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THE RELATIONSHIP BETWEEN POST-TRAUMATIC STRESS DISORDER SYMPTOMS AND SIX PSYCHO-SOCIAL VARIABLES

By

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ABSTRACT

THE RELATIONSHIP BETWEEN POST-TRAUMATIC STRESS DISORDER SYMPTOMS AND SIX PSYCHO-SOCIAL VARIABLES

By

Monica Anne Green

The purpose of this study was to rigorously define, operationalize and predict pre-service, service and post-service psycho-social variables associated with Vietnam veterans with post-traumatic stress disorder.

Sixty Vietnam veteran subjects from a Mid-western VA Medical Center were surveyed for symptoms of post-traumatic stress disorder. Characteristics of those sixty subjects were analyzed to determine their relationship to symptom outcomes. These included: nature of entry into service, intensity of combat experienced in Vietnam, current subective impact of the previously experienced stress of Vietnam experiences, current level of life stress, extent and nature of social support available to the veteran during the first year of return from Vietnam, and pre-service psycho-social functioning.

Multivariate tests involving discriminant function and linear regression analysis were conducted. Both analyses revealed that the intensity of combat experienced and the current subjective impact of

the previously experienced stressor of duty in Vietnam were most highly associated with current post-traumatic stress disorder symptoms. Univariate tests of correlations and analysis of variance also supported the above findings. In addition, current levels of life stress, especially disruption in interpersonal relationships, also were found to be significantly associated with post-traumatic stress disorder symptoms.

These results support the findings of related studies of natural disaster victims and previous studies of the etiology and correlates of post-traumtic stress disorder symptoms. These data provide support for the existence of a quantifiable constellation of symptoms associated with psychological sequelae of severