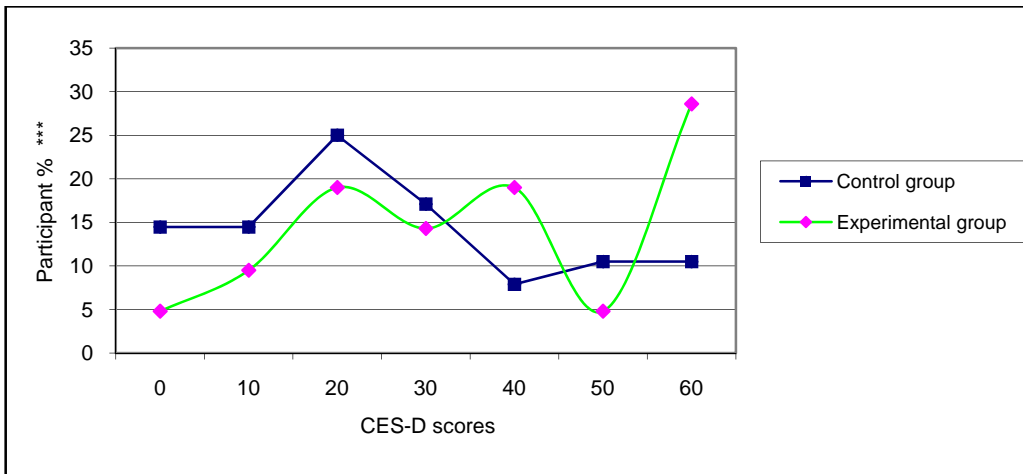
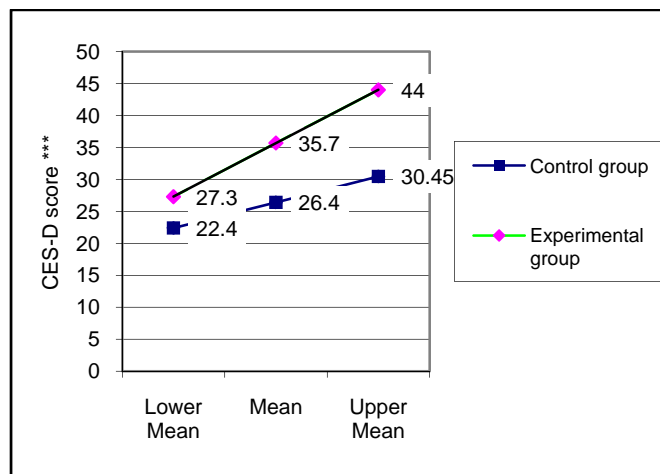


Figure 22: CES-D: Measuring the presence and severity of depressive symptoms (participants with a score of 16 or more are considered to have clinically significant depression Total Average Scores) in 2006–07



By utilising the T-test for the CES-D demonstrated that a significant difference was discovered between the Experimental and Control research participants where—t, 95 df = -2.11 and p = .0374 (Table 51).

Table 51: T-tests: CES-D in 2006–07

Variable	Method	VariANCES	DF	t Value	Pr > t
CES-D	Pooled	Equal	95	-2.11	0.0374
CES-D	Satterthwaite	Unequal	31	-2.06	0.0474

The Experimental group participants produced a significantly higher mean score than the Control group participants. Their score was 36—more than twice that required for a classification of the presence and severity of depression—while the Control group’s score was 26 (Table 52). Participants in both groups said they suffered from depression, although the Experimental group participants’ suffering is and/or was more severe.

Table 52: The t-test procedure: CES-D in 2006–07

Variable	Group	N	Lower C L Mean	Mean	Upper C L Mean	Lower C L Std dev	Std dev	Upper C L Std dev	Std Err	Min	Max
CES-D	Control	76	22.394	26.421	30.448	15.198	17.622	20.974	2.0214	0	60
CES-D	Experimental	21	27.33	35.667	44.003	14.012	18.315	26.448	3.9966	0	57
CES-D	Diff (1-2)		-17.94	-9.246	-0.548	15.563	17.77	20.713	4.3809		

Several epidemiological studies have examined samples of trauma victims. The research discovered that major depression and PTSD should be seen as independent and morbid afflictions that follow exposure to traumatic events. They have similar prognoses and interact if they exist simultaneously to increase distress and disability in the sufferer

(Shalev et al. 1998a). This research also determined that the rates of co-morbidity were similar between depression and PTSD. Similar research of motor accident victims suggested that PTSD and depression are independent but correlated responses to trauma.

The prevalence of co-morbidity has been examined in a range of clinical studies of Vietnam veterans and non-veteran populations (Keane & Kaloupek 1997). It is difficult to make any general conclusions on the basis of these studies other than to indicate that co-morbidity is highly prevalent, especially with regard to depression and PTSD.

Research into the effects of the Israeli war found that 95 per cent of PTSD subjects in a sample of Israeli war veterans seeking treatment had a co-morbid major depressive disorder (Bleich et al. 1997). The different courses of these disorders suggested that depression is not simply the sharing of common symptoms, but should be viewed as a separate diagnosis. Bremner suggests that PTSD begins soon after exposure. Hyper arousal symptoms emerge first; and the natural course of alcohol and substance abuse parallels that of depression and PTSD (Bremner et al. 1996).

The clinical relevance of co-morbidity was also examined. In this study, Dansky (et al. 1997) established that, even in a research setting where high rates of co-morbidity had been identified, clinicians continued to under-diagnose depression and PTSD when the clinical focus of a unit was substance abuse.

The overwhelming majority of veterans presenting for treatment of PTSD have a wide range of symptoms that go beyond the specific diagnostic criteria of the disorder (Skodol et al. 1996). This emphasises the importance of an exhaustive diagnosis process as soon as the traumatic exposure has occurred. Any discussion of depression and PTSD treatments must also address the myriad associated issues (Keane & Kaloupek 1997).

The prevalence of these conditions is consistent with those registered recently from United States military personnel who served in Iraq and where the exposure to combat was more severe than that experienced by those who served in Afghanistan. Between 15 and 17 per cent of participants who served in Iraq indicated they were depressed, compared to 11 per cent of veterans returning from Afghanistan. The prevalence of these symptoms registered at only 9 per cent before deployment to Iraq. However, there is conjecture about the efficacy of this type of screening of military personnel. The largest difference in psychological health between pre-deployment and post-combat exposure was the rate of reported PTSD after the deployment phase (Spurgeon 2004).

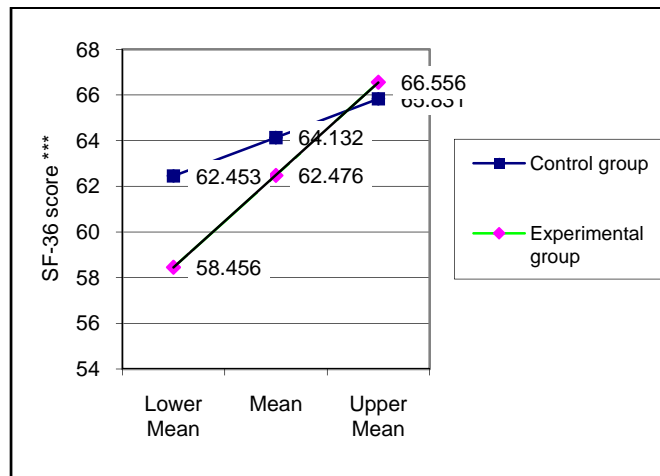
The Experimental group participants registered a variety of co-morbid psychological conditions in 1969-70 ranging from depression, anxiety, rage, anger to substance abuse (both drugs and alcohol).

General health variation between the Control and Experimental groups in 2006–07

The SF-36 Health Survey Questionnaire evaluated the general health of those who responded to the invitation questionnaire in 2006–07. Participants with different medical

conditions can have their general health measured utilising this instrument. Results confirmed there was no significant difference between the two groups' respective states of health and wellbeing ($t, 95 \text{ df} = .84, p = .401$). The analysis by group of those that responded in 2006-07 clearly indicated men with poor health. The mean recorded score for the SF-36 for the Control group participants was 64.132 while the mean of the Experimental group participants was reported at 62.476 (Figure 23).

Figure 23: SF-36 Health Survey Questionnaire results for the Experimental and Control groups in 2006-07

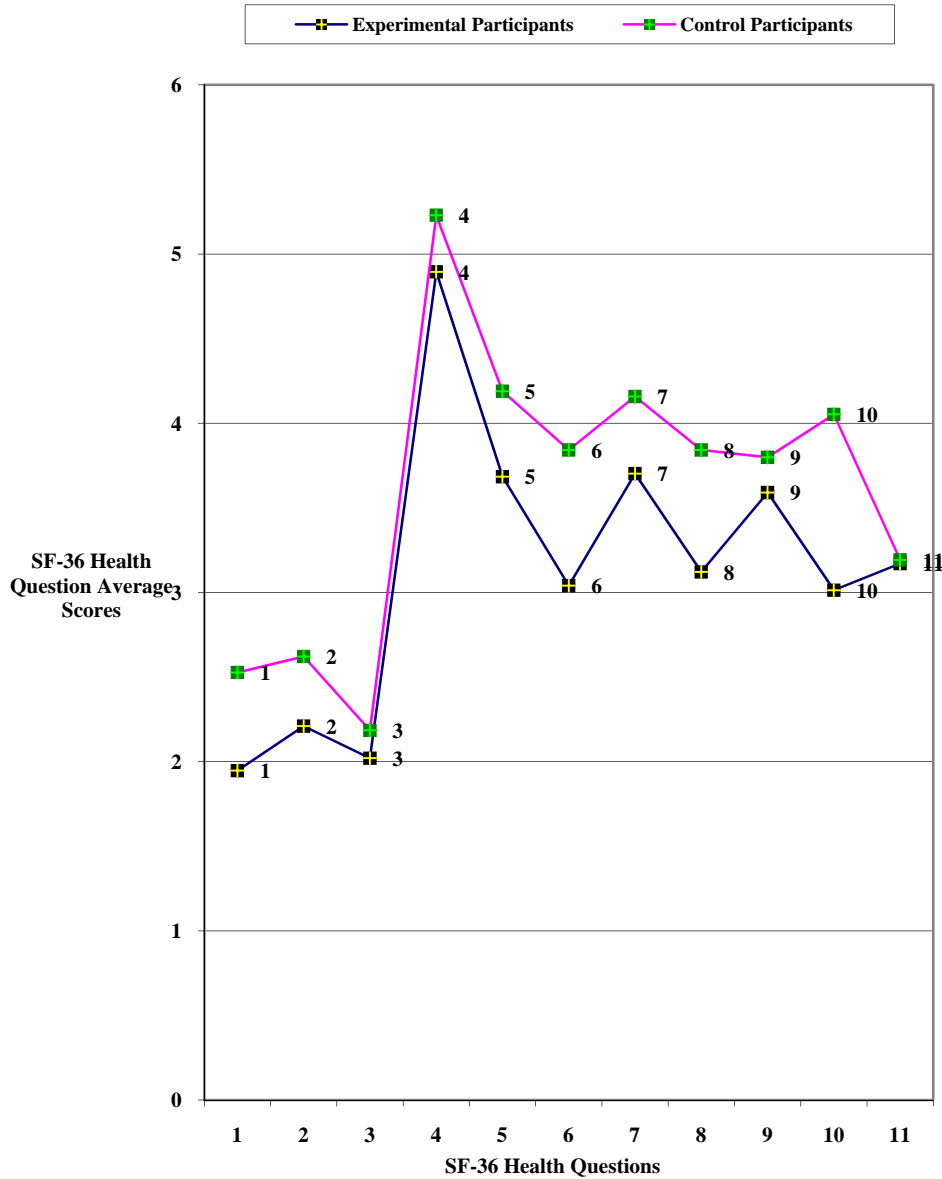


These moderate results for this research instrument confirm that both groups are not generally well compared with men in their age group in the general population. Their average scores are low when compared with the average for the broad population base in the community for men in their age groups without PTSD.

It is also relevant to note differences in the comparison of specific questions in the research instrument dealing with general, physical and mental health (See Figure 24). The

Experimental group participants have poorer general health. Their scores indicate they rate their general health as being between poor and fair; while the Control group participants rate their general health as being between fair and good.

Figure 24: SF-36 Health Survey Question results for the Experimental and Control groups in 2006–07



A year ago, the Experimental group participants rated their general health as ‘fair’ and ‘somewhat worse’ than a year ago while the Control group participants rated their general health as ‘fair to good’ and ‘about the same to somewhat worse’ respectively. The groups differed on a question about the effect of emotional problems—for example, feeling depressed or anxious—on their work or other regular daily activities.

The Experimental group indicated they had experienced these emotional problems and that these had affected their daily lives. Although the Control group experienced similar problems, these had a lesser effect, on average, on their daily activities whether at work or in social arenas. Similar results were reported for the question on physical health. The Experimental group indicated their physical health problems have interfered ‘quite a bit’ with their normal social activities with family, friends, neighbours or groups. The Control group indicated only a moderate change in their normal social activities.

The Experimental group experienced moderate to severe physical pain, while the Control group rated their pain as mild to moderate. When asked about how much pain interfered with their usual work—in and outside the home—the Experimental group indicated ‘quite a bit’, while the Control group indicated it affected them only moderately.

Both groups were also asked about how much time their physical health or emotional problems interfered with their social activities, such as visiting friends or relatives. The Experimental group indicated they experienced an interference ‘most of the time’, while the Control group indicated an interference only ‘some of the time’. There is a high

prevalence of physical health problems and a strong association with a diagnosis of PTSD. One of the consequence of this correlation is the higher costs linked to providing a wide range of medical support for veterans for extended periods of time—if not continuously.

The other presented responses to this part of the research questionnaire are within similar ranges and would affect the veterans' lives (Hoge et al. 2007). PTSD pervades the lives of many veterans. After adjusting for socio-demographic factors and other mental disorders, it remained significantly associated with several physical health problems. These include chronic pain conditions, cardiovascular diseases, respiratory disease and gastrointestinal illness. A PTSD diagnosis is also strongly linked to sufferers' suicide attempts, poor quality of life and short and long-term disabilities (Sareen et al. 2007a).

The examined associations between battlefield combat exposure and PTSD with physical health conditions in 2006–07 of this group has supported previous research which implicates PTSD as a principle determining factor and predictor of future poor health. It also incorporated mental and emotional functional health status as an outcome. There is a distinctive relationship between battlefield exposure, PTSD and the physical health of Vietnam veterans. Research has concluded that, when controlling for battlefield exposure, the relationship between PTSD and physical health was virtually unchanged (Wolfe et al. 1994). However, when controlling for PTSD, the effect of battlefield exposure was greatly reduced. When the effect on physical health of both battlefield exposure and PTSD is examined, PTSD is implicated as a larger independent contributor to poor

physical health than war-zone exposure (Friedman & Schnurr 1995). These research results also amplified those of Wolfe et al. (1994). PTSD had a significant arbitration function in the relationship between battlefield exposure and physical health.

Military rank and service affiliation

Frequency Table 53 presents the military rank and service affiliation breakdown at the initial medical assessment of Experimental group participants and the corresponding invitation for participation in the research of both Experimental and (case controlled) Control group participants from 1969-70.

Table 53: Military rank and force affiliation of Experimental and Control group personnel during 1969-70

(Experimental group (n, %), Control group (n, %))

Rank Presented 1969-70	Royal Australian Navy		Royal Australian Army		Royal Australian Air Force	
Craftsman			1	(0.84)		
			7	(2.54)		
Private			56	(47.07)		
			134	(48.72)		
Gunner			3	(2.52)		
			6	(2.18)		
Sapper			8	(6.72)		
			21	(7.64)		
Signaller			3	(2.52)		
			6	(2.18)		
Trooper			4	(3.36)		
			8	(2.91)		
Leading Air Craftsman					1	(0.84)
					2	(0.73)
Lance Corporal			5	(4.20)		
			10	(3.64)		
Lance Bombardier			1	(0.84)		
			2	(0.73)		
Bombardier			3	(2.52)		
			6	(2.18)		
Corporal			17	(14.29)		
			37	(13.45)		
Sergeant			8	(6.72)		
			16	(5.82)		
Staff Sergeant			2	(1.68)		
			5	(1.82)		
Warrant Officer Class II			2	(1.68)		
			5	(1.82)		
Warrant Officer Class I			1	(0.84)		
			2	(0.73)		
Second Lieutenant			1	(0.84)		
			2	(0.73)		
Flying Officer					1	(0.84)
					2	(0.73)
Sub Lieutenant	1	(0.84)				
	2	(0.73)				
Lieutenant			1	(0.84)		
			2	(0.73)		
Total	119 (100)	1 (0.84)	116	97.48	2	1.68
	275 (100)	2 (0.73)	269	97.82	4	1.45

Experimental group: enlistment distribution 1969-70

Participants involved in this research received the same job, corps and combat training before their deployment to Vietnam in 1969, irrespective of their enlistment type. The extent to which this 'traditional' military training provided adequate psychological training for combat is questionable.

During the qualitative phase of the research, anecdotal references were made that throughout the training they were encouraged to refer to the North Vietnamese Army and Viet Cong as 'gooks'. Australian soldiers were also told that they should regard them as not being human in an attempt to indoctrinate them. This cannot be substantiated and it may have been some type of hype in the training schedule rather than something sinister. It should be noted that there are many elements of traditional military training that have an important protective role in combat. Exposing people to simulated combat environments and teaching them skilled and drilled behaviours for attack, defence and ambush to utilise in situations are important for soldiers' survival in combat. Military command places considerable expectations on traditional training as the main preparation of soldiers for battle (Marshall 1947). Combat skills training is a practiced, cognitive and reinforced way for soldiers, who will experience considerable fear in combat, to be able to respond to threats while drawing on an instinctive behavioural repertoire.

These combat skill sets were rehearsed and practiced in mock combat situations in an attempt to enforce confidence and strength of purpose when faced with real enemy engagements. However, generally the 1969-70 corps, unit, sub-unit, pre-deployment military training, nor the post deployment demobilisation in 1969 incorporated a preparation or safety net module for protecting soldiers' mental health. They were not taught how to develop cognitive coping strategies for witnessing mutilations, wounds and/or the wounding or death of the enemy, Vietnamese civilians or their mates. Nor was there an opportunity for soldiers to develop a symptom-specific vocabulary for dealing with fear, revulsion or, indeed, the more complex emotional issue of guilt which may in turn present as precursors to suicide (Hendin & Haas 1991). Soldiers were also not taught the philosophical dynamic of a detailed psychological knowledge of their fear response. Nor were they taught how to deal with the emotional deficit they may experience as a consequence of their traumatic battlefield exposure/s. There may also be a greater susceptibility in these veterans to attempt suicide from conscripted soldiers when compared to volunteer soldiers an issue that was examined by O'Toole & Cantor in 1995.

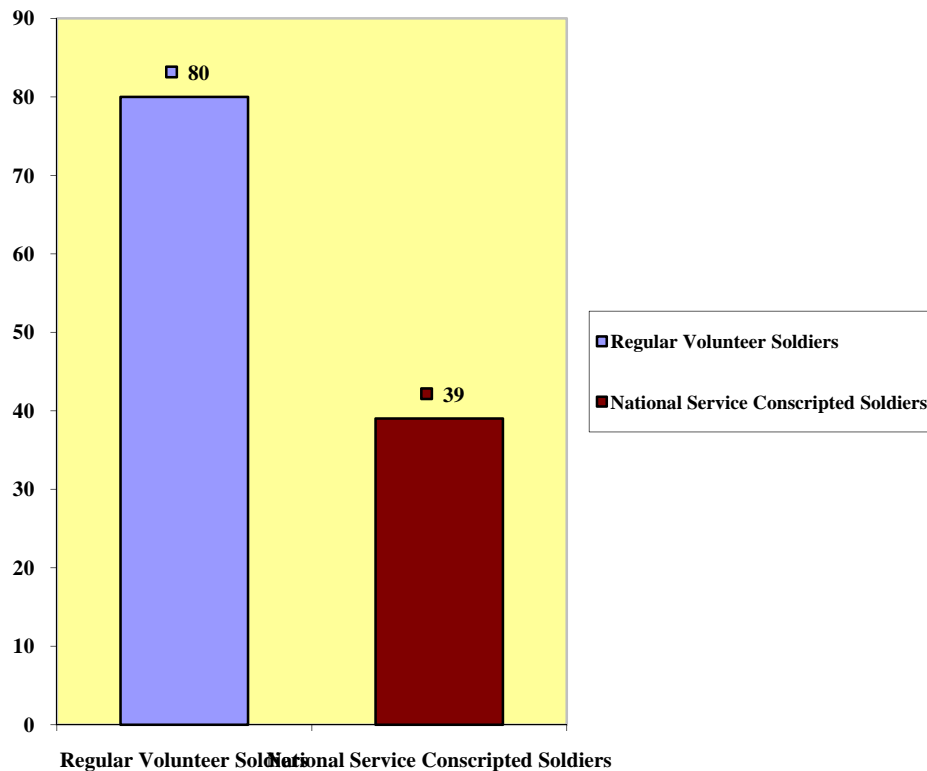
In this research the distribution of patients requiring psychiatric attention was unexpected at the outset. Principally a ratio of two regular volunteer soldiers required psychiatric support to every one national service conscripted soldier at these sessions. Thus, there was a distinct bias of recruitment/enlistment source for the initial group of soldiers—that is, the Experimental group—who attended at least one psychiatric consultation in the tactical area of operational responsibility (TAOR) during their 1969–70 tours of duty in

Vietnam. Frequency Table 54 presents the Experimental group participants primary enlistment distribution in 1969–70 (Figure 25).

Table 54: A comparison of regular enlisted and National Service conscripts—Experimental group participants—treated by a military psychiatrist in 1969–70

Type of enlistment	Personnel number	% of total
Volunteer Regular Service	80	67.22
Conscripted National Service	39	32.78
Total	119	100

Figure 25: A comparison of regular enlisted and National Service conscripts—Experimental group participants—treated by a military psychiatrist in 1969–70



Experimental group: enlistment distribution 2006–07

The ratio of two regular volunteer soldiers required psychiatric support to every one National Service conscripted soldier was maintained in the Experimental group research participants. The ratio in 2006-07 was closer to 2.5 regular volunteer soldiers to every National Service conscripted volunteer. Table 55 frequency table presents the Experimental group participants that agreed to participate in the ongoing research primary enlistment distribution during 2006-07.

Table 55: Analysis Variable: Type of Enlistment distribution during 1969/70 of Experimental Group participants that were involved in the ongoing research in 2006-07

Type of Enlistment	Frequency	Percent	Cumulative Frequency	Cumulative Percent
Volunteer Regular Service	15	71.43	21	71.43
Conscripted National Service	6	28.57	6	100.00

DSM-II symptom diagnosis specific to the type of enlistment: Experimental group participants 1969–70

Most of the principles for treating any combat-related neuroses, TSD, acute stress disorder, combat fatigue or PTSD emerged in the First World War. Initially major medical support was restricted to hospitals in the rear echelons behind the trenches, but in the later stages of WW I most medical support was forced forward to dressing stations situated almost directly behind the front lines (Strachan 2003). A major inquiry into the American Psychiatric Services after the Second World War concluded that: ‘The development of treatment at the site of origin was a logical consequence of the recognition that the war neuroses were caused by situational circumstances’ (Glass 1969;

1973 and 1974). It made possible a therapeutic rationale of prompt intervention measures. The object of these was to encourage adjustment to combat situations rather than evacuation to remote hospitals, which tended to result in a failure to return to the battle and chronic disability. For the first time, the treatment environment—including location, physical facilities, and the attitudes and behaviour of the treatment personnel—was utilised as a therapeutic instrument. Later this concept formed the basis for various types of milieu therapy. In military psychiatry, it became the principle of an expectation of return to duty (Salmon 1919). Although they weren't documented statistically, these interventions were successful. They demonstrate the usefulness of a battlefield diagnosis by a forward deployed military psychiatrist.

Historically, in the initial period of the Second World War, the same mistakes were made with evacuating battle neurosis casualties (Jones & Wessely 2005). It was only after a period of two years that the appropriate capacity was developed for the front-line treatment of these conditions. This was about the development of a new terminology for psychiatric casualties. A major step forward was the acknowledgement of the important influence of group and interpersonal relationships in the treatment context. One of the critical elements of proximity of treatment was to ensure that a soldier's relationships and emotional investment in his unit were preserved. Furthermore, the atmosphere of treatment in the combat zone created an atmosphere of expectancy and led to significantly higher rates of return to combat (Jones & Wessely 2005). In the Korean War the frequency of combat exhaustion psychiatric disorders was less than half of that of the high incidence in the Second World War. This led the services to feel confident about the

effectiveness of these treatments. Israeli Armed Services utilised this concept of proximity and unit cohesiveness in the 1980s.

There has been one properly controlled clinical trial of treatment of acute combat stress reactions (Solomon et al. 1989d) which did recognise a deficiency in the trial. The immediacy of the threat situation, coupled with the need for immediate deployment, limits the conduct of research in these settings. Other indications explain how lower rates of chronic PTSD were obtained by treating combat stress reactions in accordance with the principles of proximity, immediacy and expectancy (PIE) (Solomon & Benbenishty 1986). A decline in PTSD rates was observed among Yom Kippur War veterans. This might be attributed to the proximity, immediacy and expectancy treatment program. Higher recovery rates were again found among control groups than the reported battlefield combat stress casualties. When this study was conducted, 37 per cent of battlefields stress casualties who reported having suffered from PTSD in the past still suffered from it (Solomon & Benbenishty 1986). However, not all battlefield stress casualties suffered from long-term maladjustment. The findings also show a substantial pattern of recovery over time. A comparative study of counselling and a cognitive behavioural intervention of acute stress disorders was used for motor vehicle accidents (Bryant et al. 1999). The individuals developed these disorders following motor vehicle accidents. Unfortunately, this stressor and circumstance are very different from combat. The stress was of brief duration, unanticipated and occurred in individuals who had no expectation of its occurrence. This treatment was very different from the proximity, immediacy and expectancy model. The individuals involved in the motor vehicle

accidents were diagnosed and given a specific psychological treatment. This intervention led to a significant decrease in the later emergence of PTSD; as well as to a decline in the acute symptoms at the end of the brief intervention. This was different to the combat environment where clinicians were attempting to normalise individuals' reactions. Knowledge about the effectiveness of this approach only emerged with the publication of Bryant's study. The cognitive behavioural intervention is conceptually very different from the PIE model. The lack of diagnosis and the importance of expectancy are at the heart of that approach.

This statistical representation of the enlistment avenue distribution between volunteer and conscripted soldiers suggests there is a correlation between enlistment type and the development of mental health disorders. The initial DSM-II 1969-70 clinician based inter-rate reliability diagnosis provided by the consulting psychiatrist for the then accepted combat fatigue classification of TSD is descriptively correlated to the specific type of enlistment as shown in frequency Table 56.

Table 56: DSM-II diagnosis status of Experimental group participants: a comparison of Regular enlisted and National Service conscripts treated by a military psychiatrist in 1969–70 (Regular enlisted group - n, %, and National Service conscripts group - n, %)

DSM-II diagnosis status	Frequency	%	Cumulative frequency	Cumulative %
Transient Situational Disorder with depressive features	11	13.75	11	13.75
	8	20.51	8	20.51
Transient Situational Disorder - Anxiety symptoms and obsessive	16	20.00	27	33.75
	11	28.20	19	48.71
Transient Situational Disorder Hysterical Neurosis, Dissociative Conversion Type	6	7.50	33	41.25
	3	7.69	22	56.41
Border line Transitional Situational Disorder - Anxiety Symptoms	1	1.25	34	42.50
	1	2.56	23	58.97
Transient Situational Disorder - Alcoholic Addition	16	20.00	50	62.50
	7	17.95	30	76.92
Transient Situational Disorder - Personality Disorder - sociopath	1	1.25	51	63.75
	0	0.00	30	76.92
Transient Situational Disorder - Social Maladjustment with manifest Psychiatric disorder	5	6.25	56	70.00
	2	5.13	32	82.05
Transient Situational Disorder - Anankastic Personality	4	5.00	60	75.00
	0	0.00	32	82.05
Transient Situational Disorder - Social malady instinct (associated with excessive drinking)	1	1.25	61	76.25
	0	0.00	32	82.05
Other psychiatric disorders	10	12.50	71	88.75
	1	2.56	33	84.61
Hypochondria cal neurosis and Paedophilia	0	0.00	71	88.75
	1	2.56	34	87.17
NIL psychiatric	9	11.25	80	100.00
	5	12.83	39	100.00

*, * = Rounded off.

Subsequent analysis identified that there was no significant difference between the Experimental and Control research participants where—chi—square, 1 df = .5168, p = .4722) Tables 57 and Fisher’s exact test 58.

Table 57: DSM-II battlefield diagnosis during 1969–70 of Experimental group participants chi-square test

Statistic	DF	Value	Probability
Chi-square	1	0.5168	0.4722
Likelihood ratio chi-square	1	0.5299	0.4666
Continuity adj chi-square	1	0.2329	0.6294
Mantel-Haenszel chi-square	1	0.5124	0.4741
Phi coefficient		-0.0659	
Contingency coefficient		0.0658	
Cramer's V		-0.0659	

Table 58: DSM-II battlefield diagnosis during 1969–70 of Experimental group participants Fisher's exact test

Cell (1,1) Frequency (F)	7
Left-sided Pr \leq F	0.3194
Right-sided Pr \geq F	0.8298
Table probability (P)	0.1492
Two-sided Pr \leq P	0.6371

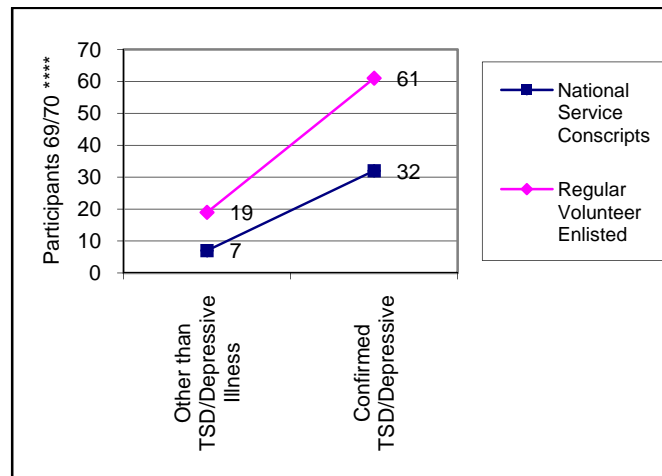
Frequency Table 59 shows that 82 per cent (32 of 39) of the National Service conscripted soldiers met the DSM-II criteria for a diagnosis of TSD; while 76 per cent (61 of 80) of the Regular Service volunteer soldiers satisfied the same criteria requirements.

Table 59: DSM-II diagnosis status of Experimental group participants treated by a military psychiatrist in 1969–70

DSM-II diagnosis in 1969–70	Analysis	Military category		Total
		National Service conscripts	Regular volunteer enlisted	
Other than transient situational disturbance/depressive illness	Frequency	7	19	26
	%	5.88	15.97	21.85
	Row %	26.92	73.08	
	Col %	17.95	23.75	
Transient situational disturbance /depressive illness	Frequency	32	61	93
	%	26.89	51.26	78.15
	Row %	34.41	65.59	
	Col %	82.05	76.25	
Total	Frequency	39	80	119
	%	32.77	67.23	100.00

Further analysis of Experimental group respondents to the questionnaire indicated that there was not a significant difference between these groups Figure 26 shows the DSM-II diagnosis status of Experimental group participants comparing Regular enlisted and National Service conscripts treated by a military psychiatrist in 1969–70, including TSD/depressive illness. Due to the National Service conscription other TSD/Depressive illness being $n < 10$ the inference from this analysis should only be regarded as descriptive.

Figure 26: DSM-II battlefield diagnosis of Experimental group participants during 1969–70



DSM-II symptom diagnosis specific to the type of enlistment: Experimental group participants 2006–07

Frequency Table 60 shows the DSM-II diagnosis status of Experimental group participants comparing those treated by a military psychiatrist in 1969–70, for TSD / depressive illness and those treated for other types of disorders.

Table 60: DSM-II battlefield diagnosis during 1969–70 of Experimental group participants who agreed to participate in the ongoing research in 2006–07

DSM-II diagnosis during 1969–70	Analysis	Enlistment status		Total
		Conscripted national service	Volunteer regular service	
None	Frequency	2	2	4
	%	9.52	9.52	19.05
	Row %	50.00	50.00	
	Col %	33.33	13.33	
Transient situational disturbance /depressive illness	Frequency	4	13	17
	%	19.05	61.90	80.95
	Row %	23.53	76.47	
	Col %	66.67	86.67	
Total	Frequency %	6 28.57	15 71.43	21 100.00

It is important not to weight these statistics inappropriately because $n < 10$ in most situations rather it would be apt to consider them as descriptive presentations. Rather at this time it is important to note the accuracy of the initial diagnosis of TSD in 1969-70 and explain that those 17 soldiers and two (both regular volunteer soldiers) of the others presented in Table 60 went on to develop and be independently diagnosed with delayed onset PTSD. Table 61 (chi-square 0.2917) and 62 shows that the outcome of the Fisher's exact test indicated the one-tailed $p = .3158$. In this circumstance, Fisher's exact test was used because 75 per cent of the cells presented the expected frequencies of less than 5.

Table 61: DSM-II battlefield diagnosis during 1969–70 of Experimental group participants who agreed to participate in the ongoing research in 2006–07

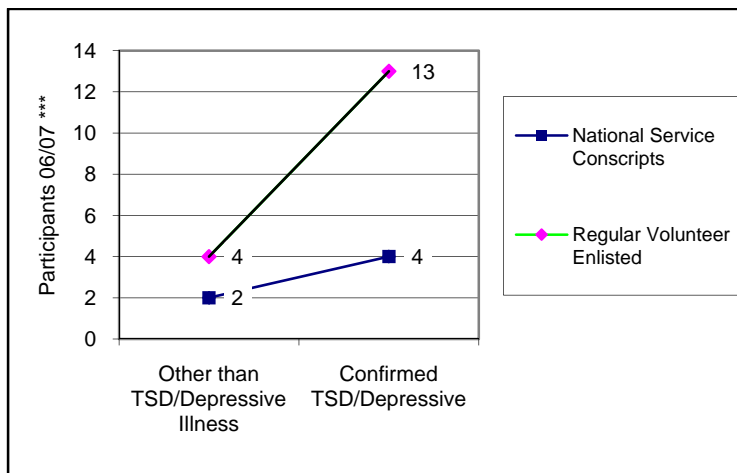
Statistic	DF	Value	Probability
Chi-square	1	1.1118	0.2917
Likelihood ratio chi-square	1	1.0319	0.3097
Continuity adj chi-square	1	0.1930	0.6604
Mantel-Haenszel chi-square	1	1.0588	0.3035
Phi coefficient		0.2301	
Contingency coefficient		0.2242	
Cramer's V		0.2301	

Table 62: DSM-II battlefield diagnosis during 1969–70 of Experimental group participants who agreed to participate in the ongoing research in 2006–07 Fisher's exact test

Cell (1,1) frequency (F)	2
Left-sided Pr <= F	0.9474
Right-sided Pr >= F	0.3158
Table probability (P)	0.2632
Two-sided Pr <= P	0.5439

That is 4 of 6 or 67 per cent—of National Service conscripted soldiers met the DSM-II TSD criteria. Of Regular Service volunteer soldiers, 13 of 15—that is, 87 per cent—satisfied the DSM-II TSD criteria. The result was not convincing because the small sample size ($n=21$) limited the convincing nature of the relationship between enlistment source and psychiatric diagnosis (Figure 27).

Figure 27: DSM-II battlefield diagnosis during 1969–70 of Experimental group participants who agreed to participate in the ongoing research in 2006–07



Age: Control and Experimental group participants 1969–70

Research has also identified several correlations between the severities of PTSD in Vietnam veterans. These may possibly distinguish individuals with malignant symptoms from other combat veterans with a clinically diagnosed, treatment-managed PTSD.

Multivariate models of combat trauma have suggested that, in some cases, the younger the recruit at the initial battlefield exposure, the greater the severity of the PTSD among veterans (King et al. 1996 and Fontana & Rosenheck 1994).

The mean age of the research participants is not significantly different. However, at the time of their battlefield exposure all were young men with an average age of 24 years.

Frequency Table 63 presents the age, rank, Experimental group and case controlled Control group. Table 64 presents the distribution age means for both groups and graphically represented in Figure 28 for research participants identified from 1969-70.

Table 63: Vietnam TAOR Age/Rank distribution during 1969–70 of Experimental and Control group participants

(Experimental group - n, %, Control group - n, %)

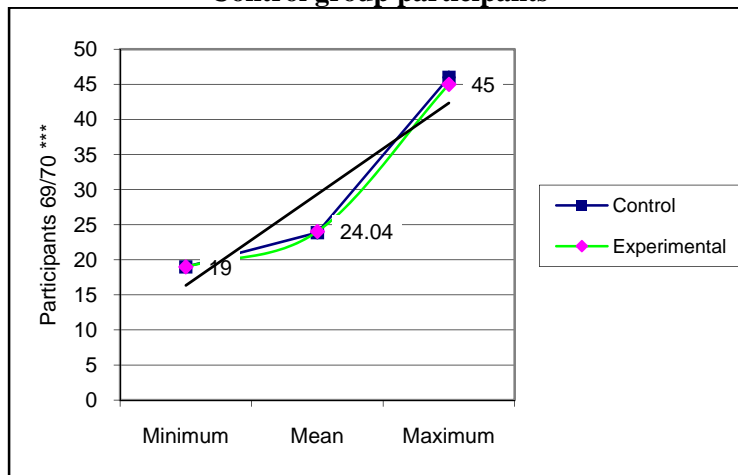
Rank Presented	1969-70	Age						
		19	20	21	22	23	24	>24
PTE	75 (63.03)	10 (8.40)	14 (11.77)	20 (16.81)	17 (14.29)	6 (5.04)	4 (3.36)	4 (3.36)
	182 (66.18)	26 (9.45)	33 (12.00)	47 (17.09)	35 (12.72)	12 (4.36)	14 (5.09)	15 (5.45)
LCPL	7 (5.88)	1 (0.84)	2 (1.68)	1 (0.84)	1 (0.84)			2 (1.68)
	14 (5.09)	2 (0.73)	4 (1.46)	2 (0.73)	2 (0.73)			4 (1.46)
CPL	20 (16.80)			1 (0.84)	3 (2.52)	1 (0.84)		15 (12.61)
	43 (15.64)			2 (0.73)	9 (3.27)	2 (0.73)		30 (10.90)
SGT	8 (6.73)						1 (0.84)	7 (5.88)
	16 (5.82)						2 (0.73)	14 (5.09)
SSGT	2 (1.68)							2 (1.68)
	5 (1.82)							5 (1.81)
WO2	2 (1.68)				1 (0.84)			1 (0.84)
	5 (1.82)				2 (0.73)			3 (1.09)
WO1	1 (0.84)							1 (0.84)
	2 (0.73)							2 (0.73)
2 nd LT	1 (0.84)						1 (0.84)	
	2 (0.73)						2 (0.73)	
LT	3 (2.52)						1 (0.84)	2 (1.68)
	6 (2.17)						2 (0.73)	4 (1.46)
Total	119 (100)*	11 (9.24)	16 (13.45)	22 (18.49)	22 (18.49)	7 (5.88)	7 (5.88)	34 (28.57)
	275 (100)*	28 (10.18)	37 (13.46)	51 (18.55)	48 (17.45)	14 (5.09)	20 (7.28)	77 (27.99)

*, * = Rounded off.

Table 64: Age in 1969–70 in Vietnam of Experimental and matched Control group participants

Group	N Observed	N	Mean	Std dev	Minimum	Maximum
Control	275	275	23.8763636	5.3803496	19.000000	46.000000
Experimental	119	119	24.0420168	5.8749612	19.000000	45.000000

Figure 28: Age in 1969–70 in Vietnam of Experimental and Control group participants



Age: Control and Experimental group participants 2006–07

Seal et al. (2007) used the clinical modification codes in the *International Classification of Disease*, 9th edition (ICD–9) to research the health of veterans who fought in Operation Enduring Freedom and Iraqi Freedom. They confirmed that the subgroup at greatest risk of developing a mental health disorder or PTSD diagnoses was aged between 18 and 24 rather than those aged 40 years or older (Seal et al. 2007) also shown in Tables 65 and 66 and Figure 29. This research supports Seals’ conclusion.

Table 65: Analysis variable: age in 1969–70 in Vietnam of Experimental and Control group participants who agreed to participate in the ongoing research in 2006–07

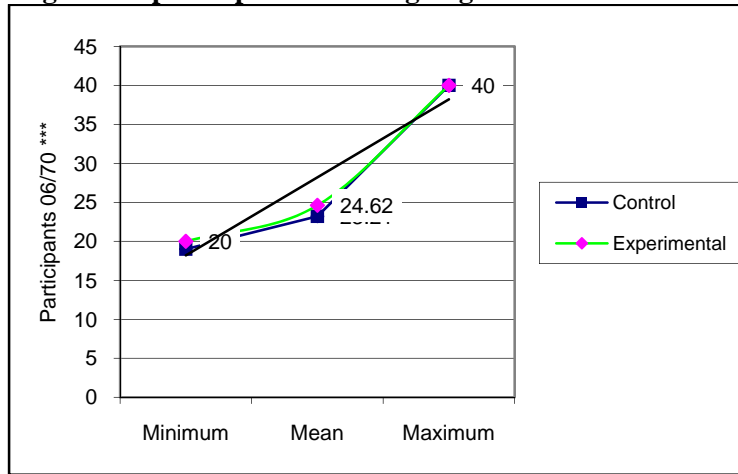
Group	N Observed	N	Mean	Std dev	Minimum	Maximum
Control	76	76	23.2105263	4.7534290	19.0000000	40.0000000
Experimental	21	21	24.6190476	5.4632975	20.0000000	40.0000000

Table 66: Vietnam TAOR Age/Rank distribution during 1969–70 of Experimental and Control group participants who were involved in the ongoing research in 2006–07
(Experimental group - n, %, Control group - n, %)

Rank Presented	2006-07	Age						
		19	20	21	22	23	24	>24
PTE	9 (42.865)	0 (0.00)	1 (4.76)	3 (14.29)	3 (14.29)	0 (0.00)	1 (4.76)	1 (4.76)
	43 (56.58)	9 (11.84)	10 (13.16)	11 (14.47)	5 (6.58)	2 (2.63)	3 (3.95)	3 (3.95)
LCPL	2 (9.52)	0 (0.00)	1 (4.76)	1 (4.76)	0 (0.00)			0 (0.00)
	8 (10.53)	1 (1.32)	1 (1.32)	2 (2.63)	1 (1.32)			3 (3.94)
CPL	6 (28.575)			0 (0.00)	2 (9.52)	1 (4.76)		3 (14.29)
	15 (19.73)			2 (2.63)	1 (1.32)	2 (2.63)		10 (13.15)
SGT	1 (4.76)						0 (0.00)	1 (4.76)
	5 (6.58)						1 (1.32)	4 (5.26)
SSGT	0 (0.00)							0 (0.00)
	1 (1.32)							1 (1.32)
WO2	1 (4.76)				1 (4.76)			0 (0.00)
	2 (2.63)				1 (1.32)			1 (1.32)
WO1	0 (0.00)							
	0 (0.00)							
2 nd LT	0 (0.00)							
	0 (0.00)							
LT	2 (9.52)						1 (4.76)	1 (4.76)
	2 (2.63)						0 (0.00)	2 (2.63)
Total	21 (100)*	0 (0.00)	2 (9.52)	4 (19.05)	6 (28.575)	1 (4.76)	2 (9.52)	6 (28.575)
	76 (100)*	10 (13.16)	11 (14.47)	15 (19.74)	8 (10.53)	4 (5.26)	4 (5.26)	24 (31.58)

*, * = Rounded off.

Figure 29: Age in 1969–70 in Vietnam of Experimental and Control group participants who agreed to participate in the ongoing research in 2006–07



State of enlistment: Experimental and Control group participants in 1969–70 and 2006–07

The enlistment distribution of the research participants basically followed the population distribution both in 1969–70 and in 2006–07. The only unusual presentation was the state of Tasmania, which ranked fourth in Control group participants and fifth in Experimental group participants on 1969–70 data. In 2006–07, Tasmania provided the same distribution with a higher sample than that of South Australia, Western Australia and the Northern Territory. However, it is accepted that all states will provide a higher distribution than the Northern Territory. It needs to be noted that these presentations of statistical information in Tables 67 and 68 and Figures 30-36 are descriptive representations of the distribution of recruitment during both 1969-70 and the responding participants in 2006-07.

Table 67: State of enlistment of Experimental and Control group participants in 1969–70

State	Analysis	Group		Total
		Control participants	Experimental participants	
QLD	Frequency	53	28	81
	%	13.45	7.11	20.56
	Row %	65.43	34.57	
	Col %	19.27	23.53	
NSW	Frequency	88	38	126
	%	22.34	9.64	32.31
	Row %	69.84	30.16	
	Col %	31.54	31.93	
VIC	Frequency	65	24	89
	%	16.50	6.09	22.82
	Row %	73.03	26.97	
	Col %	23.64	20.17	
SA	Frequency	26	12	38
	%	6.60	3.05	9.74
	Row %	68.42	31.58	
	Col %	9.45	10.08	
TAS	Frequency	29	11	40
	%	7.36	2.79	10.26
	Row %	72.50	27.50	
	Col %	10.55	9.24	
WA	Frequency	13	5	18
	%	3.30	1.27	4.62
	Row %	72.22	27.78	
	Col %	4.73	4.20	
NT	Frequency	1	1	2
	%	0.25	0.25	0.51
	Row %	50.00	50.00	
	Col %	0.36	0.84	
Total	Frequency	275	119	394
	%	70.81	29.19	100.00

Table 68: Analysis variable: state of enlistment of Experimental and Control group participants who agreed to participate in the ongoing research in 2006–07

State	Analysis	Group		Total
		Control participants	Experimental participants	
QLD	Frequency	13	4	17 17.53
	%	13.40	4.12	
	Row %	76.47	23.53	
	Col %	17.11	19.05	
NSW	Frequency	20	6	26 26.80
	%	20.62	6.19	
	Row %	76.92	23.08	
	Col %	26.32	28.57	
VIC	Frequency	21	5	26 26.80
	%	21.65	5.15	
	Row %	80.77	19.23	
	Col %	27.63	23.81	
SA	Frequency	7	2	9 9.28
	%	7.22	2.06	
	Row %	77.78	22.22	
	Col %	9.21	9.52	
TAS	Frequency	10	2	12 12.37
	%	10.31	2.06	
	Row %	83.33	16.67	
	Col %	13.16	9.52	
WA	Frequency	5	2	7 7.22
	%	5.15	2.06	
	Row %	71.43	28.57	
	Col %	6.58	9.52	
Total	Frequency	76	21	97
	%	78.35	21.65	100.00

Figure 30: State recruitment distributions of Control and Experimental groups in 1969–70 compared to 2006–07, state of enlistment Queensland

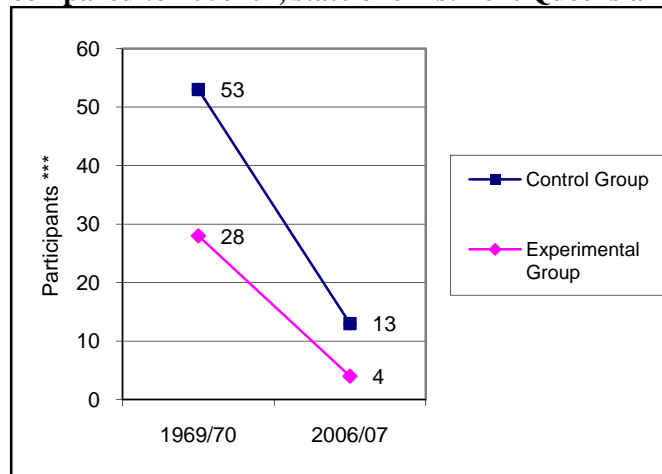


Figure 31: State recruitment distributions of Control and Experimental groups in 1969–70 compared to 2006–07, state of enlistment New South Wales

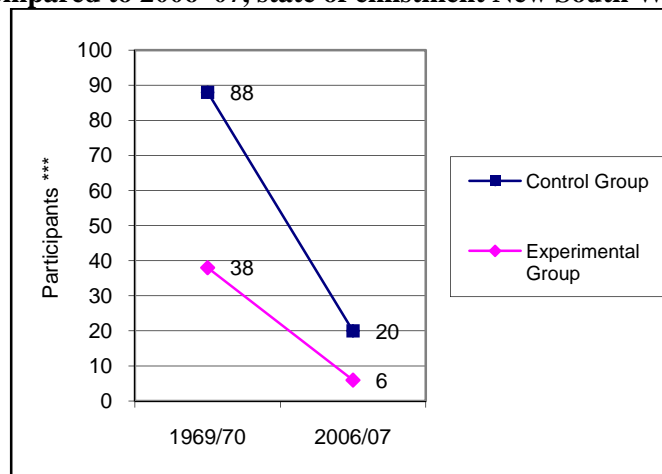


Figure 32: State recruitment distributions of Control and Experimental groups in 1969–70 compared to 2006–07, state of enlistment Victoria

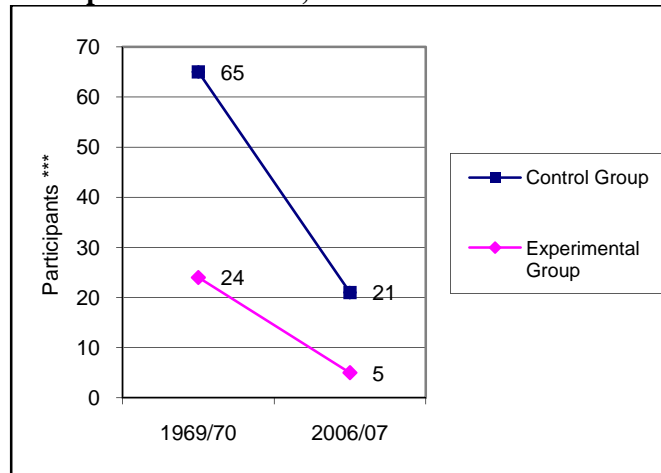


Figure 33: State recruitment distributions of Control and Experimental groups in 1969–70 compared to 2006–07, state of enlistment South Australia

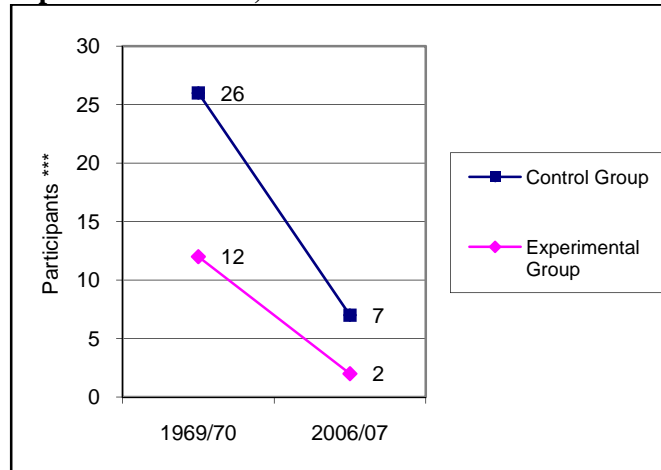


Figure 34: State recruitment distributions of Control and Experimental groups in 1969–70 compared to 2006–07, state of enlistment Tasmania

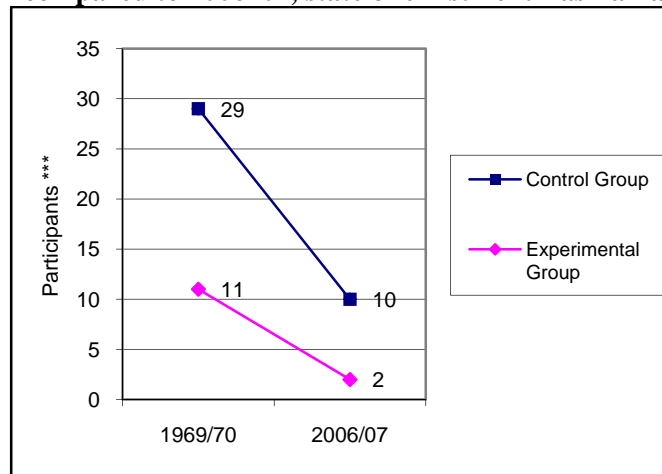


Figure 35: State recruitment distributions of Control and Experimental groups in 1969–70 compared to 2006–07, state of enlistment Western Australia

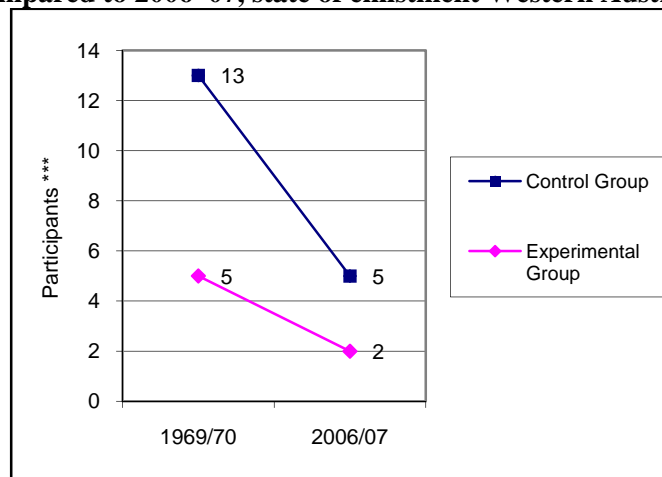
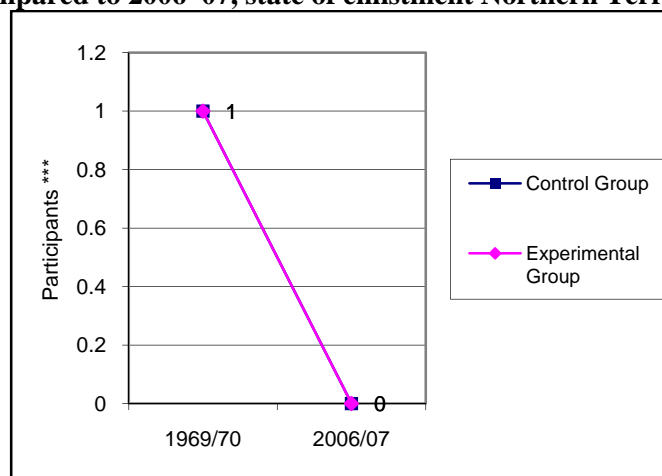


Figure 36: State recruitment distributions of Control and Experimental groups in 1969–70 compared to 2006–07, state of enlistment Northern Territory



Corps employment category in the battlefield: Control and Experimental group participants in 1969–70

Officers and non-commissioned officers must be able to identify the dysfunctional individual and understand what to do to maintain their units' cohesion while helping the individual. His or her attitude is a critical element of the principle of expected outcome and helping to ensure that it is positive rather than poor.

Many of these roles are a function of good leadership and it is reasonable to presume that officers and non-commissioned officers will have the abilities needed to take on these roles. However, a good leader does not depend on orders alone, but understands the need to reassure and direct without humiliation. Attention to the morale of the soldier who has seen intense combat and the importance of considering their welfare in the aftermath of battle are among the roles of good leadership. Similarly, the capacity to support is important to the psychological wellbeing of men. This is an immense task to expect of a

military leader without providing some psychological training in how to identify dysfunctional soldiers and those who are potentially at risk. The task of identifying and supporting soldiers might be mitigated if corps allocations of recruits are based on a psychological vetting process rather than a war establishment requirement. This selection procedure and subsequent corps allocation process was not done in 1969–70. At that time, 66 per cent of Control group and 62 per cent of Experimental group participants were allocated to combat-related corps (as shown in frequency Tables 69 & 70; Figure 37).

Table 69: Corps employment category in the battlefield in 1969–70 of Experimental and Control group participants matched in 2006–07

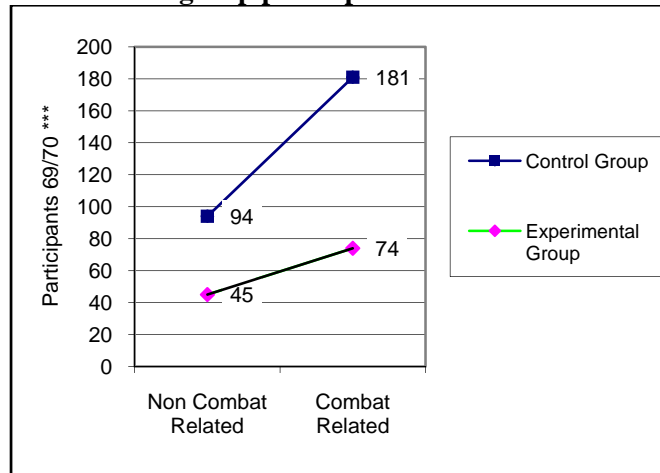
Corps employment category	Analysis	Group		Total
		Control participants	Experimental participants	
Non-combat related	Frequency	94	45	139
	%	23.86	11.42	35.28
	Row %	67.63	32.37	
	Col %	34.18	37.82	
Combat related	Frequency	181	74	255
	%	45.94	18.78	64.72
	Row %	70.98	29.02	
	Col %	65.82	62.18	
Total	Frequency	275	119	394
	%	69.80	30.20	100.00

Table 70: Vietnam TAOR Corps distribution during 1969–70 of Experimental and Control group participants
(Experimental group - **n**, %, Control group - *n*, %)

Corps	Frequency	%	Cumulative frequency	Cumulative %
RAEME	4	3.36	4	3.36
	<i>8</i>	<i>2.90</i>	<i>8</i>	<i>2.90</i>
RAASC	6	5.04	10	8.40
	<i>12</i>	<i>4.36</i>	<i>20</i>	<i>7.27</i>
RA Sigs	7	5.88	17	14.28
	<i>14</i>	<i>5.09</i>	<i>34</i>	<i>12.36</i>
RA Inf	39	32.77	56	47.05
	<i>98</i>	<i>35.63</i>	<i>132</i>	<i>48.00</i>
RAAOC	17	14.28	73	61.34
	<i>35</i>	<i>12.72</i>	<i>167</i>	<i>60.72</i>
RAAMC	7	5.88	80	67.22
	<i>17</i>	<i>6.18</i>	<i>184</i>	<i>66.91</i>
RAA	10	8.40	90	75.63
	<i>27</i>	<i>9.81</i>	<i>211</i>	<i>76.72</i>
RAAF	3	0.84	93	78.15
	<i>6</i>	<i>2.18</i>	<i>217</i>	<i>78.91</i>
RAE	12	10.08	105	88.23
	<i>24</i>	<i>8.72</i>	<i>241</i>	<i>87.64</i>
RAAC	6	5.04	111	93.27
	<i>18</i>	<i>6.55</i>	<i>259</i>	<i>94.18</i>
RAADC	1	0.84	112	94.11
	<i>2</i>	<i>0.72</i>	<i>261</i>	<i>94.90</i>
AACC	5	4.20	117	98.31
	<i>10</i>	<i>3.64</i>	<i>271</i>	<i>98.55</i>
RAN	1	0.84	118	99.15
	<i>2</i>	<i>0.72</i>	<i>273</i>	<i>99.27</i>
RAAEC	1	0.84	119	100.00*
	<i>2</i>	<i>0.72</i>	<i>275</i>	<i>100.00*</i>

*, * = Rounded off.

Figure 37: Corps employment category in the battlefield during 1969–70 of Experimental and Control group participants matched in 2006–07



Corps employment category in the battlefield: Control and Experimental group participants in 2006–07

In 2006–07, there was not a significant shift in those veterans that responded to the invitation to participate in the ongoing research program. Of those that confirmed their participation 64 per cent of Control group and 57 per cent of Experimental group participants had been allocated to combat-related corps in Vietnam during 1969-70 (as shown in frequency Tables 71 & 72 and Figure 38).

Table 71: Corps employment category in the battlefield during 1969–70 of Experimental and Control group participants who were involved in the ongoing research in 2006–07

Corps employment category	Analysis	Group		Total
		Control participants	Experimental participants	
Non-combat related	Frequency	27	9	36
	%	27.84	9.28	37.11
	Row %	75.00	25.00	
	Col %	35.53	42.86	
Combat related	Frequency	49	12	61
	%	50.52	12.37	62.89
	Row %	80.33	19.67	
	Col %	64.47	57.14	
Total	Frequency	76	21	97
	%	78.35	21.65	100.00

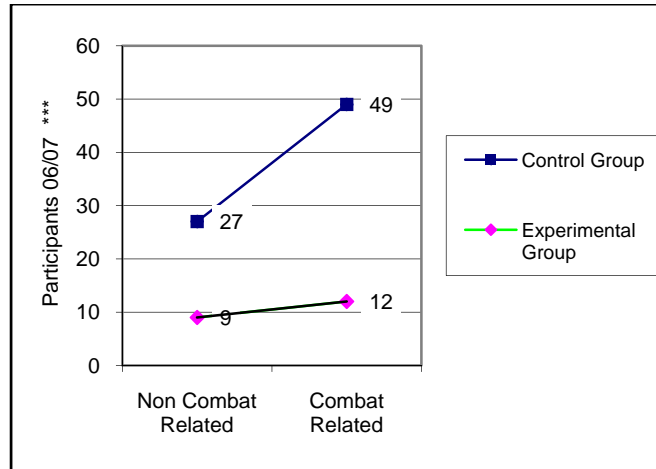
Table 72: Vietnam TAOR Corps distribution during 1969–70 of Experimental and Control group participants who were involved in the ongoing research in 2006–07

(Experimental group - n, %, Control group - n, %)

Corps	Frequency	%	Cumulative frequency	Cumulative %
RAEME	1	4.76	1	4.76
	2	2.63	2	2.63
RA Inf	10	47.62	11	52.38
	27	35.53	29	38.16
RAAOC	4	19.05	15	71.43
	12	15.79	41	53.95
RAAMC	1	4.76	16	76.19
	5	6.58	46	60.53
RAA	1	4.76	17	80.95
	5	6.58	51	67.11
RAAF	1	4.76	18	85.71
	2	2.63	53	69.74
RAAC	1	4.76	19	90.48
	6	7.89	59	77.63
RAADC	1	4.76	20	95.24
	1	1.32	60	78.95
RA Sigs	0	0.00	20	95.24
	2	2.63	62	81.58
RAE	0	0.00	20	95.24
	5	6.58	67	88.16
RAASC	0	0.00	20	95.24
	3	3.95	70	92.11
RAN	0	0.00	20	95.24
	1	1.32	71	93.43
RAAEC	0	0.00	20	95.24
	1	1.32	72	94.74
AACC	1	4.76	21	100.00*
	4	5.26	76	100.00*

*, * = Rounded off.

Figure 38: Corps employment category in the battlefield during 1969–70 of Experimental and Control group participants who were involved in the ongoing research program in 2006-07



Job employment category in the battlefield: Control and Experimental group participants in 1969–70

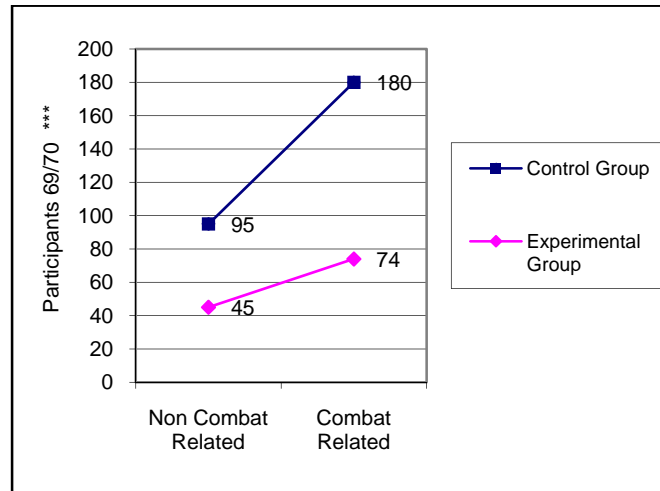
The extent, to which commanders are made aware of the nature of acute combat stress reactions, and how to manage it, is also an issue. This is a command issue. The extent to which it receives due attention and emphasis is a policy matter of monitoring implementation at senior levels. Implementation depends on the officers’ or non-commissioned officers’ individual sense of these issues in the midst of the many other competing priorities of military training. In the appropriate military training, the acknowledgement and understanding of the principles in these areas should have been taught when Australian military forces were committed in Vietnam. Officers and non-

commissioned officers should, as a matter of combat preparedness, be able to recognise those individuals within their sub-unit responsibility who might be susceptible to developing mental disorder. They should also be aware of the dynamic nature of these mental states and the effect they have on soldiers' capacity to perform in the tactical area of operational responsibility. If there is no commander to facilitate the operation of a mental health strategy, there is an increased probability that traumatic battlefield stress reactions will not be properly identified. Likewise, if a soldier needs psychological or psychiatric help, and there is no commander, any intervention and management are likely to be inadequate. Thus, being able to recognise when soldiers need help is critical to maintaining the effective tactical area of operational responsibility job performance levels throughout the deployment into the battlefield. During 1969–70, 65 per cent of the Control group and 62 per cent of the Experimental group were involved in combat-related job categories; no significant difference (shown in frequency Table 73 and Figure 39).

Table 73: Job employment category in 1969–70 in the battlefield of Experimental and Control group participants matched in 2006-07

Employment category	Analysis	Group		Total
		Control participants	Experimental participants	
Non-combat related	Frequency	95	45	140
	%	24.11	11.42	35.53
	Row %	67.86	32.14	
	Col %	34.55	37.82	
Combat related	Frequency	180	74	254
	%	45.69	18.78	64.47
	Row %	70.87	29.13	
	Col %	65.45	62.18	
Total	Frequency	275	119	394
	%	69.80	30.20	100.00

Figure 39: Job employment category in the battlefield during 1969–70 of Experimental and Control group participants



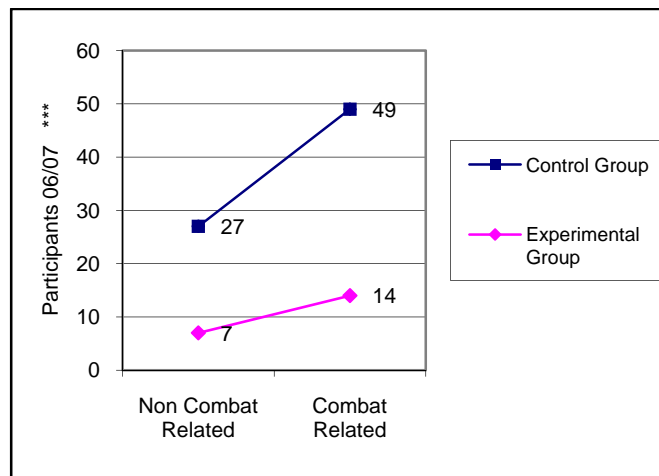
Job employment category in the battlefield: Control and Experimental group participants in 2006–07

During the interview process in 2006–07, confirmed responses concluded that 64 per cent of the Control group and 67 per cent of the Experimental group were involved in combat related job categories; no significant difference (shown in frequency Table 74 and Figure 40). Once again it needs to be noted the descriptive nature of these presentations in that the non-combat sample $n < 10$.

Table 74: Job employment category in the battlefield during 1969–70 of Experimental and Control group participants who were involved in the ongoing research in 2006–07

Employment Category	Analysis	Group		Total
		Control participants	Experimental participants	
Non-Combat related	Frequency	27	7	34
	%	27.84	7.22	
	Row %	79.41	20.59	
	Col %	35.53	33.33	
Combat related	Frequency	49	14	63
	%	50.52	14.43	
	Row %	77.78	22.22	
	Col %	64.47	66.67	
Total	Frequency	76	21	97
	%	78.35	21.65	

Figure 40: Job employment category in the battlefield during 1969–70 of Experimental and Control group participants who were involved in the ongoing research in 2006–07



Battlefield time before psychiatric treatment in 1969–70

Historically, there are large epidemiological studies that have examined this question in combat and non-combat treatment-seeking populations. Using a retrospective lifetime diagnostic method, these studies have attempted to examine the onset and course of these disorders. Various studies have examined the question of whether different types of traumatic events cause different patterns of co-morbidity should be examined. They

concluded that while there were significant similarities between different traumas, different profiles existed according to the different types of trauma. They also suggested that the evidence showed that these disorders were interwoven with PTSD rather than being truly co-morbid conditions (Deering et al. 1996) this confirmed that time that elapses before seeking psychological or psychiatric support is not a definitive indicator of the likely success of the treatment.

Current research has focused on the duration of deployment in Iraq and Afghanistan of United Kingdom forces. It indicates that military personnel who were deployed for 13 months or more in the past three years were more likely to present psychiatric symptom clusters that would meet the criteria for PTSD. The odds ratio is 1.55, with a 95 per cent confidence interval. A significant association was found between duration of deployment and severe alcohol and drug abuse problems (Kofoed et al. 1993). Frequency of deployment was a less consistent indicator of mental health issues than the duration of the deployment.

PTSD was also associated with the mismatch between expectations about the duration of deployment and the reality of the time spent in the battlefield (Rona et al. 2007). This may in part explain why the soldiers from 1969–70 on average received psychiatric care at approximately the time they would have been leaving the battlefield for their rest and recuperation. This would have been their mid-deployment holiday break normally taken at the six-month timeline. The mean time in 1969–70 for Experimental group participants

to spend in the battlefield before being sent for, or requesting, psychiatric support was 6.31 months (Table 75).

Table 75: Time spent in battlefield before forward psychiatric treatment

Group	N Observed	N	Mean	Std dev	Minimum	Maximum
Experimental	119	119	6.306727	4.082239	0.2500000	23.500000

Battlefield time before psychiatric treatment in 2006–07

The mean time in 2006–07 for Experimental group participants to spend in the battlefield before being sent for, or requesting, psychiatric support was 6.32 months (Table 76).

There is not a significant difference during 1969–70 results and the 2006–07 mean battlefield exposure tenure results.

Table 76: Time in the battlefield before psychiatric treatment during 1969–70 of Experimental group participants who were involved in the ongoing research in 2006–07

N	Mean	Std dev	Minimum	Maximum
21	6.3214286	3.6624299	0.2500000	14.0000000

Military rank in battlefield

The unusual, yet not significant, distribution of Experimental group participants who agreed to participate in the ongoing research was the two officers and two senior non-commissioned officers out of 21 participants (shown in frequency Table 77).

Table 77: Military rank distribution during 1969–70 of Experimental group participants who were involved in the ongoing research in 2006–07

Rank	Frequency	%	Cumulative frequency	Cumulative %
PTE	9	42.86	9	42.86
LCPL	2	9.52	11	52.38
CPL	6	28.57	17	80.95
SGT	1	4.76	18	85.71
WO2	1	4.76	19	90.48
LT	2	9.52	21	100.00

The sample size is not large. Yet the representation of these four—19 per cent, which is significant—in the group differs from the usual distribution of ranks in research covered in the literature review. From a descriptive position it does cause a pause to reflect on the possible exceptional nature of the battlefield exposures experienced in Vietnam by junior military officers and senior non commissioned officers.

Marital status in battlefield

Of the six Experimental group participants recorded as married, only one is still married to his original wife from 1969–70. It should be noted, however, that the distribution of relationship status in the group does not account for, nor represent, the qualitative responses from those interviewed during 2006–07. Also, those 15 who are single have all had broken relationships including multiple marriages (shown in frequency Table 78).

Table 78: Marital relationship status distribution during 1969–70 of Experimental group participants who were involved in the ongoing research in 2006–07

Marital relationship status	Frequency	%	Cumulative frequency	Cumulative %
Single	15	71.43	15	71.43
Married	6	28.57	21	100.00

Though not represented here, Control group participants who agreed to participate in the ongoing research made the same type of responses qualitative responses to the dynamic disturbed nature of their respective social and domestic situations.

DSM-IV symptom variation between the Experimental and Control groups in 2006–07

The individual who develops an acute stress disorder (ASD) in the battlefield obviously has a high risk of developing PTSD. Any combat-zone intervention should be alert to the possibility of emerging PTSD and be ready to change any soldier’s treatment or deployment status as required.

It is difficult, during and in the aftermath of combat, to conduct this type of intervention. However, the aim should be to separate affected soldiers into groups according to the extent of their illness. These groups should be:

- asymptomatic
- symptomatic without any problems in functioning
- symptomatic with major problems in functioning.

This last group can have a detrimental effect on a fighting force's functional capability. Essentially, in combat zones the diagnosis of ASD is based on a soldier's functional combat capacity. It is only when a soldier is unable to adequately fulfil their military duties, and starts to act in a way that endangers themselves and/or their fellow combatants, that they are usually identified. This usually results in disciplinary action and, consequently, the appropriate treatment is not administered. Thus, the soldier must not only show a clinical level of distress, but an inability to function for this reason. It is debatable whether the soldier who is symptomatic immediately after the conflict, but who does not have a full-blown ASD, has a major increased risk of developing PTSD.

The results of the diagnosed PTSD levels in the participants in this research confirm that the diagnosis of those in the battlefield must have meant that their clinical level of distress, as recorded in 1969–70, was extreme. Although this is true for this research, it should also be acknowledged that this manifestation of clinical distress is only one risk factor. There are many veterans who have had acute symptoms, and disguised them for many years, and who then develop late onset PTSD. Others do not develop PTSD at all but are still able to reflect on the acute symptoms they have experienced.

From a tactical and operational perspective, maintaining the fighting capacity of the armed services is an army's primary goal. It would be irresponsible to exclude from future combat anyone who had symptomatic distress presentations. Furthermore, removing them from combat may worsen their prognosis. This was demonstrated by the proximity, immediacy and expectancy treatment approach to symptom management

(Jones and Wessely 2005). However, there is very limited data that enables judgment of these issues. Thus, there is a dilemma between protecting the individual and providing an effective and efficient fighting army to satisfy the political option presented in many deployments of Australian forces. The earlier the diagnosis of ASD and/or PTSD is vital for specific, effective treatment and to give soldiers the best chance for recovery and redeployment. The DSM-IV diagnosis by group of those who responded to the invitation questionnaire (shown in frequency Table 79 & chi-square Table 80 and Figure 41)

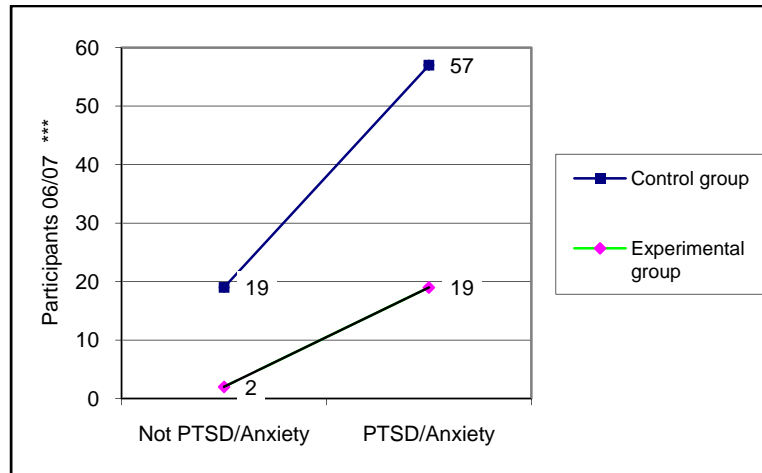
Table 79: DSM-IV battlefield diagnosis during 1969–70 of Experimental group participants who agreed to participate in the ongoing research in 2006–07

DSM-IV diagnosis	Analysis	Group		Total
		Control	Experimental	
Not PTSD/anxiety	Frequency	19	2	21
	%	19.59	2.06	21.65
	Row %	90.48	9.52	
	Col %	25.00	9.52	
PTSD/anxiety	Frequency	57	19	76
	%	58.76	19.59	78.35
	Row %	75.00	25.00	
	Col %	75.00	90.48	
Total	Frequency	76	21	97
	%	78.35	21.65	100.00

Table 80: DSM-IV battlefield diagnosis of Experimental and Control group participants who agreed to participate in the ongoing research in 2006–07

Statistic	DF	Value	Probability
Chi-square	1	2.3233	0.1275
Likelihood ratio chi-square	1	2.6689	0.1023
Continuity adj chi-square	1	1.5005	0.2206
Mantel-Haenszel chi-square	1	2.2993	0.1294
Phi coefficient		0.1548	
Contingency coefficient		0.1529	
Cramer's V		0.1548	

Figure 41: DSM-IV Battlefield diagnosis of Experimental and Control group participants who agreed to participate in the ongoing research in 2006–07



This data collection and subsequent analysis established that there was a significant difference between the Experimental and Control research participants where—Fisher's exact test: one-tailed $p = .1063$ (Table 81). Seventy-five per cent (57 of 76) of the Control group participants met the DSM-IV diagnosis criteria, while 90 per cent (19 of 21) of the Experimental participants did the same. This was a significant difference between the two groups. Although it needs to be detailed that the majority of the Control group should be considered as developing delayed onset PTSD. This result also needs to be tempered with the instrument result which confirmed the 19 of the Experimental group participants as suffering from PTSD, while interestingly the Control group during the telephone interview increased from 57 to 64 out 76 suffering from PTSD. This revised result confirmed that there was not a significant difference between the groups with regard to those diagnosed with PTSD or delayed onset PTSD. Relevant consideration maybe

members of the Control group wanted to disguise their responses in the psychometric questionnaire yet during the telephone interview they were not able to do so?

Table 81: DSM-IV battlefield diagnosis of Experimental and Control group participants who agreed to participate in the ongoing research in 2006–07 (Fisher’s exact test)

Cell (1,1) Frequency (F)	19
Left-sided Pr \leq F	0.9742
Right-sided Pr \geq F	0.1063
Table probability (P)	0.0804
Two-sided Pr \leq P	0.2290

The diagnosis of TSD in conjunction with other psychiatric illnesses from 1969-70 in hindsight can be seen as an early indicator of potential future PTSD prognosis. The Experimental group’s significantly higher response also confirms that the military psychiatrists’ accurate diagnosis of TSD and associated psychiatric illnesses in 1969–70 did not help them get the appropriate treatment. From a 1969-70 community perspective, treatment for mental disorders was limited in the military and civilian community then; from a diagnostic perspective and treatment facility availability. Many soldiers would have had, but not been diagnosed, with a TSD and associated psychiatric illnesses in 1969–70. Of those who were, most would not have sought treatment. Neither clinicians, nor the community generally, understood how to deal with such symptoms and this has exacerbated those soldiers’ current psychological states. The only limitation in this result is the size of the Experimental group that agreed to participate in the ongoing research. Allowing for this, an inferential observation can be made about participants of both groups to justify a type diagnosis of anxiety and/or PTSD. Members of both groups have

received a variety of ongoing analysis and treatment since they returned from their military deployment in Vietnam in 1969–70.

Totally and permanently incapacitated diagnosis variation between the Control and Experimental groups in 2006–07

It is only in the last 15 years that the Australian Defence Force has started to review all returning personnel. This has been done with all the troops deployed to East Timor, Iraq and Afghanistan. The psychological evaluation consists of an individual interview three months after their return to Australia—with a military psychologist and the administration of several brief, psychometric instruments. It should be emphasised that the returning veterans are all volunteer soldiers because there is no conscription in Australia today. The Australian Defence Force attempted to implement an early-stage deployment measure to identify PTSD; however, this was abandoned when clinicians said that as a systematic clinical intervention, its validity was questionable. It was introduced after the extreme exposure Australian military peacekeepers had to a massacre of 4000 refugees by the Rwanda People's Army in Rwanda in 1994. A poignant story was told to the principal researcher. An Australian peacekeeper was walking in a town square on a covering of cardboard boxes he thought was very spongy only to discover that the cardboard covered hundreds of rotting corpses. This sight haunts him to this day. This deployment was of medical personnel predominantly and many of these peacekeepers suffered significant morbidity. The horrific experience served to change medical officers' attitudes about the relevance of psychological trauma in the military. It has also led to an important shift in policy and action about mental health issues in the

Defence Health Branch. Other research into this area of psychiatric symptom manifestation associated with contemporary peacekeeping has examined the post-deployment functioning among peacekeepers deployed to Somalia (Orsillo et al. 1998).

Before 1994, clinicians and defence bureaucrats considered the administration of psychometric measures was considered to be a research method for studying the longitudinal course of health problems in the military. The lessons learned from this research indicated that systematic vetting would be beneficial because the symptoms that were identified could then be treated specifically. This would be better for the soldier than waiting until the severity and intensity of the symptom clusters reached a stage that the veteran became totally and permanently incapacitated. This approach has only become possible with the availability of more sophisticated measures. The sensitivity and specificity of many of the candidate measures had not been reliably established before this deployment. This meant there were no measures available that could have been used with any degree of clarity or certainty. There is a range of measures available for potential use in the Australian Defence Force. However, their suitability and effectiveness must first be ratified through further rigorous testing and research. Many problems remain with this approach. Individuals may and often do minimise their distress for fear of compromising their promotion prospects, further deployment opportunities, acceptance in the service and because of an inability to accept their personal vulnerability.

Experimental and Control group participants who stated that they had been classified as being totally and permanently incapacitated classification from the Australian

Department of Veterans' Affairs described qualitatively how difficult it had been to obtain the classification and at the same time accept their own personal vulnerability as a consequence of this admission. Those members of the Experimental and Control research participants respond to this question confirmed that there was no significant difference between the groups (chi-square, 1 df = 1.5053, p = .2199) Table 82.

Table 82: Analysis of totally and permanently incapacitated participants who agreed to participate in the ongoing research in 2006–07 (Chi-square)

Statistic	DF	Value	Probability
Chi-square	1	1.5053	0.2199
Likelihood ratio chi-square	1	1.6059	0.2051
Continuity adj chi-square	1	0.9171	0.3382
Mantel-Haenszel chi-square	1	1.4898	0.2223
Phi coefficient		0.1246	
Contingency coefficient		0.1236	
Cramer's V		0.1246	

Table 83: Analysis of totally and permanently incapacitated Experimental and Control group participants who agreed to participate in the ongoing research in 2006–07 (Fisher's exact test)

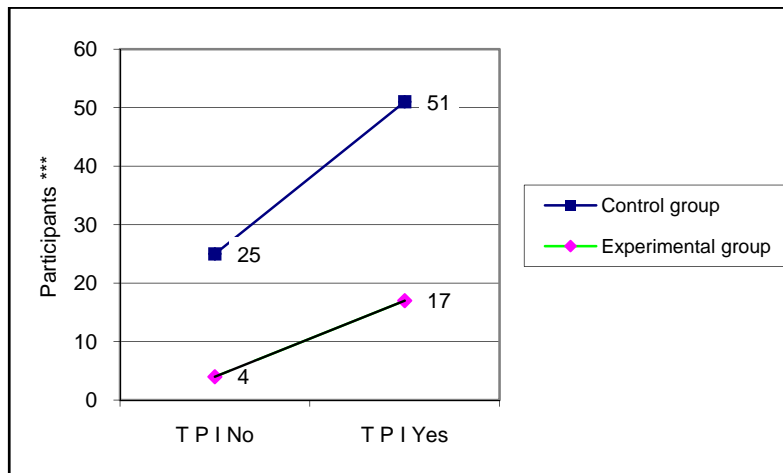
Cell (1,1) Frequency (F)	25
Left-sided Pr <= F	0.9372
Right-sided Pr >= F	0.1697
Table probability (P)	0.1069
Two-sided Pr <= P	0.2867

Sixty-seven per cent (51 of 76) of Control group participants stated that they are classified as being totally and permanently incapacitated classification while 81 per cent (17 of 21) of Experimental group participants also stated they had received this medical classification (shown in frequency Table 84 and Figure 42).

Table 84: Totally and permanently incapacitated classification of Experimental and Control group participants who agreed to participate in the ongoing research in 2006–07

Totally and permanently incapacitated diagnosis	Analysis	Group		Total
		Control	Experimental	
No	Frequency	25	4	29
	%	25.77	4.12	29.90
	Row %	86.21	13.79	
	Col %	32.89	19.05	
Yes	Frequency	51	17	68
	%	52.58	17.53	70.10
	Row %	75.00	25.00	
	Col %	67.11	80.95	
Total	Frequency	76	21	97
	%	78.35	21.65	100.00

Figure 42: Totally and permanently incapacitated classification for Experimental and Control group participants who agreed to participate in the ongoing research in 2006–07



There is little difference between those participants with a totally and permanently incapacitated classification and those with a PTSD diagnosis. It can, therefore, be concluded that the Department of Veterans’ Affairs acknowledges and accepts liability for both research groups’ ongoing diagnosis and treatment of service-related incapacity

since the Vietnam War. This raises the question of whether an earlier vetting of soldiers, as implemented now by the Australian Defence Force would have helped to reduce this suffering. Another question for considered is if, in the future, this vetting process will reduce the proportion of veterans diagnosed with PTSD diagnosed and classified as totally and permanently incapacitated. This is an issue of multiple comparisons which are not addressed in this research but has been included in the final chapter dealing with suggestions for future research. Especially research that can be conducted with de-identified data from the Department of Veterans' Affairs.

Traumatic events variation between the Control and Experimental groups in 2006–07

Another theoretical proposition is that co-morbidity with PTSD may arise because the role of trauma exposure is a predisposing factor. That is, disorders, such as depression and subsequent substance abuse, (Kessler et al. 1995) may be predisposing factors for PTSD and precede the time of the traumatic battlefield exposure. In such cases, the aetiological significance of the traumatic event is magnified as the specific predisposition to the development of a psychiatric disorder is not manifest before the exposure. The role of the traumatic event—the battlefield—is to intensify the symptomatic distress. This pre-existence of a disorder is clearly the case in some individuals who have been exposed to traumatic events. But in many individuals, these two disorders emerge simultaneously in the aftermath of the traumatic exposure. A significant group of individuals carry a variety of risk factors for general psychiatric morbidity and their major disorder only emerged following exposure to the traumatic stress. Here, the role of the event as the precipitating factor is critical. The traumatic memory also plays a role in the perpetuation of the

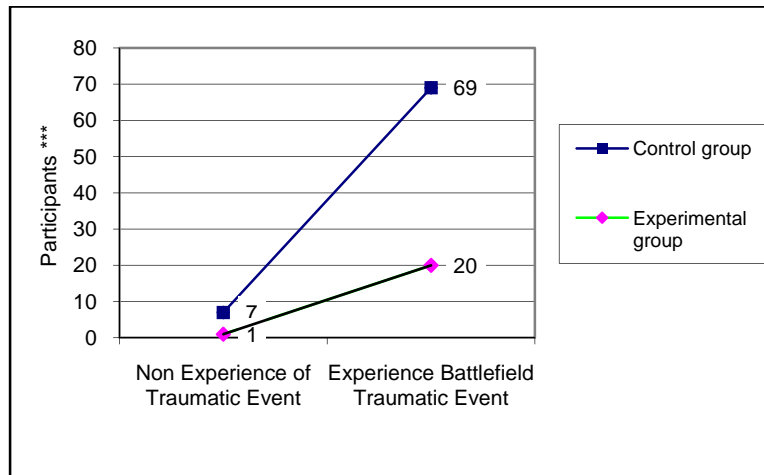
symptoms. The challenge emerges as to whether the onset of these other disorders in the setting of the trauma predicts a different course and treatment response than in an individual with PTSD alone. This question has not been answered because of the paucity of relevant treatment literature.

Of the Control group participants, 91 per cent (69 of 76) reported exposure to traumatic battlefield events. The corresponding figure for the Experimental group was 95 per cent (20 of 21) shown in frequency Table 85 and Figure 43. All experienced and/or witnessed one or more of the following: dead and mutilated bodies, grotesque injuries, being wounded or seeing comrades wounded.

Table 85: Traumatic events experienced by Experimental and Control group participants who agreed to participate in the ongoing research in 2006–07

Experience a traumatic event/s	Analysis	Group		Total
		Control	Experimental	
No	Frequency	7	1	8
	%	7.22	1.03	8.25
	Row %	87.50	12.50	
	Col %	9.21	4.76	
Yes	Frequency	69	20	89
	%	71.13	20.62	91.75
	Row %	77.53	22.47	
	Col %	90.79	95.24	
Total	Frequency	76	21	97
	%	78.35	21.65	100.00

Figure 43: Experimental and Control group participants who witnessed traumatic battlefield events



No significant difference was established between the Experimental and Control research participants with regard to the exposure to the battlefield traumatic events. The Fisher's exact test result was one-tailed, $p = .4481$ (Table 87).

Table 86: Analysis of traumatic events experienced by Experimental and Control group participants who agreed to participate in the ongoing research in 2006-07 (Chi-square)

Statistic	DF	Value	Probability
Chi-square	1	0.4303	0.5118
Likelihood ratio chi-square	1	0.4829	0.4871
Continuity adj chi-square	1	0.0432	0.8353
Mantel-Haenszel chi-square	1	0.4259	0.5140
Phi coefficient		0.0666	
Contingency coefficient		0.0665	
Cramer's V		0.0666	

Table 87: Analysis of traumatic events experienced by Experimental and Control group participants who agreed to participate in the ongoing research in 2006-07 (Fisher's exact test)

Cell (1,1) Frequency (F)	7
Left-sided Pr \leq F	0.8695
Right-sided Pr \geq F	0.4481
Table probability (P)	0.3177
Two-sided Pr \leq P	1.0000

This moderate correlation confirms the high exposure levels both groups experienced during their respective deployments in Vietnam during 1969–70. It also confirms the impact these experiences had for them to be recalled more than 35 years later.

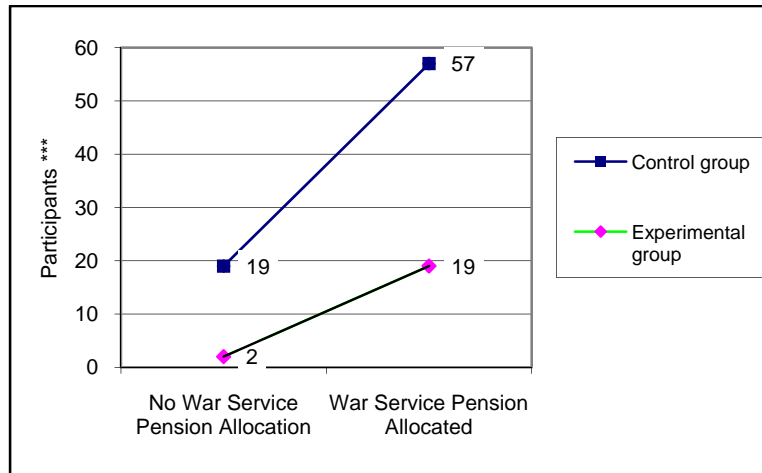
Military pension status variation between the Control and Experimental groups in 2006–07

Receipt of a military pension does not specifically relate to a diagnosis of PTSD. The range and percentage of disability for which veterans receive a pension vary widely. Seventy-five per cent of Control group participants (57 of 76) confirmed they receive some type of military pension, compared to 90 per cent (19 of 21) of Experimental group participants (shown in Table 88 & Figure 44).

Table 88: Military pension status of Experimental and Control group participants who agreed to participate in the ongoing research in 2006–07

Military pension allocated	Analysis	Group		Total
		Control	Experimental	
No	Frequency	19	2	21
	%	19.59	2.06	21.65
	Row %	90.48	9.52	
	Col %	25.00	9.52	
Yes	Frequency	57	19	76
	%	58.76	19.59	78.35
	Row %	75.00	25.00	
	Col %	75.00	90.48	
Total	Frequency	76	21	97
	%	78.35	21.65	100.00

Figure 44: Military pension status of Experimental and Control group participants who agreed to participate in the ongoing research in 2006–07



All that can be inferred from this data is that those who agreed to participate in the ongoing research are less healthy—physically and psychologically—than similarly aged men in the general population. There was no significant difference between the Experimental and Control research participants, with Fisher’s exact test results of one-tailed, $p = .1063$ (Tables 89 & 90).

Table 89: Analysis of military pension status for Experimental and Control group participants who agreed to participate in the ongoing research in 2006–07 (Chi-square)

Statistic	DF	Value	Probability
Chi-square	1	2.3233	0.1275
Likelihood ratio chi-square	1	2.6689	0.1023
Continuity adj chi-square	1	1.5005	0.2206
Mantel-Haenszel chi-square	1	2.2993	0.1294
Phi coefficient		0.1548	
Contingency coefficient		0.1529	
Cramer's V		0.1548	

Table 90: Test results of the military pension status of Experimental and Control group participants who agreed to participate in the ongoing research in 2006–07 (Fisher’s exact test)

Cell (1,1) Frequency (F)	19
Left-sided Pr \leq F	0.9742
Right-sided Pr \geq F	0.1063
Table probability (P)	0.0804
Two-sided Pr \leq P	0.2290

Conclusion

Telephone interviews were used to administer the CAPS-2 instrument and to confirm the specific traumatic battlefield events to which each participant and group were exposed. There were significant differences in the data in that the Experimental group participants that agreed to participate in the ongoing research registered that they were still suffering and had less of a chance of improvement, their recollection of the combat exposure was clear and ever present, that the intrusive thoughts and dreams were more intense and that this ensured that they utilised avoidant strategies and behaviours in their day to day lives. Finally the Experimental group registered higher rates of severity and presence of depression though not significant. Although a few of these areas were significantly different the majority of the Experimental and Control group participants are predominantly suffering from PTSD and met all of the criteria for all of the research instruments to warrant medical attention with corresponding clinical diagnosis. During the telephone interview the Control group participants were reticent in their responses when compared to the responses of the Experimental group. This can be attributed, in part, to these men trying to hide or disguise a medical condition they consider to be a sign of weakness or inadequacy, which they have done for the past 35 plus years. When given the opportunity to complete a research instrument that guaranteed their anonymity,

Control group respondents' answers were much more accurate (Caputo 1999). The majority of the Vietnam veterans interviewed in this study are still suffering today from the pernicious effects of their traumatic battlefield exposures in 1969–70.

Previous researchers have examined the treatment outcomes and changes in the immediate and long-term psychological health status of combat-exposed veterans. They advocate the importance of determining if there are, in fact, distinct pernicious manifestations that are likely to respond to standard treatment regimes. Research studies have concluded that significant numbers of PTSD patients fail to recover following standard treatment programs (Johnson et al. 1996 and Hammarberg & Silver 1994). Additionally, in an attempt to reduce the cost of medical support for veterans, there has been a significant reduction in the number of inpatient treatment programs for veterans with combat-related PTSD (Rosenheck & Fontana 2001). Despite that, veterans with PTSD who complete inpatient treatment at specialised, short-stay programs maintain improved social functioning behaviours and reductions in PTSD symptom cluster severity 12 months after discharge (Fontana & Rosenheck 1997).

Specialised inpatient treatment might not be necessary for every veteran with battlefield exposure-related PTSD (Rosenheck & Fontana 2001). However, these research outcomes imply that it is important to critically investigate chronic PTSD in a way that enables researchers to identify potential variations in symptom clusters and coping adjustment patterns (pernicious manifestations). This critical analysis information will enhance the effectiveness of battlefield exposure recognition and the diagnosis referral process in the

tactical area of operational responsibility. It might subsequently help to ensure that valuable resources such as inpatient care are provided to those veterans who need such specific medication or treatment. The purpose of this research was to evaluate and test the:

- effect of traumatic battlefield exposure
- research participants' general health
- presence and severity of depressive symptoms
- personal relationship vigor status
- self-rating PTSD analysis
- combat exposure confirmation.

A clinician-administered PTSD instrument was used, while controlling for the effects of co-variants. All analysis was adjusted for the effects of age, time in the battlefield, rank, job and corps combat employment categories, marital status, type and state of enlistment and gender (Rona et al. 2007).

PTSD was significantly related to traumatic battlefield exposure. In addition to examining the traumatic battlefield exposure and PTSD symptoms, overall these analyses were repeated separately for each of the three component symptom clusters of PTSD. These are re-experiencing, avoidance/numbing, and hyper-arousal. Once again, using the conditions of mediation outlined above, results suggest that the effects seen with PTSD overall were also evident in each of the symptom clusters. With regard to the PTSD checklist – military version there were significant differences between the groups in the

symptom clusters of intrusion and avoidance, research has questioned the clinical validity of avoidance being a symptom of PTSD rather it should be regarded as a subsequent reaction (McFarlane 1993); albeit there was no significant difference between the groups in the symptom arousal. The majority of the research respondents registered results that would warrant a PTSD diagnosis. The represented data results were high and consistent with PTSD suffering and subsequent diagnosis. On average, the Experimental group registered higher overall scores than the Control group. Specifically, intrusion and avoidance symptoms were found to partially reconcile the relationship between the traumatic battlefield exposure and coping with ongoing, but limited, lives. All three clusters are evident in both the Control and Experimental group's responses. The relationship between participants' respective traumatic battlefield exposure/s, ongoing physical health, and a decline in relationship and psychological wellbeing is evident from the results of this research.

The final sample size of the Experimental group ($n=21$) represents 18 per cent of the original group in 1969–70. The Control group ($n=76$) represents 28 per cent of the original group selected and matched from 1969–70 data recorded on files held at the Australian War Memorial Research Centre. These samples are about the sample response norm for this type of research (Miller 2006). Collectively, the group sample distribution was considered large enough to provide a significant response when presented for statistical analysis (Miller 2006). Battlefield exposure during 1969–70 affected the longitudinal courses of Experimental and Control groups' health, relationships and ongoing wellbeing. These battlefield exposure experiences were significantly associated

with traumatic life events during the initial phase of the research in 1969–70 for the Experimental group participants. They were also associated with traumatic life events for the Experimental and Control group participants who continued with the research program in 2006–07.

The rating validity for both these groups was confirmed in the telephone interview and the follow-up endorsement information obtained from the Australian War Memorial Research Centre. The research demonstrated that, overall, both groups suffered significant impairment in their social and occupational functioning. This obviously disrupts their lives. Consequently, battlefield exposure has pernicious effects on the psychological and physical wellbeing of tactical area of operational responsibility military psychiatric patients. There was no significant difference in any of the demographic, categorical and continuous variables presented by participants in either group in 1969–70 or by those who responded in 2006–07. Also, time spent in the battlefield before being treated by a military psychiatrist was not significantly different from the reported data in 1969–70 and that reported by the Experimental group that responded in 2006–07. Initially, clinicians thought the enlistment type and DSM-II symptom diagnosis may indicate a significant causal link, but this proved to not be the case both in 1969–70 and in 2006–07. Both groups' high exposure to traumatic battlefield events had such a significant impact on their lives that they were able to recall, more than 35 years later, and precise details of their experiences in Vietnam. The high mean results recorded by the groups confirm that neither group is generally well when compared to men of a similar age in the general population. Both groups self-rating of their general

health has also deteriorated in the past year. Similarly, the overall status of relationships is poor for both groups. For all the measures used, the majority of both groups, on average, met the score requirement to be classified as suffering from PTSD. The CAPS-2, Wilson and Krauss' combat index and PCL-M were used to evaluate participants' combat-exposure experiences and current depression status. There were significant differences between the groups with regard to the severity and presence of depression in the overall rating for the PCL-M and the symptoms of intrusion and avoidance behaviours. Combat exposure was significantly different (the majority of the Experimental group participants registered in the often category whereas the majority of the Control group registered in the rarely category of the combat exposure scale), but not in the delineated three areas of the instrument. Despite this difference the majority of both groups results are directly associated with PTSD symptoms, and a PTSD diagnosis was certainly associated with ongoing physical, relationship and psychological health and wellbeing problems for the majority of the members of both of the groups.

The null hypothesis is confirmed and the research question was answered in the affirmative in that battlefield exposure does have long-term, pernicious effects on the psychological and physical wellbeing of TAOR Vietnam War Australian military personnel both those diagnosed in 1969-70 as military psychiatric patients (Experimental group) and the compared case controlled Australian military personnel (Control group) with the same battlefield exposure experiences that did not receive psychiatric treatment.

Picture 6



1969-70

9 Battalion Australian Prefabricated facilities
in the 1st ATF TAOR

CHAPTER 6

The mordant observations on the
Character of War as 'a savage schoolmaster
that brings the characters of most people down
to the level of their current circumstances'
Thucydides (Kagan 2005).

DISCUSSION, LIMITATIONS AND CONCLUSIONS

Introduction

This chapter is divided into three major parts. The first part discusses the Trauma exposure interpretation applied to the analysis to test the research hypothesis and examine the research question. The second part addresses a range of parameters that may limit the application of the research results specifically dealing with evolution of diagnostic criteria relevant to these and other Australian Vietnam veterans' and the significant research outcome of delayed onset PTSD (Herrmann & Eryavec 1994) in both the Control and Experimental group participants. The final part of this chapter is a more general discussion on the impact of battlefield traumatic exposure on these research participants psychological and physical health outcomes relevant to the specific measurements applied in this research.

As stated in Chapter 1, reviewed through the literature in Chapter 2 and discussed in Chapters 3, 4 and 5; the null hypothesis and research question arose from the scarce opportunity presented by 1969-70 battlefield psychiatric diagnostic data becoming available from this distinct period during the Vietnam War.

The subsequent longitudinal case control research design adopted in this study provided data which confirms that there are long term pernicious outcomes for a greater proportion of Australian Vietnam Veterans within this research population that were exposed to the same battlefield traumatic events during 1969-70 as diagnosed then, and measured now, after 35 plus years than was initially expected. Irrespective of the medical treatment sought or obtained in the intervening period from 1969-70 to 2006-07; these research outcomes are supported by other longitudinal research of military populations (Southwick et al. 1995; Watson et al. 1988; Engdahl et al. 1998; Solomon & Mikulincer 2006; Bremner et al. 1996; Op den Velde et al. 1993 and Burges-Watson & Daniels 2008). Although it needs to be clearly appreciated that due to the relatively small 2006-07 research populations involved in this study consideration of, possible bias and the limited effect of the probability of outcome, has to be at the fore front of any interpretation of data results, trends and outcomes. These are considered to be major limitations of this research and can not be stressed enough.

This is the first research study into the longitudinal outcomes of a group of Australian military personnel who were exposed to the same traumatic battlefield situations and had these exposures diagnosed in the TAOR in 1969–70 by the same Australian military psychiatrist. This study examined the physical and mental health outcomes of these (1969-70) Australian military personnel who sought, or were directed to attend, at least one psychiatric diagnostic treatment session; and subsequently received a psychiatric diagnosis utilising the *Diagnostic and Statistical Manual of Mental Disorders, Second*

edition (DSM-II) (American Psychiatric Association 1968)-thereby becoming the Experimental group participants.

Data presented in this research was interpreted with a level of confidence primarily due to confidentiality and anonymity offered to the research participants through all of the phases of the research project. This confidentiality agreement (as endorsed by the Australian Department of Veterans Affairs Ethics Committee) ensured that the research participants were free to respond candidly without fear of a bureaucratic or social reprisal (Centre for Disease Control 1998).

The majority (93 of 119) of the Australian military personnel in the Experimental group presented with transient situational disturbance (TSD) symptoms in 1969–70. Seventeen of the 21 who agreed to participate in the ongoing research in 2006–07, received this diagnosis in 1969-70. In 2006-07, 19 of the 21 met the diagnostic requirements for PTSD. These 19 manifested chronic levels of ongoing distress and are more fragile in ongoing stressful situations and social and/or occupational endeavours than they were in the past. Sixty four of the 76 Control group participants that agreed to participate in the 2006–07 ongoing research presented acute and chronic levels of distress and emotional discord (delayed onset PTSD)-(Pomerantz 1991; Prigerson et al. 2001 and Horowitz & Solomon 1975) directly attributed to their respective traumatic battlefield exposures in 1969-70 as also experienced by their 1969-70 and 2006-07 Experimental group contemporaries (Solomon et al. 1991 a & b and Gray et al. 2004).

The groups were not significantly different in most areas of recorded data. Some participants from both groups tried to hide their symptoms. When they were confronted with answering questions about delayed onset PTSD symptom manifestations, combat exposure, depression, relationship status, health and wellbeing; they would qualify their responses by referring to the historical social interpretation of their condition as being something that affected weak or vulnerable people (Resnick et al. 1992). They found this difficult to accept initially, but as the interview progressed they became more amenable to being genuine in their qualitative responses (Rice & Ezzy 1999). All of these reactions were talked through during the interview session and the majority of the research participants confirmed they wanted to continue with the research. Many also provided very detailed and unambiguous responses to the interview questions. Those unambiguous responses relating to experiences in the battlefield during 1969-70 were all ratified during the final phase of the research program.

GSR to TSD to PTSD

This research represents an important first step in exploring whether the initial psychiatric diagnosis of Transient Situational Disorder (TSD) from *Diagnostic and Statistical Manual Of Mental Disorders, Second Edition* (DSM-II) describes the battlefield trauma exposure as a potential risk factor for co-morbidity with other disorders and later morbidity manifestations, particularly delayed onset PTSD, rather than just severe acute disorder presentations (McFarlane 1988). The experience of psychiatrists from the battlefield was incorporated into the *Diagnostic and Statistical Manual Of Mental Disorders, First Edition* DSM-I (1952) diagnostic criteria for Gross Stress Reaction

(GSR), ironically however, traumatic neurosis was not included in this *Diagnostic and Statistical Manual Of Mental Disorders* (DSM). The belief remained, at the time that the long-term outcomes were covered appropriately by the terms anxiety and depressive neurosis (Wilson 1994). However, this DSM diagnostic category was the forerunner of a disorder that could arise from combat (trauma) exposure. The shift from DSM-I GSR (1952) to DSM-II (1968) TSD reflects the dearth of vigorous study and empirical inquiry about the physical and psychological consequences of trauma exposure in the 1950's and 1960's (Wilson 1994). Furthermore, in the interim, life events research had blossomed and the differentiation between traumatic and other life stresses had been lost. In this way TSD was a generic term, indicative of psychological distress of an undifferentiated nature that was presumed to be short term, following the exposure to such adversity. Glass (1974) has highlighted how psychiatry quickly forgot the lessons after WW I and WW II, and the inclusion of TSD is probably one of the best indicators of this professional amnesia. Also, its use in military psychiatry indicates an excessive faith in the effectiveness of the, proximity of treatment to the battlefield, immediacy of response and the expectation of recovery of the military combatant 'PIE' approach (Jones & Wessely 2005) in preventing long term morbidity which Solomon's work demonstrated was not the case.

In particular, TSD was introduced as a general all encompassing diagnosis to replace the more detailed DSM-I diagnosis of Gross Stress Reaction (GSR). The idea behind the utilization of a TSD classification in DSM-II for the general population was to try to diagnose a short term adult adjustment to life stressors and one off disasters. Specifically

for military personnel this identification of an adult adjustment to a life stressor involved dealing with the unrelenting life situation stressor of combat, mutilations, atrocities and death (Yehuda et al. 1992). It was that a soldier's inability to adjust or cope after battlefield traumatic exposure/s was a (combat stress reaction) consequence of their current transient environment or circumstances rather than the fact that they had developed a psychiatric condition (Solomon et al. 1989a and Solomon & Mikulincer 1987, 1988 & 1992). An early intervention designed to deal with this phenomenon was the introduction initially on the British war personnel unit establishment entitlements of forward military psychiatric support units deployed in WW I and WW II (Jones & Wessely 2005). These medical support units were specifically intended to implement a treatment regime referred to above by the acronym 'PIE'. It was administered rigorously and firmly based on the notion of the transient state of the combat stress casualty (Jones & Wessely 2005). This forward psychiatry was intended to deal with these acute combat stress casualties. The consideration was, given time close to the battlefield in relative safety, the combatant's manifested acute combat stress condition would rapidly dissipate once he had time to rest and recover. The aim of the location of the unit and the treatment PIE regime was to restore the integrity of the combat unit by returning the combatant to the battlefield as soon as possible (Jones & Wessely 2005). This was fundamentally the ethos behind the physical and psychiatric medical support infrastructure adopted and deployed by the United States and Australian Defence forces during the Vietnam War.

The significant shift from a transient consideration of the impact of battlefield trauma exposure on a combatant's physical and psychological state to that of PTSD as a separate

diagnostic entity in the *Diagnostic and Statistical Manual Of Mental Disorders, Third Edition* (DSM-III) (1980) resulted from a change in the understanding of the lingering long term detrimental impact of trauma exposure/s. Specifically; the impact of battlefield trauma exposure/s is universal and influences an individual's emotional expressiveness; cognitive processes; motivation and goal striving; interpersonal and object relations; and physiological functioning states; not only initially but in many cases forever (Wilson 1994). Initially, "post-traumatic" means "after injury" indicated that there is a change in the state of well-being which is associated with various reaction patterns and symptom formations within the affected individual. Secondly, since the formalization of PTSD as a diagnostic category, more research has clarified differential diagnoses and the understanding of co-morbid conditions associated with the manifestations of PTSD symptom clusters (Wilson & Raphael, 1993 and Boscarino 2004). The diagnosis of PTSD has validated and legitimized universally the suffering military and civilian personnel suffering as a consequence battlefield traumatic exposure/s. Similarly; PTSD as a diagnostic category has reduced the frequency of misdiagnosis and by implication, possible mistreatment of veterans and civilians. PTSD clinical and research studies with different populations of trauma victims (e.g., childhood abuse, rape victims, war veterans, disaster survivors,- Breslau & Davis 1992) have also led to questions and refinements in understanding the complexity of stress response syndromes and the associated exposure reaction patterns and symptom presentations in sufferers (Karam & Ghosn 2003 and Wilson 1994).

This research contributes to the ongoing debate about the severity and intensity of the impact on battlefield trauma exposure on military populations specifically (Andrews et al. 2007). Particularly those veterans that do not present battlefield trauma exposed symptoms in the battlefield or in the short term after their return to the relative safety of home (Helzer et al. 1987; Prigerson et al. 2001; Southwick et al. 1995; Watson et al. 1988; Engdahl et al. 1998; Solomon & Mikulincer 2006; Bremner et al. 1996 and Op den Velde et al. 1993), irrespective of whether these military personnel seek, are directed to or do not receive medical intervention treatments after their respective and in most cases unpredictable battlefield trauma exposure/s. It also provides a longitudinal insight into the dramatic impact a deficient or an inappropriate diagnosis can have on veterans' lives post battlefield experience/s. The initial diagnosis of TSD made in 1969-70 on the majority of the Experimental group from this research was accurate in identifying individuals at 'high risk' (Bryant & Harvey 1998; Bryant et al. 1999; Classen et al. 1998; Freidman 2006a and specifically; Harvey & Bryant 2000 and Koopman et al. 1995), but was deficient in appreciating the long term impact on their respective lives. Although the pervading consideration was that the reaction manifestation was of a transient nature and that the military personnel would recover relatively quickly. It was not a diagnosis that indicated that there should be consideration given to the requisite marker to be attached to these individuals for follow up corrective attention and action. Also TSD did not encompass the full dimension of the impact of battlefield traumatic exposure, its' chronic nature or the magnification of co-morbid symptoms and the timeframe of affect and subsequent effect outcomes.

Research aim and initial finding

The research aim was to examine whether the exclusive population of Australian Vietnam veterans (Experimental group) that received a psychiatric diagnosis in the TAOR during 1969-70 as a consequence of combat ASR to exclusive battlefield combat exposure/s would go on to be diagnosed with PTSD or develop delayed onset PTSD and chronic psychiatric co-morbidity presentations. These Experimental group participants were also compared to a case controlled group of Australian Vietnam Veterans (Control group). Both research groups confirmed a resulting high manifested delayed onset PTSD patterns in 2006-07 which was not surprising for the Experimental group participants considering the supporting earlier research into post battlefield trauma exposure/s assessments of military personnel (Solomon & Mikulincer 2006; Bremner et al. 1996 and Op den Velde et al. 1993). The Control group research participants that agreed to be involved in the ongoing research presented an interesting consideration in that a high proportion of these participants recorded levels of symptom manifestations which warranted them to be diagnosed with delayed onset PTSD. The relative surprise is the prevalence of the levels and consistency of the PTSD rates in these veterans especially compared to the research outcomes of O'Toole et al. who in 1996 reported lifetime PTSD being 18.7% adjusted. Although this may not be so unusual considering O'Toole et al. research was based on a randomly selected group of Australian Vietnam veterans, with recognised alcohol abuse/dependence disorder 42.6% along with depression 6.4%, phobias 23% (including social phobia 14.8% related to homecoming rather than combat), anxiety 8% and other psychological disorders separated from the raw PTSD diagnosis. These relationships identified in O'Toole et al.'s research indicate a very complex

psychiatric representation as a consequence of combat exposure, which for some of the identified disorders may become chronic and prevalent many years after actual combat exposure. O'Toole et al.'s study outcomes do support this research in confirming the causal link between actual combat exposure and the onset of certain psychiatric disorders (co-morbid in nature) in a randomly selected research population.

In this research the case control participants were specifically selected with regard to their particular sub unit/unit affiliation, the commonality of a broad variety of other variables and the similarity of the severity of their respective actual battlefield trauma exposure frequency and intensity when compared to the Experimental group participant's responses. Also there may be a bias in these research participants because they were predominantly exposed to identifiable (documented) atrocities, murder, death and mutilation on the battlefield. The case control research participants represent a population sub set specifically selected from the extremely high end of the possible spectrum of battlefield trauma exposure due principally to the detailed matching process adopted. This would give rise to the high probability of the majority of them having a higher prevalence of PTSD and delayed onset PTSD than other randomly selected military populations from the full gambit of military experience in the theatre of war.

Randomly chosen military populations can often be constituted by military personnel from all echelons of the theatre of war. From the extreme low exposure areas in (logistic warehouse support bases, airfields and hospitals) quite often located on safe sites outside the country in which the war is occurring to the extreme high exposure areas (fire support

bases, long range reconnaissance patrols in enemy territory and those involved in hand to hand combat in actual battle) located in the battlefield. These diverse research populations have been previously cited throughout this research.

Delayed onset PTSD and aetiological implications

The different outcomes found for veterans who satisfied the diagnostic criteria for *Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition (DSM-IV)* delayed onset PTSD are discussed. This is preceded by a discussion in relation to the possible timing of the onset of their symptoms and the prognosis for their futures.

Delayed onset PTSD

The sub type of delayed onset PTSD is defined in the DSM-IV as a disorder meeting the diagnostic criteria for PTSD which is present after a post trauma exposure adjustment period of at least 6 months during which diagnostic criteria were absent or sub-threshold (Andrews et al. 2007 and Buckley et al. 1996)

Delayed onset PTSD in combat veterans

The findings with the Control group research participants after battlefield traumatic exposure/s show that 84 per cent have developed delayed onset PTSD and associated chronic psychiatric co-morbidity. This is a significant observation especially for the Control and Experimental group research participants that did not respond to the invitation to follow up analysis in 2006-07 and may now warrant follow up de-identified

examination, possible further attempts of contact and the offer of current treatment if required (Solomon et al. 1995).

This finding of the significance of battlefield trauma exposure/s is supported and was evident in the reporting in 2006-07 of the combat exposure frequency and intensity by 90 per cent of the Control group research participants in this research. In contrast, individuals in both groups whose symptoms tended initially to be less severe, reported less early symptoms than they experienced. Such findings may suggest that the pre existing psychiatric reaction to the battlefield traumatic exposure/s may pre dispose the research participants to register higher states of threat awareness. The evidence of this research suggests that retrospective recall of symptoms by the majority of the research participants lead to an exhaustive description of the battlefield traumatic events experienced. Harvey and Bryant (2000) have examined the retrospective recall of symptoms and found that individuals with high levels of stress disorder symptoms tended to over report early distress. This was evident in this research.

The research finding in 2006-07 with the respect to the causal link between battlefield trauma exposure/s being a predictor of the subsequent course and development of PTSD and delayed onset PTSD and is also supported by the literature. In a prospective study of Gulf War veterans examined rates, course and predictors of PTSD among gulf veterans in a sample of 2,949 army personnel (Wolfe et al. 1999) it was found that a doubling of rates of PTSD was found in the two year period post combat. This research provides supportive evidence for the emergence of delayed onset PTSD and the increasing severity

of symptoms years after the battlefield trauma exposure/s. Where this was an expected significant result in 2006-07 for what could be deemed an 'at risk' population group with the Experimental and Control research participants. What was unexpected was the high response rate of delayed onset PTSD in the case control participants. None of these veterans from the Control had sought or were directed to receive physical or psychiatric treatment during their deployment to Vietnam during 1969-70. Although this research outcome was unexpected it is supported by research conducted by Solomon et al. (1995). The majority of participants from both groups in this research also confirmed during the telephone interview phase of the research program that the debilitating symptoms of PTSD did not become evident or detrimental from their perspective in their lives for some years after their military service had concluded. In a few cases (7) the participants attempted when the debilitating effects of their symptoms became evident to them they attempted to hide or disguise reactions from work colleges, friends, family and partners and also sometimes through this research. It was also confirmed through the interviews that this behaviour tactic and in some cases a life strategy has been utilised by many of the research participants since their battlefield traumatic exposure/s in Vietnam. The consequence being that many ultimately reported that their respective battlefield trauma exposure/s in Vietnam during 1969-70 had had a devastating affect personally, domestically and professionally on them (Prigerson et al. 2001).

Alternative reasons for delayed onset PTSD

Another hypothesis purported by other researchers was that the symptoms resulting from battlefield trauma exposure/s are reflecting other types of post-combat psychopathology

such as alcohol abuse (Atkinson et al. 1982). The outcomes of this research support this research proposition (Boudewyns et al. 1991b; Bremner et al. 1996; Brown et al. 1995 and Dansky et al. 1997). This research supports the limited causal link between alcohol consumption and its effect on distorting the presentation of precise PTSD symptoms. It has even been suggested that the immediate acute combat stress reactions, ASD, PTSD and the delayed onset PTSD can be disguised by the high levels of alcohol and drug use common in veteran populations. Anecdotal responses confirmed that the majority of the participants still consume excessive quantities of alcohol on a daily basis to deal with personally perceived pressures of their lives today. This is also confirmed by their collective poor health results from the questionnaire as detailed in Chapters 4 and 5.

Although delayed onset PTSD has been recognized by the American Psychiatric Association as a legitimate subcategory of PTSD in the DSM-IV, early studies in this field have supported alternative hypotheses to explain the delay onset PTSD symptom manifestations. One hypothesis supposed was that the victims were malingering in order to gain financial compensation (Atkinson et al. 1982). This hypothesis is not supported by this study; as each participant was informed of the strict parameters of this research, which did not allow for financial support or consideration for any entitlement claim being sought by the research participant. It can be stated categorically that not one participant sought recognition or support from their involvement in this research. Rather as stated previously they all just wanted to help.

Other authors have suggested that the presentations of PTSD symptoms are not actually delayed. Rather they have simply failed to be recognized, detected and consequently diagnosed accurately (Pary et al. 1986). This inability of PTSD symptoms to be recognised is partially supported as many of the research participants have come from social situations and an era that is not open to male combat veterans feeling comfortable with expressing their sense of shame, fear, guilt or horror at what many witnessed in Vietnam during 1969-70 (Beckham et al. 1998a). Of the Experimental group 20 of 21 and of the Control group 69 of 76 of the participants wrote and told of experiencing battlefield traumatic exposure event/s that included direct combat, witnessing the mutilation of enemy and civilian dead and being either wounded or in the close proximity of mates or South Vietnamese being wounded (Beckham et al. 1998a and Solomon et al. 1995). The reader is also directed again to view Pictures 1 and 2 of this research and reflect on the impact that the human skull on the star piquet in the accommodation area for most of the participants involved in this research. Not an item to be found in the front yard of the suburban home in 1969-70 or now.

A significant disadvantage of many research design methods is the problem of memory reliability (Golier et al. 2006), particularly when a long time has elapsed between trauma and interview. This uncharacteristic research has been able to overcome the dilemma of memory reliability by retrieving the in battlefield military psychiatrist's clinical notes from 1969-70. These clinical notes detailed an independent quantitative and qualitative battlefield diagnosis for research participants that were ratified from research participants and independent sources within the Australian War Memorial Research Centre. Thus, the

need to conduct prospective study using out of battlefield, clinical interview notes, questionnaires, or a combination of the two at predetermined assessment points were not part of this research method design. By implementing the rigorous matching case control process described in Chapters 1 and 3 the resulting research method design advantage was that the complete research population individual research participant's battlefield trauma exposure/s were able to be chronologically specified and ratified along with the in battlefield acute combat stress reactions and the subsequent onset timings of PTSD could be delineated. If, as has often been the case, there has been no retrospective assessment between time points, estimates of delayed onset PTSD may be unreliable; if these undetected remitted onsets occurred within 6 months after trauma exposure, an overestimate is likely, whereas if they occurred more than 6 months after exposure, an underestimate is likely. This was not the case with the majority of these research participants.

The limitation of this study with regard to the precise onset time was considered in relation to the average time spent in the battlefield prior to an Experimental group research participant being assessed by the military psychiatrist which was 6.31 (1969-70) and 6.32 (2006-07) months respectively. The Control research participants did not receive psychiatric medical support treatment during their deployment within Vietnam during 1969-70. The majority of the Control research participants during the telephone interview confirmed that they only sought medical treatment support years after their return to Australia (Epstein 1993) after they had resigned or retired from the military. This supports other study results that veterans often suppress battlefield traumatic exposure

reactions. The majority of this research's participant responses demonstrated a reluctant nature in recognizing that they have been injured psychologically from their battlefield exposure experiences. This is despite them being formally diagnosed with delayed onset PTSD and meeting the diagnostic scores within the psychometric questionnaire.

Aetiology of delayed onset PTSD

Over the years there have been a number of studies that have attempted to determine the aetiological profile of delayed onset PTSD. There has been a great deal of discussion about both the cause of the delay and the characteristics of those individuals who show a delay in symptoms, as well as the way in which the delayed onset is manifested.

It is also notable from this research that the aetiology and response rates of delayed onset PTSD from many of the research participants were higher than expected in both groups. This higher rate for veterans of battlefield traumatic exposure/s is supported in studies with military population samples. These studies reported delayed onset rates from veterans whose aetiology and response rates for delayed onset PTSD were much higher than the comparative civilian studies (Andrews et al. 2007). This is also the situation despite differences in study design and duration of the research (Southwick et al. 1995 and Watson et al. 1988).

In most cases, the traumatic event is followed by a latency period, during which the individual is either asymptomatic or experiencing sub threshold symptom profiles. This may range from 6 months to several years. Following this, the onset is often triggered by

some kind of stressful life event that either depletes the individual's remaining coping resources, or reminds them of the original traumatic experience. Regrettably, to date very few studies have been conducted into the actual event that may immediately precipitate the emergence of symptoms. Some suggestions are (1) stressful life events such as retirement, children leaving home, or a death in the family (Chodoff 1963 and Buckley et al. 1996); (2) a reawakening of the earlier trauma through exposure to threatening military stimuli which is either reminiscent or non reminiscent of their earlier trauma, such as a call up to take part in further military duty (Solomon 1995); or (3) general life-cycle events appropriate to age such as retirement and deterioration of physical health (Ruzich et al. 2005; Port et al. 2001; Van Dyke et al. 1985 and Pomerantz 1991). From qualitative data obtained through interviews the three life phases are supported from this research as being predictors of the recognition by many of the research participants need for help.

In some cases it appears that some cognitive dysfunction may have occurred at the time of the battlefield trauma exposure, but deficits were exacerbated after a delayed-onset PTSD and other psychiatric symptoms (Kremen et al. 2007). Other authors have suggested that delayed PTSD symptoms only emerge when the individual can sufficiently relax his defences, i.e. when the individual has been removed from a damaging environment. Other studies examining the characteristics of individuals fulfilling criteria for delayed onset PTSD (Solomon et al. 1989) suggest that delayed onset of PTSD may be caused by a lack of mourning in the veterans which contributes to their vulnerability to triggers of a posttraumatic reaction (Smaldino 1991).

Shatan (1973; 1974 & Shatan et al. 1977) suggest that delayed onset of PTSD occurs due to a repression of emotions, which is engrained in every soldier by the military to allow them to perform efficiently during combat. This suppression of fear or emotional blocking was often referred to in this study during the interviews with regard to veterans still not being able to express how they feel adequately because they are careful with how they describe their emotional experiences during and since Vietnam. Gray et al. (2004) suggest that positive attitudes towards a military mission may provide short-term protection against psychopathology or the reporting of symptoms. This research outcome was not supported by this study. The majority of research participants exhibited a positive attitude about their mission during 1969-70. This finding by Gray et al. (2004) may be operationally exclusive for defined peacekeeping and peacemaking deployments. These are distinctly different types of military operations when compared to the experiences had by the veterans involved in this research. Gray's study of U.S. peacekeepers in Somalia found that positive perceptions of the mission were associated with a significantly lower risk of immediate distress in those who developed delayed onset PTSD. Rather the emotional representation by this research's participants revolved around not being able to express themselves due to the military training they had received, the society they found themselves in when they returned to Australia (Lifton 1972), a lack of personal understanding as to why they were feeling or reacting as they were and a sense of misplaced pride or denial. This is supported by Ramchandani (1990) research which proposes that delayed presentation is due to the veterans' use of internal psychological sophisticated defence mechanisms such as denial.

Ehlers et al. (1998) in a study of motor vehicle accident victims identified delayed onset PTSD to be associated with injury severity, persistent medical problems, financial problems, anger cognitions, negative interpretation of intrusions and thought suppression in the year after the accident. Ehlers et al. (1998) also reported emotional problems prior to the trauma to be related to delayed onset PTSD. Solomon et al. (1991) found that combat experiences did not explain why the onset of a traumatic response is delayed. Rather research has established that exposure to combat operations and witnessing atrocities were associated with the increased prevalence of mental disorders (Sareen et al. 2007b). However Solomon et al. (1991 a & b) did find that delayed onset PTSD subjects' deal with their stress more actively, seek help and use more problem solving skills than those who develop acute post traumatic reactions. This research supports this finding with regard to the possible bias of those participants that responded to the invitation to be involved in the research.

In another study by Prigerson et al. (2001), it was reported that men who name combat trauma as their most upsetting lifetime experience, are nearly 4.5 times more likely to have a delayed onset of PTSD symptoms than men reporting other traumas. This observation is supported by the results of this research especially with regard to the correlation between the high levels of reported combat exposure being in the range between 90-95 per cent and those participants' diagnosed with PTSD ranging between 84-90 per cent. Finally, McFarlane et al. (1998), in a study of 469 fire fighters exposed to a bushfire disaster, found that the delayed onset group were more likely to use the support

of their fellows and attend debriefings, thereby minimizing their distress in the immediate post-disaster period this is supported by Solomon's' earlier research and also supports the representation of the participants involved in this research.

Other significant studies indicate that many delayed onset PTSD cases in fact have had significant symptoms in the early post trauma period, although this is not correctly remembered by the individual involved (McFarlane & Papay, 1992). The early significant symptoms detailed during 1969-70 in the Australian Army psychiatrists' clinical notes identified and confirmed the retrospective accounts provided by research participants. The clinical notes and retrospective accounts provided by the research participants were detailed enough in all cases to confirm the veracity of the accounts through independent sources. The retrospective lifetime history provided by the research respondents often suggested a progressive deterioration with delayed onset PTSD and chronic morbidity. This is another strength of this study and also an addition to previous cited research (Bremner et al. 1996).

The evidence of this research supports the idea that there is predominantly a late recognition or late detection of veteran cases of PTSD (Pary et al. 1986). The evidence is that many cases following a traumatic event do not present for many months for treatment (McFarlane 1986). Another possible explanation is that detection only emerges when secondary morbidities become a source of clinical distress and are severe enough for the veteran to seek help or be directed to help (Buckley et al. 1996). These may arise from problems such as substance abuse or legal infractions resulting from inappropriate

behaviour (McFall et al. 1992). Furthermore, a social behavioural structure such as the alcohol consumption within the armed services may disguise an individual's distress and delay the timely provision of case restricted medical treatment programs. Thus, it is difficult to state categorically what percentage of cases fall within the definition of delayed onset PTSD. This will vary according to the population studied and the nature of the PTSD environment.

From a theoretical point of view, these are likely to be individuals who have managed to contain their individual distress by adaptive means. Whereas subsequent stresses and/or the natural progression of ageing in these individual's lives have led to the manifestation of PTSD symptoms (Ruzich et al. 2005). Epidemiological studies indicate that many individuals with psychiatric disorders do not present for treatment. Some veterans have developed their adaptive behaviours to a point that they believe they can manage without treatment (Ruzich et al. 2005). An aspect of this observation is supported by this research. Some research participants initially became extremely agitated when they recounted their respective experiences when going through the process of battlefield traumatic exposure recollections and their respective adaptation attempts. Some of these adaptive strategies have the idea of suicide as an option if life gets too hard (Hendin & Haas 1991). Although they are anecdotal retrospective accounts obtained through the interview process of the research.

For this research the participants were not in any type of litigation for financial recompense, nor were they seeking nor did they receive any consideration in this way.

All they wanted to do now was tell their story. This opportunity was spelt out in the invitation to participate correspondence. This may be construed to have resulted in a statistical bias (Pary et al. 1986). For this research the results presented are not stuck in the quagmire of 'seeking financial gain'. This is one of the reasons why delayed onset PTSD is a concept that provokes considerable scepticism in medical and legal fraternities.

It is accepted that there is a general scepticism in medical and legal fraternities about the existence of delayed onset posttraumatic stress disorder. However, it is accepted in the research and clinical arenas that such cases do exist and that the event remains the critical aetiological factor in determining the phenomenology of the delayed onset PTSD. In particular the central role of battlefield traumatic exposures' impact on veterans which is evident throughout the response outcomes of this research. The impact of compensation proceedings should also not be underestimated although from the comments from study participants 'it would be easier to fly to the moon and back' than get recognition of the distress resulting from battlefield traumatic exposure in Vietnam. Involvement in litigation often would appear to exacerbate an individual's distress by the intensification of the focus on the traumatic memory (Scott et al. 1995). It has also been suggested that suspicion should also arise as to whether when questioned about the particular battlefield traumatic exposure event/s an individual's exacerbation of symptoms is due to conscious exaggeration for the obvious advantage of financial gain. This is considered to be an accurate suspicion for veterans that are in litigation.

The question arising from conflicting motivation evokes a significant difference of opinion in research validity and despite the significance of this general question; there have been few adequate studies that address this issue of conflicting motivation by research participants. This research does not have to rely on the provision of the reader to suspend his or her scepticism to see the results. It is not a limitation of this research rather it is viewed as a significant strength of the subsequent outcomes of this research as none of the research participants presented or intimated a conflicting motivation for participation in the research. It was also included and confirmed in the initial vetting of matched case control selection.

This research also confirmed that the more intense the battlefield trauma exposure/s, the more severe the longitudinal effects are on the combatants health, relationship status and psychological wellbeing and supports the previous research conducted into this area (Watson et al. 1988; Southwick et al. 1995 and Solomon & Mikulincer 2006). The high level of battlefield trauma exposure/s experienced by the majority of the Control research participants is also an excellent predictor of their onset of higher rates of delayed onset PTSD symptoms detailed in Chapters 4 and 5. This research showed, too, it is almost a certainty that the majority of this study's battlefield trauma exposed veterans in 2006-07 require treatment of various types and at different levels. This supports other research such as Clancy et al. 2006. This research confirmed that the 'high risk' population identified through the Australian military psychiatrist notes from 1969-70 clearly required follow up monitoring and treatment. This may indicate that all military personnel exposed to battlefield trauma of any kind should be involved in an ongoing

post military service medical support program. This research also confirms that there are pernicious outcomes for individuals in a military environment who are exposed to battlefield traumatic combat events and supports the post combat deployment screening and follow up strategy employed by the Australian Defence Department today.

Concluding comments on delayed onset PTSD

Delayed onset PTSD in veterans is often seen as an old problem with a relatively new name (Boulanger 1985). It is described with an amount of cynicism due to fundamental definition concerns (Andrews et al. 2007) and its association with litigation with regard to the opportunity of financial remuneration (Scott et al. 1995).

A preliminary survey of the initial diagnostic notes was undertaken to establish possible trends in demographic characteristics and/or social circumstances in 1969–70. This also included an examination of: the military service duration, especially at a younger age (Freuh et al. 2007); inadequate or minimal military and professional preparation; and training for the constant erosion of an individuals' ability to cope with exclusive occupational traumas.

The formal diagnosis of PTSD was not made in 1969–70 due to diagnostic deficiencies in the then diagnostic criteria available to the Australian military and civilian medical fraternity. In the 1969-70 psychiatric evaluation process the DSM-II did not contain the PTSD diagnostic criteria as it is presented in DSM-IV. A re-examination of the initial diagnostic notes identifying the symptomology of the 119 military patients utilising the

DSM-IV diagnostic instrument—which contains the PTSD criteria—confirmed that 98 per cent of the 1969/70 Experimental group participants would have been diagnosed as having an acute combat stress reaction with the distinct possibility of developing PTSD. With the benefit of hindsight the participants in this research should have been classified as ‘high risk’, which should have been followed up to track the possible progression and/or onset of PTSD. These participants manifested significant symptoms, which in most cases demonstratively having significant symptoms of PTSD (Andrews et al. 2007). They also initially confirmed that their symptoms were disruptive enough within the context of their military service to warrant an alteration to their historical military health classifications at the time which would have precluded them from future battlefield deployments.

This research data also provided the foundation to investigate the distinctive wartime stressors and identify the correlation between event stressors, such as immediate battlefield trauma exposure/s to TAOR, certain battlefield events, and individual physical/psychological reactions and personal characteristics, such as demographic origins. The majority of research participants in 2006-07 generally manifested inadequate psychological and physical adjustments post battlefield life in Vietnam on and since their return to Australia. The significant results are; a large number of Control research participants have developed and have been diagnosed independently with delayed onset PTSD. While this may be the consequence of a response bias from this matched case control group who subsequently agreed to participate in the ongoing research. It also provides additional evidence and further justification to seek more detailed de-identified

data on these respondents from the Australian Department of Veterans' Affairs with regard to their respective PTSD diagnosis dates, identifiable symptom manifestations, entitlement provisions and subsequent treatment regimes.

Research study parameters and methodological issues

A range of research study parameters relating to limitations of this research, the sample and the measures used have been identified and are discussed. These include limitations relating to the sample size as well as particular issues pertaining to the initial DSM-II psychiatric diagnosis, severity of the traumatic battlefield exposure, the age of the study participants, their gender, job and corps allocation during their respective tours of Vietnam during 1969-70, military force allocation, time in the TAOR before psychiatric treatment, rank and type of enlistment. However, to balance these limitations the study demonstrates many strengths, including its longitudinal retrospective case control research design; beginning with the original psychiatric battlefield diagnostic notes compiled by an Australian military psychiatrist during 1969-70 of 119 Australian military personnel suffering predominantly with acute combat stress reactions; the use of a distinct sample of military personnel (Experimental group) and the detailed case control matching process of other military personnel (Control group) from 1969-70; the ongoing ability to track both groups after 35 years; other independent government and non government agencies that provided confirmation data with regard specifically to the frequency and intensity of battlefield trauma exposures referred to in notes from 1969-70 and in the follow up 2006-07 interviews; the military psychological profile screening for recruitment; the standardisation of the medical examination of the study participants in

1969-70 and the subsequent military records check. Also other strengths of the study are the measures that cover potential susceptibility to the delayed onset of PTSD; the severity of the experienced battlefield traumatic exposure/s; the effect on the interpersonal functioning; the then and now mental and physical health states. Additionally this study did not rely on one type of assessment method but has used a range of methods from initial diagnostic notes, self reported battery of psychometric questionnaires, a semi-structured telephone interview assessment, current government agency assessments, observational techniques, and participant report responses. Additionally, both lifetime and current Veteran depression and general mental and physical health was measured, with current depression, mental and physical health being measured and compared to that recorded in 1969-70, and a range of qualitative observational assessments were made during the telephone interviews and throughout the historical record search. The range of instruments and assessments completed during these restricted phases of the research has resulted in a quality of data that gives more credence to the results, particularly where significance may have been marginal, or results were counter to expectations especially to the high rate of delayed onset of PTSD in the 2006-07 participants from research participants.

Sample

The one main limitation in relation to the current study sample is its limited composition, with regard to the overall subset groups sizes where $n < 10$. Statistically significant observations cannot be made.

Limitations and alternatives

There were several minor limitations to this research. The initial noteworthy one was not being able to interview the Experimental and Control group participants who did not respond in any way to the invitation to participate in the ongoing research in 2006–07. For those research participants who agreed to participate in the ongoing research, it was not possible to obtain a confirmation of their actual individual or de-identified pension status and disability classification. The intended solution to this limitation is requesting from the Australian Department of Veterans' Affairs the de-identified data on the Experimental and Control participants.

Another limitation is not being able to confirm how old participants were when they were granted Department of Veterans' Affairs entitlements. This, along with the other information, would give a more unambiguous insight into the onset frequency of the respective physical and psychological conditions of the veterans collectively.

Specifically: the delayed onset PTSD timing and condition for the research participants. With this information, the current study could cross-match traumatic battlefield exposure episodes and a variety of timeline considerations for future deployments of Australian forces. In other words could these deployments be extended to 12 to 18 months or could they be reduced to 3 months.

This research is also limited because the types of medication and treatment regimes are unknown. Obtaining this information would enable an assessment of the costs associated with the confirmation of entitlements, veteran pension benefits received and health care

provisions accessed, for the total group of research participants since 1969–70. This would, in turn, expand on the presented data by this research. This information, if provided, would complete some of the patterns of physical and psychological health and wellbeing manifested by both groups of respondents as well as those who did not respond. If this data could be provided for participating and non-participating veterans, extensive verification and validation of treatment regimes could commence with the data that has been made available through this research.

A minor limitation of this research was the lack of intervening contact opportunities between traumatic battlefield exposure diagnosis and the follow-up research contact interviews. The questionnaires had to be structured and administered so as to retrieve traumatic memories from 35 plus years ago. This was difficult, yet a necessary process, made easier by the records kept at the Australian War Memorial.

Another limitation was the lack of pre-exposure assessments of potential explanatory variables. This limited the ability to rule out potential third variable explanations to the adverse outcomes of the research veterans. In addition, information was not available on research participants' trauma history before induction into the military and after deployment to Vietnam. Where possible, future research endeavors into battlefield trauma exposure should incorporate pre-deployment assessments of traumatic exposure history and functioning (Bramsen et al. 2000). This should not be regarded as screening because if this was done, there would be a possible bias affect.

As is common with battlefield and war deployment studies, information on exposure to combat during the Vietnam War was obtained retrospectively and, therefore, may be biased. This was not the case for the Experimental group participants in this research. Battlefield traumatic exposure/s was the sole stressor assessed during 1969–70. It might be prudent for future research to include an expanded range of stressors; for example, sexual and non-sexual assault, motor vehicle accidents, family breakdown, and friend or family suicide. This would enable an examination of the potential differential effects on resilience and coping for additional trauma exposure. Knowledge of potential suicide may confer greater threat to coping with battlefield trauma exposure than a prior car accident.

Further, the measurement of current health and wellbeing in this study did not enable examination of the impact of one versus multiple incidents of battlefield trauma exposure. Participants indicated they had been exposed to multiple battlefield traumas and, in most cases, identified two but often did not elaborate on others after the most significant one.

This research adopted self-report measures more closely tied to DSM-IV. It also utilised the CAPS-2 instrument for the telephone interview-based assessment. In addition, mediators or third variables may operate differently according to the type of traumatic battlefield exposure; for example, participating in atrocities, witnessing a mate lose a limb, waiting for an improvised explosive device to detonate but not knowing where it is or being trapped in a minefield. Future studies might proactively explore whether mediators are similar or dissimilar across a variety of traumatic exposures.

Recruitment and sample composition

As reported in Chapters 1 and 3 the initial Experimental group sample were identified from the original psychiatric diagnostic notes an Australian Army psychiatrist kept from assessments made in the battlefield on 119 Australian military personnel during 1969-70. All research participants were identified; matched case controlled and invited to participate in the research. Those that agreed to participate in the study might have created a response bias as they may have certain personality traits such as those that would be more susceptible immediate emotional reaction rather than the reflective contemplative reaction. In anecdotal accounts related to the principle researcher those veterans with depression, anxiety disorders and avoidant behaviours (Epstein 1993) would be unlikely to participate. Certainly those veterans with a trauma history felt that they had not been satisfactorily dealt with initially by the respective Commonwealth Departments and agencies. Many were totally isolated and those that did interact with others relied on their mates from 1969-70 for the acquisition of information for treatment, support and an understanding of any problems they were encountering at the time. Together with the ongoing mental health measures these results suggest that the majority of the 2006-07 research participants were highly symptomatic and that veterans generally were experiencing active delayed onset PTSD symptoms. This was evident and represented in this research sample. As well, there were a significant number of non participants in the 2006-07 study groups. The lack of involvement by these Experimental and Control group participants had a descriptive impact on the current study especially with regard to the identification of those suffering from delayed onset PTSD. This needs

to be a primary focus for future studies of high risk military personnel population sample groups. Recruiting these veterans through the case control process from historical military personnel data decreased the rate of misrepresentation for comparison analysis. Although, if preparatory data is collected at the time of recruitment and following any battlefield traumatic exposure diagnosis a follow up program would be vital for mapping the development course of delayed onset of PTSD. Further to this, researchers need to be particularly sensitive to the personal pride in the majority of military personnel and the associated stigma that is still attached to the labelling of a combatant as being psychologically inadequate to deal with their respective military assignments (Spurgeon 2004).

The case control of the groups obviously reduced variations and it could be criticised for also reducing the general application of the results to other battlefield scenarios. The 2006-07 Control and Experimental research participants were militarily the same with the majority of the participants being Caucasian Australian enlisted non commissioned personnel. This strict grouping may limit the general application of the results of the study to more diverse trauma exposed military personnel populations. What is more, the societal recruitment nature of the respective groups could also limit results being immediately applicable to alternative military personnel populations. However this distinctive matched case control design decision has led to the limitation in other known risk factors such as: severity of traumatic battlefield exposure; age; gender; Job and Corps allocation; military employment classification—Combat Fighting Force or Combat Support Force; time deployed in the tactical area of operational responsibility; rank and

type of enlistment—volunteer or conscript for Australian veterans. Overall, the results from the current study, although not specifically applicable to other ‘high risk’ and culturally diverse battlefield trauma exposed populations, are applicable to a large proportion of Australian veterans from all theatres of conflict. This nominal variable similarity preserves the predictor indicator significance of the respective groups and also is directly beneficial as the results potentially represent accurate associations between identifiable battlefield trauma exposure/s, vulnerability identification, historic psychiatric symptom diagnosis and the prognosis of developing delayed onset PTSD. The close parallels between the research participants also reduce the interpretation variability in the small population subset results; thereby providing descriptive significant results.

The current study is also limited by its focus on the 1969-70 military service battlefield trauma exposure and diagnosis without taking into account the potential impact that prior military service experiences may have had on the individual’s vulnerability traits. Also the post Vietnam military service and civilian life trauma exposure experiences were not analysed. Certainly, these experiences if they occurred would have an influence on veterans’ current physical and mental health states. Although predominately the majority of those veterans that were diagnosed in 1969-70 and those that participated in the ongoing research identified the particular battlefield traumatic exposure/s as the main and in many cases the only influence over their then current and now individual physical and psychological states of distress.

Unfortunately the sample population size in some instances was too small to provide statistically significant results. In these situations a descriptive analysis was done. This in itself has obvious limitations. Yet, there was certainly enough anecdotal information provided from the veterans to conclude that the majority participants had developed PTSD or delayed onset PTSD and chronic morbidity (Sareen et al. 2007a). In most cases the symptoms did not severely manifest themselves until significant changes occurred in their lives such divorce, separation from the military through discharge or resignation, being continually unemployed, estranged from family and friends, suicide attempts (Sareen et al. 2007a) or finding out a mate from Vietnam had suicided, or distinctive changes in personality (this is representative of the responses). These indicators do warrant further investigation, particularly given the Australian government's concern about veterans' health and National Defence deployment commitments into various battlefields now.

Research population dimensions

The dimensions of the research population (detailed in Chapter 3) for this study were detailed, limited and consequently the significant statistical results need to be regarded as indicative representations of the Australian Vietnam Veteran community until further replication of other population samples occurs. With the restricted dimensions of the research population being stringently defined, deviant results are uncommon. Although unexpected results such as the large proportion of Control research participants suffering from delayed onset PTSD and chronic morbidity does inform knowledge. This is an important and significant observation because it demonstrates that (as with all research

participants) once an individual has been exposed to battlefield traumatic event/s or more specifically they have been diagnosed with an acute combat stress reaction they should be clearly identified as being 'high risk' and followed up regularly. This follow-up action should be conducted throughout the duration of their military service and beyond and should be regarded as preventative and an ongoing medical treatment requirement. This manifestation of delayed onset PTSD also raises concerns with unexpected findings such as the significant differences in intrusion and avoidance symptoms and the recognition of the severity of the battlefield combat exposure experienced in between the Experimental and Control research participants (Pomerantz 1991).

Irrespective of a research veteran's Vietnam experience, an emphasis of the study was to determine if the respective battlefield traumatic exposure/s had a detrimental affect on their interpersonal functioning over an extended period of time. This presented another statistical anomaly due to the size of the population being analysed. The statistical representation of the dyads for the Experimental group in 1969-70 compared to that of 2006-07 does not accurately represent the instability of the interpersonal functioning experienced by the participating veterans. The numbers, although small indicate stable consistent relationships; unfortunately this is not the situation for 19 of the 21 participants of the Experimental group. Although they are in relationships now they have had many since their tours of Vietnam. The dyad analysis in Chapter 4 and 5 and the qualitative review in Appendix A also suggest that Australian Vietnam veterans who have delayed onset PTSD and chronic morbidity have had poor supportive relationship structures. Many have adopted avoidant behaviour strategies to deal with the pressures of

their intrusive memories and ongoing lives (Epstein 1993). This is regarded as a psychosocial strategy of coping which has influenced the presentation and ongoing treatment of the disorder for these veterans (Burges-Watson & Daniels 2008).

Measures and strengths

Inevitably, some measures—even though they represented restricted case control paired constructs—were intended to be separate. However, at times they presented other significant outcomes when examined in blocks. An example of this is the increased severity and chronic features of PTSD symptoms often observed in conjunction with brutal and cruel trauma exposure/s (Goenjian et al. 2000) which is often present in a battlefield (Sareen et al. 2007a). Younger people were consistently found to present dramatic PTSD symptoms following trauma exposure (Kessler et al. 1995), the average age of research participants in this research population during 1969-70 was 24 years. This trend of severe PTSD symptom presentation also follows for the less educated research participants. This predictor of the onset of PTSD was not examined in this research (Shalev et al. 1996). Direct consideration of military recruitment status in this research revealed that active volunteer soldiers presented more heightened and enduring PTSD symptoms than conscripted active soldiers when exposed to the same traumatic battlefield situations (Stretch et al. 1996). This research contradicts the common held notion that a comparison between volunteer and conscript forces would indicate that conscripted individuals would be more inclined to suffer from battlefield exposure than that of trained battle hardened regulars. Alternatively this research did endorse research

that enlisted personnel presented more PTSD symptoms than their Officers (Adler et al. 1996).

Consequently, this research examined the pathways from reported TSD, anxiety and depression symptoms to PTSD and the delayed onset PTSD in a sample of Vietnam veterans. It then tested the assumption that a particular symptom reaction indicates the development of specific PTSD symptoms. In this research an examination of the ordinal variables such as happiness, general health and depressive symptoms associated with battlefield trauma exposure in respective dyads also occurred. An examination of the interval/ratio variables was also conducted. These included the:

- association between age in Vietnam
- severity of battlefield exposure (Sareen et al. 2007a)
- enlistment status of the soldiers
- frequency and intensity of PTSD symptoms.

Military psychological profile screening

The military psychological profile screening conducted by the Australian Defence Department recruiting is a major strength of this study. All military forces are typical in that they conduct psychological profile screening of recruits to determine suitability for their respective employment requirements. This screening occurs before the formal enlistment of members of the military irrespective of the avenue of entry—volunteer or conscript. Thus, there are critical flaws in assuming that this initial psychological

screening is robust enough to predict the ongoing suitability of employment of Defence personnel in the battlefield. Similarly, it should not be relied upon to negate personal susceptibility to an adverse reaction to trauma exposure on the battlefield (Miller 2006).

Short-term motivators act as stabilising factors in human conditioning. They include:

- employment conditions—such as the Defence Code of Conduct
- Service, Corps and Unit standards of conduct
- interpersonal relationships that are formed through training and deployment
- ongoing work conditions such as salary entitlements.

However, there are real long-term motivators that sustain personal, physical and psychological health. These are sub-unit leaders' and peers' noted personal achievement, professional recognition, the work itself, responsibility and realistic chances of advancement. There is also no correlation with enlistment screening and vulnerability to an individual suffering ASD and then developing PTSD. This provides an excellent foundation for the study methodology and case control design proposed in this research.

A further strength of this research is that there are few examples of longitudinal quantitative and qualitative research study projects in the field of immediate diagnosis of TSD and other psychiatric symptoms in 1969-70, the role of battlefield trauma and the delayed onset of PTSD. None has captured the original interview notes of current, serving battlefield trauma exposed servicemen, had access to base psychological state evaluations in 1969–70 and then followed up on their medical and social evolution after 35 plus years. The only things you can look back on are photographs which provide both

a quantitative and qualitative glimpse into the Vietnam War (Mckay & Stewart 2002 and Rowe 1987). This integrated methodology and case control design included ongoing evaluations of phenomenology over the same period. These identified the:

- specific personal stress reactions associated with battlefield exposure/s
- subsequent delayed onset PTSD
- efficacy of the respective symptom reactions.

Medical examination of participants

A supplementary strength of this research is that the Experimental group had at least one appointment with the same Australian Army psychiatrist within the TAOR during 1969-70. Then volunteer and conscripted soldiers were segregated and then analysed to see which sub-group exhibited or would exhibit more severe TSD, anxiety, depression and other psychiatric symptoms and/or delayed onset PTSD symptoms or sub-syndromal presentations. This analysis was done comparing data from 1969–70 and data obtained in 2006-07.

Military records check

An additional strength of this research is the availability and accuracy of Australian War Memorial records and contemporaneous military records (which are extensive). These records were checked to confirm veterans' accounts of battlefield trauma exposure reported at the time of interview. The contemporaneous military records confirmed the nature and severity of battlefield combat exposure—that is, the actual events (ammunition usage, equipment loss and damage status, wounded or killed-both own

forces and enemy troops and evacuation status). They also provide consistency with detail to the accounts given by veterans throughout this research and another substantial strength to the respective statistically significant and descriptive outcomes of the research.

Potential susceptibility to PTSD

An alternative strength to this research is that to be accepted as participants in the research, veterans must have experienced one or more identifiable battlefield exposure event. This event may have resulted in an undetected sub-syndromal manifestation and then developed into delayed onset PTSD reaction/s (Andrews et al. 2007). The most common reactions reported in 2006-07 of participants 1969-70 reactions to battlefield traumatic exposure; were panic disorder, major depressive disorder, generalised anxiety disorder and antisocial personality disorder symptom/s. It should also be noted that veterans did not identify military unit affiliation, age, gender, rank, employment classification or employment tenure as having a significant effect on their sense of doom. Veterans said often that the Vietnam War battlefields had a distinctive character. They were battlefields without clear lines of engagement or a specified defined enemy and they also had blurred rules of engagement (Australian Defence Force Rules of Engagement (ROE) (Thayer 1985). The battlefield traumatic exposure/s was the significant triggers for the subsequent physical and psychological condition of the majority of the study respondents.

Effect of battlefield exposures on mental and physical health

These Vietnam veteran's effulgent rays of hope in 1969-70 were often dimmed or, in some situations, completely extinguished through exposure to battlefield traumatic events. Memories, dreams and nightmares are the murky treasures that affect, in varying degrees, their lives to this day—especially those that had direct battlefield traumatic exposure/s. And these memories inhabit the recesses of their consciousness (Andrews et al. 2007). In time, these are conveyed gradually to its furthest reaches, returning only when summoned by a keepsake, a vision, a smell, a song, an anniversary date or in the nightmares that haunt their sleep (Smaldino 1991). Which has often been the circumstances described and presented through the qualitative data collection phase of the research (Appendix A). These qualitative responses also provide support and strength to a distinctive quantitative study into the alteration of the memory function mechanisms after single and multiple trauma exposures and PTSD (Miller & McEwen 2006).

During the telephone interviews research participants frequently talked about their perceptions of the dangers and cultural realities of civilian life today compared to their deployment period in Vietnam. It was accepted that these perceptions were consistent with the symbolic and/or actual threat exposures experienced in Vietnam during 1969-70. This research confirmed veterans' combat exposure experience/s and established a causal link between those experience/s and their current physical and psychological states. Due to the qualitative nature of this evidence this is regarded as a minor strength of this research (Litz et al. 1992).

Battlefield (PTSD) outcomes

It is clearly appreciated by the research participants the battlefield traumatic exposures and the subsequent PTSD is a chronic and capricious disorder (Solomon & Mikulincer 2006 and Kessler et al. 1995). Current research has investigated the problem of response bias for retrospective research work. A strength of this research is that the data findings confirm that the event/s—traumatic battlefield exposure—retrospective reporting is relatively stable with regard to the longitudinal prediction of PTSD especially with the participants of the Control (King et al. 2000). These research respondents are consistent in their reporting of traumatic events during interviews (Krinsley et al. 2003). The data on traumatic battlefield exposure/s in Vietnam during 1969–70, for participants were confirmed along with unambiguous military data held at the Australian War Memorial Research Centre.

As the foundational psychiatric diagnosis data was obtained during the initial interview conducted in the TAOR, and additional information was obtained in the subsequent analysis and interviews conducted during 2006–07. Consequently, the quantitative research data outcomes were not invalidated by researching the various demographic, physical and psychological states of these Vietnam veterans more than 35 years after their respective deployment in 1969-70.

To minimise the problem of response bias, there was only one principal interviewer. Each research respondent was initially invited to participate with a guarantee that their identity

would remain confidential. Only the principal interviewer and the research supervisor would know this information. A further undertaking was made to the effect that the responses would not affect any Department of Veterans' Affairs entitlements or submission for entitlements. This structured interview process and identity agreement ensured that the research respondents were totally unencumbered in communicating their quantitative and qualitative responses—in both the psychometric questionnaire and the telephone interview process.

The decisive strength of this research is the impartial untainted initial psychiatric diagnosis data provided by an Australian Army psychiatrist in the battlefield in 1969–70 and the subsequent follow-up responses from a group of these veterans by one principal researcher.

The extensive matched case control design of this research provides the sturdy foundation for this study with the initial sample of research participants and a distinctive correlation of data outcomes which were then presented. An extra strength is the fact that the research subjects constituted a probability sample of Australian Vietnam War veterans. They included an extensive variety of non-commissioned personnel— from the Australian Army—and a small sample of commissioned officers who were treated by Australian medical personnel and diagnosed by the same military psychiatrist. The delineation between battlefield trauma exposed personnel who were directed to or sought medical treatment is also identified. Other factors that were included, analysed and, thus, added to the integrity of the research were: age, state of enlistment, rank, recruitment

status, relationship status, time in the tactical area of operational responsibility before initial treatment, employment classification, corps allocation, DSM- II and subsequent DSM-IV diagnosis, Department of Veterans' Affairs incapacity classification, Department of Veterans' Affairs medical (PTSD or not) classification, traumatic event/s synopsis and finally their military pension status. Frequency tables by group were established for categorical variables. Chi-square tests were performed. When assumptions for those tests were violated, Fisher's exact tests were performed. For the substantive variables, group differences in continuous variables were analysed by t-test or the Wilcoxon rank sum test for continuous variables with a non-normal distribution. These are statistically and graphically represented in the Tables and Figures in Chapter 4 and throughout Chapter 5.

Group differences

The recorded differences between the groups confirm the robust strength of the research design which incorporates the exact control case matching process. The Experimental group established in their responses significant differences to those reported by the Control research participants in the intrusion and avoidance PTSD symptoms, occupational functioning, global improvement with regard to CAPS-2 assessment and the intensity of the experienced battlefield trauma exposures detailed in the Wilson and Krauss combat index instrument.

In the area of intrusion in which the proportion distribution of scores meant the Experimental group recorded higher scores overall than the majority of the Control

research participants. This significant difference between the groups is also evident for the same distribution of results in the avoidance symptom comparison of the PCL-M instrument. These significant differences may be attributed to the Experimental group individuals who have already presented symptoms of TSD, anxiety, stress, depression or a general sense of doom in the battlefield (as is the case with 19 of the 21 Experimental group participants). Also the inter-related nature of the symptoms of intrusion and the subsequent avoidant behaviour exhibited by the research respondents are consistent with the current literature and research observations (Epstein 1993).

The majority of the Veterans often report after exposure to combat, higher rates of intensity of the respective experience/s, higher impact on their functioning capacity and lower improvement after recuperating periods than those that do not present as suffering from those types of psychological inflictions (Wolfe et al. 1999 and Southwick et al. 1995). This may account for the significant difference between the two groups in these discreet areas. It also needs to be identified that the significant differences between the groups are established between the 'extreme to severe' with regards to CAPS-2 and combat exposure rates of '2-5 or 6-11' distinct combat experiences (Wilson & Krauss 1985-combat index). In all the situations presented these were not defined at the lower end of the frequency or intensity scales. The main outcome of the majority of the research participants from both groups was that they were dramatically affected by their experiences in Vietnam during 1969-70.

These outcomes were consistent with the ongoing statistical analysis of the research between the groups. The majority of both groups are predominantly suffering with chronic delayed onset PTSD (Koren et al. 2001). The Experimental group, however, presented with more significantly pronounced avoidance symptoms in 2006–07 after traumatic battlefield exposure/s in 1969–70 (North 2001); this supports other research. The National Vietnam Veterans Readjustment Study found that, among 88 veterans, the avoidance cluster was most strongly associated with chronic PTSD (Marshall et al. 2006).

There is a widely noted co-morbidity between PTSD and depression following exposure to traumatic experiences (Karam & Ghosn 2003 and North 2001). The Experimental group's scores are consistent with this. It had significantly higher severity of depression scores, higher overall PTSD rating means and significantly higher combat exposure ratings than the Control group. In 2006-07, the severities of depression scores were significantly higher for those with PTSD and subsequent physical health problems in the research participants (Sareen et al. 2007a). The three PTSD / CAPS subscale scores were also higher for Experimental group participants. In the avoidance cluster frequency and intensity measure, scores for Experimental group participants were significantly higher. A distinction between avoidance symptoms presented in the manifested form of dissociative/unconscious and those that are consciously or socially driven was not made in this study (Burgess-Watson & Daniels 2008). Severe depression may be a psychological reaction to PTSD or an independently occurring phenomenon as a result of battlefield combat exposure (Thabet et al. 2004). What is known, however, is that these co-

morbidities are associated with a limited and, in most cases a poor prognosis (Ohaeri 2006 and Tyrer 2001).

All of these results confirm that in military personnel diagnosed with an acute combat stress reaction should immediately be identified as 'high risk' personnel. What does need to be differentiated in future research is if the symptom manifestations post deployments are battlefield trauma exposure driven or post event psychosocially driven (Burgess-Watson & Daniels 2008). This is vitally important when assessing the appropriateness and efficacy of future identification of delayed onset PTSD and treatment regimes.

The Australian community generally judged Vietnam veterans harshly when they returned to Australia from Vietnam in 1969-70. This rejection in conjunction with personal acute combat stress reactions after brutal battlefield traumatic exposure, may be contributing co-morbid factors to the chronic nature of the current recorded delayed onset PTSD states (Koren et al. 2001) of the Vietnam veterans who participated in this research in 2006-07 (Solomon et al. 1991 a & b).

Discussion and military implications from this research

It is now evident from this research that Australian veterans suffered significant physical and psychological health damage as a result of traumatic battlefield exposures in Vietnam (O'Toole et al. 1999) in 1969–70. This research also confirmed other research (Seal et al. 2007) that it is a clear indication that early identification of military personnel at risk of developing PTSD and other disorders should be a priority for the Australian military

medical intervention as it has the best chance of preventing chronic morbidity. The potential differential effects for a combatant of additional traumatic battlefield exposure and the loading effect that may have on the individual should also be investigated (Kilpatrick et al. 1997). This is being done in part with the post combat deployment screening process implemented by the Australian Defence Department.

Further, this research did not look at the measurement of ongoing life events when veterans returned from the battlefield. Consequently, this research could not examine the cumulative impact of the change from the battlefield, discharge from the service and the return to civilian life. These generally happen within the timeframe of a couple of months of the soldier returning to Australia and, in the current times, this transition (from the battlefield to walking down a street in Australia) can occur within a couple of days. It is possible that improved training might mitigate the implications of these results for military commands. As part of command training courses, before and after deployment to battlefields, all medical support staff should adopt and implement a specifically designed and well validated self-report measure for deployed military personnel, to be used in screening troops returning from combat and at assessment when soldiers present for a range of medical and psychological concerns. This should be tied to the DSM-IV diagnostic symptom cluster criteria and be supplemented with an interview-based assessment, administered by a non-clinician (not a member of the respondents chain of command) if the questionnaire raises any concerns (Friedman 2006b). These training program inclusions are often not accepted. There is also only a remote possibility that military commanders or medical support staff will voluntarily adopt this type of clinical

practice guideline (Russell & Silver 2007). The implementation of a self-report measure should not be confused with a proposition for screening which has been identified as having limitations (Friedman 2006b) but is contradicted by the post combat deployment screening process implemented by the Australian Defence Department now. Rather the system utilised by the Australian Defence Department is an avenue for independent, personal, in-confidence support for a soldier or an officer in the military during difficult transition situations from the battlefield to civilian interaction in Australia. In addition, military personnel at all levels may operate differently as they are aware of the support being offered in the service—and where to find it after discharge if it is required.

The unfettered support of veterans suffering, often in silence, from the dramatic impact of traumatic battlefield exposure experiences often leads the personnel to resort to substance abuse (Kilpatrick et al. 2000). This is a common way to numb the psychological pain and disguise it through aggressive bravado behaviour (van der Kolk et al. 1996a). Substance abuse is also used to hide the effect of anxiety disorders, which ultimately increase military-initiated discharges (as a consequence of a discipline infraction) or individual-selected separation rates within a combat force (McFall et al. 1992). Most of these military-initiated discharges, or individual-selected separations, occur in the first year following the onset of the poor health condition (Creamer et al. 2006). The resulting psychiatric morbidity represents a significant potential cost to defence forces throughout the world (Boscarino 2004).

Similar research evidence indicates that prior traumatic exposure is essential in the diagnostic process and also increases the risk of subsequent PTSD suffering (McFarlane 1988). The presentation of this research strongly supports this study finding. The one definitive conclusion is that an Australian Vietnam military member from this research population who has had one combat stress reaction has a significantly increased risk of further episodes with subsequent battlefield exposure and is more likely to present PTSD reactions. This supports the premise that military personnel who have had a combat stress reactor should probably be withheld from subsequent battlefield exposure for corrective treatment. On the other hand, combat experience is critical to the success of a military force and it is impractical to attempt to avoid increased risk to individual military personnel of subsequent battlefield exposures. There is also evidence to support a stress inoculation effect in soldiers with subsequent combat exposure. This effect of battle hardening occurs because in the process of repeated re-exposure the soldier learns an inner sense of mastery of his/her emotions. Once learned, that can then be utilised in managing any distress experienced in the post-traumatic period. One has to ask: is this battle hardiness or a successful disguise masking a future chronic outcome?

The improved timely recognition and early treatment of mental health problems among military personnel may improve retention rates and subsequently save money (Creamer et al. 2006 and Pomerantz 1991). More importantly, it may save veterans suffering and, because of this, demands more research attention. As the conflict in Iraq and Afghanistan continues, the United States public health authorities anticipate that many of the returning soldiers will suffer from PTSD. Initially most of these veterans are more than likely to

consult primary health care providers for myriad related health problems. PTSD is often missed in primary care settings and veterans continue to suffer. Increasing knowledge about PTSD throughout the network of health care providers in Australia and overseas is a vital subject for future research endeavours (Reeves 2007).

Implications for Individuals from this research

Often people do not have the language ability to describe how they feel during an evolving traumatic stress situation. Initially, they experience a disturbance to their perception of a normal safe life; that is, they go into shock. They discover they only arrive at a vivid knowledge and understanding of their physical and psychological state after their emotional structures and resources have been dramatically confronted with extreme ballistic situations. This self-awareness develops after enormous mortal threats and danger issuing either from other people or from nature with the imposing imminent reality of death. This can be so disturbing as to result in a total break in reality.

These unplanned random situations often require an individual to develop a rapid and sometimes instantaneous realisation of self. This explosion of self-awareness affects everyone involved. The constructive or destructive form that this knowledge takes will, in part, depend on an individual's cognitive apparatus. The one aspect that is constant is that these types of exposure experiences are decisive and encompass all the facets of the battlefield exposures researched in this work.

Indeed, ongoing research is revealing that battlefields deliver a most potent stimulus to all human activity in every aspect—good and bad. They are a vignette of the whole of

life at its sharpest pitch of intensity and reveal all the latent potentialities of mankind.

Battlefields transport humanity to the uttermost confines of the attainable—to the loftiest heights as well as to the lowest depths. They force humanity a little closer to the realities of existence, smashing shams and restructuring moral and ethical value systems.

Battlefields demand that individuals quantify what in their lives really matters and, probably more importantly, what they are willing to risk life itself for (Jones 1964).

Individuals who have suffered because of exposure to any primordial battlefield disaster situation absorb in varying degrees the personal devastation from the muffling of stress reaction symptoms. Some feel that it is not talent, strength or physical ability that defines us in this world. Rather, what matters is how we are defined by others; how we measure up in stressful situations when other people's artificial standards are applied to our behaviour (Janoff-Bulman 1992).

What are the detrimental effects of gruesome or more subtle battlefield trauma exposures on the psychological wellbeing of volunteer and conscripted military personnel?

Frequently epidemiological data are collected and examined over the short to medium term (Epstein 1993-9 months and Southwick et al. 1995-2 years). This exposes the possibility that early reactions could diminish naturally over time or they could increase significantly. These reactions could result in progressively harmful, delayed or volatile physical and emotional eruptions (Nightingale & Williams 2000).

Individuals—even those with military induction and combat training—find it difficult to process stressful events; that is, respond to traumas, which are alien to their range of

experience. Some individuals will respond by exhibiting rage responses, or they might resolve themselves to the situation. Sometimes they flee or, ultimately, commit suicide (Hendin & Haas 1991). The memories generated by the exposure seep through the fractures and fissures of the mind and haunt and capture the normal peace of mind. The Vietnam War created small fractures and fissures in the surface of some research participants' personalities which to this day have never closed or healed. Australian military service personnel struggling to maintain a manageable state of mind is often forced to self medicate with drugs and/or alcohol (Murphy et al. 1979). This self medication clouded the memories of the ASRs—triggered by service in Vietnam—as reported by many of the research participants when they compared their Australian lives with their Vietnam existences (Appendix A).

Gaining a better understanding of the relationship between ASRs, psychological illnesses and the long-term psychological adaptation to trauma is essential for ongoing treatment of sufferers. This is especially so for this group of veterans who have presented symptoms that could have an impact on the ongoing effort to streamline treatment regimes for other sufferers. This research was also a rare opportunity to examine depressive illness outcomes from a long-term perspective rather than within an immediate or short-term diagnostic timeframe. Understanding how military service personnel adapt to exposure to traumatic battlefield events over a long period of time informs knowledge about the nature and prevalence delayed onset PTSD. This happens in the same way that the diagnostic criteria for PTSD have evolved and will continue to evolve and be presented in *Diagnostic and Statistical Manual Of Mental Disorders*,

Fifth Edition (DSM-V)-American Psychiatric Association. It also provided another starting point for the development of symptom-specific therapy and treatment programs (Solomon et al. 1996).

Of particular interest in this research is that a battleground. Four research respondents confirmed that they did not find the battlefield experience distressful; rather they found the experiences exciting, challenging and life fulfilling. These respondents confirmed that given the opportunity they would be in Iraq or Afghanistan now (apparently their ages preclude them).

The psychological and physical transitional states of research participants who were diagnosed in 1969-70 as TSD generically, anxiety, alcohol abuse, hysterical neurosis, and social maladjustment and acute sub-syndromal symptoms that led specifically to delayed onset PTSD are of specific interest addressed in this study (Andrews et al. 2007 and Smaldino 1991).

Battlefield dangers understood

There are several difficulties with the research that has examined the question of battlefield dangers. Many researchers conclude that the only way societies can prevent acute stress disorder, anxiety, health problems and PTSD symptoms in military service personnel is to not send them into battle. This contradicts the validity of establishing a Defence Force. Some of these researchers argue that it would be better to deploy them as deterrents rather than combatants (Jones & Wessely 2005). While accepting that this

dichotomy exists between the pro and anti groups it is beneficial to examine how to mitigate current and future deployment operations to assist those involved.

There has been some research examination of the validity of the measures used to quantify the various battlefield dangers—specifically the psychological impact of a battlefield. A predominate amount of research has been on the physical damage of exposure that being—the obvious loss of limb or other physical impairment. Unfortunately most of the research in the field of psychological has been retrospective (Creamer et al. 2006 and King et al. 2000) so there is the potential for biased recall in the individuals who have developed a psychiatric injury. This would obviously favour a negative association with a range of variables (Krinsley et al. 2003). Also many of these variables are not easy to differentiate or divide due primarily to them being continuous and interwoven by nature. One example is the role of genetic vulnerability (Boscarino 2004 and True & Pitman 1999). There can be a cumulative risk that is determined by the number and degree of relatedness of the individuals who have a previous psychiatric injury. The knowledge of the history of symptoms of other relatives is also likely to lead to high rates of false negatives. That is, there will be no disclosure of anxiety or mild depressive disorders due to the antisocial stigma associated with this type of disclosure (Spurgeon 2004).

Research and personal vulnerability

Many of the vulnerability factors also have the potential for interactive effects that may distort significance in research projects. Therefore, the potential predictive ability of

factors that may affect a soldier's capacity to function effectively in the battlefield is low. This is because of their multiplicity and lack of specificity and sensitivity in trying to dredge up these possible pre military service life style influences (Jones & Wessely 2006). This also limits the effectiveness of screening soldiers for battlefield effectiveness before deployment (Green et al. 2000). However, the research evidence indicates that the quality and amount of traumatic exposure is in itself inadequate to differentiate those who might develop a psychiatric injury from those who remain asymptomatic (Southwick et al. 1995). This research goes some way to contradict this finding, principally because of the confidentiality provided for these research participants. This provision overcame the 'self imposed' barriers many of them felt—such as an attack to their pride, vulnerability in asking for help, and burying the problems so deep it was difficult to admit that it existed (Streker et al. 2007). Many veterans involved in this research felt stigmatised by how they might possibly be regarded if they sought treatment for something that did not manifest itself as a physical injury, 'such as a lost limb or bad scarring' (veteran's comment 2007). This supports previous research conducted into the stigma felt by United States combat infantry personnel who developed mental health problems after serving in Iraq or Afghanistan seeking treatment (Spurgeon 2004). The fact remains that combat exposure makes the largest contribution to the variance of PTSD and delayed onset PTSD symptom manifestations (Solomon & Mikulincer 2006 and Taft et al. 1999).

The complex matrixes of predictors are necessary to calculate the onset and maintenance of PTSD. However, current knowledge does not enable prediction with any degree of certainty. A more detailed discussion of the role that battlefield dangers—and the

predilection of individual psychological framework—play in the timing and delayed onset PTSD would be an interesting research topic for the future (Schnurr & Spiro 1999 and Ehlers et al. 1998). The psychiatric costs of war have led to demands for better methods of detecting and treating psychiatric disorders associated with battlefield exposure (Wolfe et al. 1999). In this context, it is now appropriate to provide effective, directed treatment accompanied by credible confidentiality safeguards (Spurgeon 2004). This is currently being done with Australia military personnel.

Summary of findings

The quantitative findings of the Experimental group in this research indicate that the initial diagnosis of transient situational disturbance (TSD) was not a static or stand-alone diagnosis for 1969-70. Rather, it was an accurate predictor of treatment requirements of sufferers in 1969-70; the basis for the evolution of precise, sophisticated diagnostic tools now for PTSD and an early indicator of the changing nature of an understanding of self through cultural shifts in acceptance of the psychological affect that the battlefield can have on military personnel. This evolution in how the psychological impact of trauma exposure is identified and diagnosed has played a significant part in shaping how this research was conceived and presented now. TSD in association with other psychiatric manifestations identified a dramatic and interesting parallel between the reaction to battlefield exposure in 1969-70 and the long term prognosis of the delayed onset PTSD for many. Many of the research participants that agreed to be involved in the ongoing study during 2006-07 in both the Experimental and Control groups have now been diagnosed by other civilian psychiatrists with delayed onset PTSD. Anecdotal responses

have provided an illuminating insight into how some of these participants have coped with these ever changing treatments and diagnoses (Appendix A).

Fundamentally, the research question is answered in that: there were pernicious outcomes identified in 2006-07 to the health and wellbeing for the majority of both Experimental and Control research participants as a consequence of their respective battlefield traumatic exposures in 1969-70. The registered severity and intensity levels of PTSD were high and present in the majority of the research participants in 2006-07.

Consequently, delayed onset PTSD emerged as a critical mediator in this study.

Especially; for the majority Control research participants which also provide support for the current preventative program provided to Australian military personnel on their return from Iraq and Afghanistan.

This research concentrated on the longitudinal development of psychological and physical health outcomes that explain the translation from a relatively vague psychiatric diagnosis in 1969-70 to the diagnosis of PTSD and delayed onset PTSD symptom manifestations and chronic morbidity. The individual sufferers' behavioural mediators include alcohol abuse, smoking and other drug abuse (Waldrop et al. 2008 and Tomb 1994).

This research used self-report measures in the psychometric questionnaire and the following instruments, which are drawn from the Australian Vietnam Veterans Health

Study. These include the following instruments with the following results in Chapters 4 and 5:

- The Clinician-Administered PTSD Scale (CAPS-2) was administered in a follow-up telephone interview to assess participants for current symptoms of PTSD (See Tables 9-40 and Figures 1-11). Qualitative data was also obtained through the telephone interview process (See Appendix A: Case Reports 1-65). These self-report measures have acquired a strong reputation as accurate indicators of an individual's current physical and mental health and wellbeing (Friedman & Schnurr 1995; McHorney et al. 1992 and Solomon et al. 1987c). Additionally, researchers have also found that self-reports of physical and mental health are strong correlates of objective measures of health and wellbeing. Subsequently, they are accurate predictors of the functional health status, morbidity and mortality. In many cases, they are better than medical records. This may be due in part to the anonymity offered in the compilation process (Idler & Kasl 1991; Mossey & Shapiro 1982 and LaRue et al. 1979). Other research has provided a more detailed presentation of potential threats to validity in case control paired, retrospective studies using self-report data. This research refers specifically to studies into the physical and mental wellbeing of Vietnam veterans participating in research (King et al. 1995 and King & King 1991).
- the Vietnam version of the Wilson and Krauss 21-item combat index (See Tables 41-43 and Figures 12-14)
- the military version of the PTSD Checklist, used to measure the PTSD level that corresponds to the PTSD symptoms identified in *Diagnostic and Statistical*

Manual Of Mental Disorders, Third Edition-Revised (DSM-III-R) (See Tables 44-48 and Figures 15-18)

- the Spanier Dyadic Adjustment Scale, used to assess the quality of marriage / partnership relationships and other dyads (Tables 49-50 & Figures 19-20)
- the Centre for Epidemiological Studies-Depression Scale, used to measure depressive symptoms (Tables 51-52 & Figures 21-22)
- the Australian adaptation of the Short Form 36 health survey, used to measure general health and quality of life (See Figures 23-24).

All of these research instruments used to assess problems and complaints experienced in response to stressful military experiences; and general questions about relationships, social activities and social support, brushes with the law, background and home life.

Summary and conclusions

This research examined the predictive ability of an in battlefield diagnosis of TSD and associated psychiatric illnesses and the definite evolving nature of the symptoms of PTSD that are particularly detrimental to these soldiers' long-term adaptation to life. These research participants are compared to a case controlled group of military personnel. The research outcomes confirmed that a correct initial diagnosis is vitally important that this timely identification of traumatic battlefield exposed reactions and subsequent onset of an ASR or disorder be inextricable linked to the distinct possibility of the onset PTSD. Many soldiers exposed to traumatic battlefield events often present a wide variety of short, medium and long-term psychological conditions, which are difficult to identify, isolate

and compare without accurate source diagnostic data. An informed understanding of the relationship between the battlefield exposure/s, the reaction and the resulting progression of the illness is essential in understanding the course of the illness and the accurate treatment regimes required. Essentially those military personnel deemed high risk TSD 1969-70 diagnosed (battlefield trauma exposed) should have been identified and tracked for possible future treatment and definite analysis.

This research contribution on battlefield trauma exposure, 1969-70 TSD symptoms, subsequent anxiety and depression and the evolution of delayed onset PTSD symptoms in study participants as a consequence of actual traumatic battlefield event exposures informs knowledge and supports much of the preceding research work (Bryant & Harvey 2002 and Miller & McKwen 2006).

This study examined the 1969–70, original recorded traumatic events of 119 Australian Vietnam veterans. It analysed data collected in 2006–07 in conjunction with case control paired measurement analysis of a Control group of contemporaries. This comparison provided an interesting insight into the physical and psychological health of Vietnam veterans of that exclusive era. Specifically it highlighted the strong relationship between battlefield combat exposure and delayed onset PTSD.

The majority of both groups have been affected adversely from detailed battlefield exposures; they suffer from PTSD, confronting societal truths in 1970 and beyond and qualitative accounts of military indoctrination and pre embarkation training in 1968-69.

There are few examples of longitudinal, quantitative and qualitative research study projects in the fields of in battlefield psychiatric diagnosis, subsequent casual link between TSD (which really just identified the ‘high risk group’) to PTSD and delayed onset PTSD symptom presentations. The link between a particular battlefield traumatic event/s, and the subsequent outcomes after 35 years to the individuals, depression states, dyads, PTSD severity conditions and their general health and wellbeing (Prigerson et al. 2001) is of greater significance (Sareen et al. 2007a). This study accessed the original interview notes of current-serving, battle-exposed servicemen, and established base psychological state evaluations in 1969–70. It then assessed participants’ medical and social evolution after 35 years. No other study has been able to detail the specific in-battlefield diagnosis and compare the outcome of these individuals with a matched case control group who experienced the same battlefield trauma exposure/s. In addition, to the base analysis the author evaluated the general health, dyad status health, combat exposure reliability and PTSD symptom cluster formations for both groups for the same time. This shed light on the particular PTSD symptom clusters associated with battlefield exposure, the delayed onset PTSD, and the efficacy of the initial diagnosis and case control group outcomes, and also the distinctive poor quality of life and associated suicide attempts by these research participants (Sareen et al. 2007a).

The distinctiveness of the ongoing symptom manifestation of delayed onset PTSD in this group of Vietnam War veterans demonstrates many similarities with data from veteran research populations in other conflicts throughout history and around the world (Andrews et al. 2007). Notably from the common perspective and relationships to the prevalence,

chronic nature and prominent avoidance behaviour utilised by research participants to cope with their daily lives (Epstein 1993). This avoidant behaviour is linked to co-morbidity associated with poor physical and psychological health and wellbeing, dysfunctional dyads and depression in the majority of these research participants (Hopper et al. 2007). There is an association between the severity of the traumatic exposure and the propensity for potential improvement in these specific research participants. From the perspective of the psychopathology, the persistence of PTSD more than 35 plus years later is probably explained by, among other factors, the prominence of intrusion and avoidance symptoms and co-morbid depression (Hopper et al. 2007). From the psychological perspective, the following combination of factors could have contributed to the perpetuation of PTSD:

- the vague diagnosis (limited by the DSM-II definition range) provided in 1969-70
- the horrific nature of the traumatic battlefield exposure/s which robbed soldiers of a sense of safety and security at a relatively young age
- the immediate lack of community and social support on return from deployment in 1969–70
- lowered expectations of the durability of relationships, life and a future.

The prominent role of battlefield traumatic exposures, PTSD and delayed onset PTSD, and the link between a personal diminished sense of safety and security and an avoidance and intrusion cluster of symptoms are all prominent in this research. This implies that they should be part of the primary focus for early primary intervention care measures employed to prevent chronic psychological illness manifestations (Seal et al. 2007).

There are limited data to indicate whether there are differential rates of treatment response according to the period of time that an individual has suffered PTSD. There is only one relevant controlled trial of cognitive behaviour therapy known to the author at the time of this research. This investigated the ability of acute interventions—specifically, cognitive behavioural therapy—to prevent the emergence of PTSD (Bryant et al. 1998). The Australian Department of Veterans' Affairs is conducting a trial of the use of cognitive behavioural therapy (Australian Department of Veterans' Affairs, 2007) which they believe will be extremely effective in the ongoing treatments supporting Australian Defence personnel returning from deployments around the world. It is thought that the co-morbid depression associated with PTSD will be attended too in conjunction with this treatment. Hopefully Australian Defence personnel today will not be presented with the same dilemmas experienced in the past with regard to traumatic battlefield exposure from future Australian Defence force deployments.

Picture 7



1969-70

Vegetation surrounding Australian Forces Base facilities
in the 1st ATF TAOR

CHAPTER 7

'Young men, help me, do help me!
I love my country so:
That is why I am fighting. "Sitting Bull"
(Vestal 1989)

RECOMMENDATIONS FOR FUTURE RESEARCH

Introduction

The current eclectic evidence provided by traditional research has frequently been retrospective founded on the general exposure to a traumatic event/s. This research has an exclusive base historical event start point of battlefield trauma exposure/s that can be ratified independently as distinct from general natural disaster or one off accident exposure/s. Non-treatment seeking military personnel who as a consequence of their military service and ultimately suffer from the psychological impact of battlefield trauma exposure/s need access to well-designed military and public health strategies. The data obtained from this and earlier studies are not sufficient to initiate the design of special public health strategies or develop new services within or outside the conventional military and civilian health care systems to change the current regimes.

Future research endeavours into battlefield trauma exposure/s should incorporate pre-deployment assessments with rigid research methodologies to attempt to identify 'high risk' individuals. This is not, and should never be interpreted as, screening military personnel prior to deployment. Rather, these assessments should focus on obtaining

individual prior traumatic exposure history and psychological functioning profiles that can be used for future correlation and analysis that may assist in highlighting risk and vulnerability predictors. Post deployment analysis is also vitally important (as identified from this research) as it would also assist in identifying those veterans that should also be classified as ‘high risk’ as a consequence of battlefield traumatic exposure. Consequently this preventative action may contribute to their post battlefield trauma exposure lives being managed, assisted and healthier.

This research analyses the battlefield traumatic event/s and the sub-syndromal PTSD illnesses manifested in cases recorded and specifically reported as a consequence of battlefield trauma exposure/s by Australian military male servicemen (Andrews et al. 2007). Based on these 1969-70 psychiatric medical reports from the TAOR a general identification emerged of the Experimental group participants in that the majority of those diagnosed with TSD and associated psychiatric illness presentations subsequently developed certain symptom types of PTSD, delayed onset PTSD and chronic morbidity later in their civilian lives (Solomon & Mikulincer 2006). Interestingly the majority of the matched case control research participants also developed particular symptom types of PTSD, delayed onset PTSD and chronic morbidity.

The explicit evolving nature of the symptoms of PTSD that are particularly detrimental to these research participants’ long-term adaptation to life was also evident by the statistical evidence of this study. These symptoms included intrusive thoughts, nightmares and dissociative flashbacks, the evolution of adaptive behaviours

(avoidance), changing psychological states (ASD and delayed onset PTSD), socially accepted truths and states (qualitative reports), and military and veteran culture suspicion. Consequently, it is noted that the timely identification of combat ASR in the battlefield, depressive illnesses and subsequent presentation of symptoms of PTSD and delayed onset PTSD has a causal link and is vitally relevant to the provision of accurate and symptom precise treatment for battlefield trauma exposed sufferers.

Australian military medical staff and various military support agencies (Centres for Military and Veterans' Health) are the most appropriate for the implementation of early identification and ongoing monitoring of 'at risk and high risk' veterans. Many times during the telephone interviews the veterans expressed a desire to understand their suffering "if only someone could have told me why I could not find peace or security anymore" on my return from Vietnam. Moreover, this must now then be distinguished and combined with the provision of appropriate treatment to relieve the suffering of future battlefield trauma exposed military personnel. An early identification and ongoing monitoring and support provision is being instituted within the Australian military health services for overseas deployed military personnel returning to Australia.

Research findings have suggested that these interventions—while personnel are still engaged in the military in the battlefield—should be aimed at suppressing the psychological discords created from the respective military service (Strecker et al. 2007). Strategies that direct veterans to medical care without the associated stigma of being diagnosed with a mental injury should be developed (Miller 2006). Psychological

military medical support should be directed toward cognitive factors that motivate current serving military personnel and veterans to seek treatment and change their behaviours. This is considered by the author as easier said (written) than done. The central provision of this medical support should be quashing the stigma associated with such treatment options (another easier said than done statement). If or when this is accomplished, current serving military personnel and veterans will seek support willingly and may not need to be directed to seek it as a consequence of a discipline administrative process or a non military societal breakdown. As is the case for military personnel who may be injured psychically in the battlefield; if they had a broken limb that impacted on their tactical or operational effectiveness they would be sent to the RMO to be repaired. This should be the same culture for those military personnel who are overwhelmed by battlefield trauma exposure and requiring psychiatric support.

Recommendations for further research—specific to this research

This research provided answers to questions related to combat ASR, early PTSD behaviour manifestations and the prevalence of delayed onset PTSD. To maximise the research benefits of this study it is recommended that endeavours are made to obtain the approval required of the Australian Department of Veterans' Affairs ethics committee to access data—in which personal information is de identified—on all research participants' identified in this study specifically related to their pension status history and:

- the date of their initial diagnosis and treatment regimen

- their age and the date they first received a war service disability entitlements
- the nature of the entitlements for each veteran—including their disability profiles
- ongoing medication and treatment regimes.

An avenue for additional research may be accomplished by identifying more unambiguous mechanisms by which these conditional states relate to the physical health problems and, ultimately, to possible functional disability of these specific research participants.

Another research endeavour initiated by this research may be the retrospective examination of the exclusive battlefield trauma (killing the enemy, mutilating bodies, seeing wounded and killed (enemy or own forces), atrocities, artillery bombardment, booby traps and torture) effects the combat ASR, PTSD, delayed onset PTSD and the physical health in current serving military personnel and these elderly veterans (Schnurr et al. 1997).

Further research may also include an examination of the role of trauma to, or participation in, individual battlefield behaviour (atrocities as a surrogate indicator of pre-military prior exposure or participation in atrocity trauma).

Additionally, research into the efficacy of medication and treatment regimes is of particular interest (especially with these research participants). A subsidiary project into the amortised cost of the medication and treatment regimes could be undertaken

simultaneously. The caveat on this research needs to be emphasised, that this data is confidential so that personal, identifying information is not available at any time (except to the supervisor and the principal researcher). Consequently, there is no threat to their respective veteran entitlements or any risk of research participant's inadvertently being identified. Other restricted de-identified data that should be readily retrievable in this research sample is veterans' prognosis for improvement and their health status profiles over the years. This would include the total cost of benefits received and the costs of health care since their service obligations began at enlistment.

Depending on the effectiveness of current health care and medications, distinctions could be made between primary, secondary, and specialised care provision for veterans within the Australian community post battlefield trauma exposure/s. The actual received treatment that has been recorded—for example, pharmacotherapy—could be described as could the type of psychological interventions (eg: CBT). As a consequence, it may then be possible to consider the treatment-seeking behaviour of the research sample populations in conjunction with current veteran populations. This could be done not just as a dichotomous variable, but to distinguish between treatment provision at different levels within the health care community and what veterans are seeking and possibly what the efficacy of the treatments and medications.

Other future research

The potency of the association between exposure and the stress depends upon the range of different and similar exposures within the research population. A strong relationship is

generally found when the exposure ranges from very little to extreme. Research into the exposure effect results; which are directly proportional to the frequency and intensity of the particular exposure would inform knowledge as well. However, the statistical methods used do not often investigate whether there are threshold effects. In a moderate to high exposure group, a stronger relationship may exist as there has been sufficient exposure to trigger a PTSD reaction or label an individual as being “high risk” of delayed onset PTSD. Consequently, frequent further minor or moderate exposure may have less impact on the prevalence of PTSD than exposure in the extreme range with infrequent presentations. Exposure threshold effects would be another research opportunity for the future.

The function of individual vulnerability factors also needs to be considered in this context. These individual vulnerability factors may play a greater role in the lower end of the range of severity of traumatic exposure/s. Systematic research on the identifiable severity of the exposure and the initial reaction presentations and the onset timing of PTSD may proactively guide certain assignments of individuals back to the battlefield situation that they have been removed from. Others may be directed to treatment programs and therapy prior to returning back to full military service. A future study might proactively explore whether mediators are similar across a variety of identifiable traumatic exposures in the battlefield or over the length of time in the battlefield.

It might be prudent for future research to also include an expanded range of pre military service stressors to examine potential differential effects on resilience and coping for

additional trauma exposures in the military and in other situations in life. An expanded list of potential stressors could include:

- sexual and non-sexual assault
- motor vehicle accidents
- family breakdown
- friend or family suicide.

Research has been conducted in these additional stressors but considering their impact on the combat could help to establish a preventative marker for battlefield deployment status of individual combatants. An example being of this type of research would be whether knowledge of suicide may confer a greater threat to coping with battlefield trauma exposure than a prior car accident.

Alternative research into cases should be undertaken where ASR have not been resolved after a determined period of time. Another study program should document after a specific battlefield trauma exposure/s; the individual reactions from all combatants, then, date and mark the incident and then follow the behaviour trends over designated periods. This type of research would provide data for future research into anti social forms of post traumatic adaptation and the progressive presentation of personal psychological instabilities in battlefield trauma exposed individuals during military service and in their post civilian lives. These individual and collective reactions should also be examined as possible determinants of indicators of disguising symptoms and the materialization of delayed onset PTSD.

It is vital to recognise that the fluctuating condition of PTSD is partly due to the treatment being administered. Detailed research should include the factors that might exacerbate, or modify the symptoms in the course of PTSD and delayed onset PTSD. A consistent set of variables; such as, life stressors, an individuals' temperament, social support and the veterans' changing physical health condition needs to be scrutinized in conjunction with this type of research.

The significance of the type trauma exposure and delayed onset of PTSD to physical health conditions and functional health status may have important implications for clinical interventions within the military and civilian research populations. Screening for extremely stressful life events such as battlefield exposure and possible indicator signs of PTSD symptom clusters would be a fascinating endeavor in conventional medical practices within the context of a battlefield scenario. This is especially appropriate given the well-documented high rates of trauma exposure in various community-based populations as well (Kessler et al. 1995; Vrana & Lauterbach 1994 and Breslau et al. 1991) and the associated high prevalence of persistent PTSD in the general population that have been exposed to incidental traumatic exposures (Kessler et al. 1995).

Furthermore, military or civilian clinicians treating battlefield trauma exposed victims should be cognisant of their patients' vulnerability to physical ailments and the possible associated diminution of ability to perform routine combat and civilian daily tasks that

directly affect their overall combat effectiveness and the quality of their post military lives.

This awareness is evident in the work of a world-class research project into the effectiveness of cognitive processing therapy to treat PTSD. Currently this research is being undertaken under the auspices of The University of New South Wales. This research is receiving some funding from the Australian Department of Veterans' Affairs. The study is systematically helping delayed onset PTSD sufferers to identify and resolve negative attitudes about the battlefield trauma they were exposed too. This therapy regime may promote better physical and mental health in veterans (Australian Department of Veterans' Affairs, 2007). Other research in this area would also proactively confirm the value of cognitive processing therapy for other research populations.

Research into the reasons why treatment has been sought by military personnel should also be undertaken. Particular emphasis should be placed on whether the veteran's primary concern is that their mental health has been damaged as a result of battlefield trauma exposure. As distinct from a psychosocial demand forcing the veterans to seek treatment; to save their marriages, fit in with the community or stay out of military prison. Or is this treatment seeking behaviour associated with problems of an explicit organic nature (injuries); or for other psychological problems that might reflect symptoms of early or disguised delayed onset PTSD?

Qualitative research should also address attitudes toward mental health treatment and service provisions and coping strategy treatment regimes. This research should aim to unravel the associations and significance of various military stigma issues that exist in the military culture and the civilian community interacting with the veterans.

Conclusion

Veterans in this research that presented initially with TSD, PTSD and delayed onset PTSD with chronic morbidity—precipitated by battlefield trauma exposure/s decades earlier—show significantly poorer performance in multiple measures of health and wellbeing. On all measures their scores are within a range consistent with diminished health—both physically and psychologically. The majority of the research population have marginalised relationships, are severely depressed and have little or no hope of the type of future that would be expected by non-battlefield trauma-exposed civilians from 1969-70. Today, they find themselves in situations which they could not have imagined in 1969–70 and which they did not choose. Future research may assist these ageing veterans. It should, however, help future military personnel to be better prepared for, and to understand, what may happen to them as a consequence of their military service and provide an avenue of support for them, their families and mates with opportunities for the future.

Picture 8



1969-70

Vegetation surrounding the main accommodation and logistic service facilities
for the 9th Battalion in the 1st ATF TAOR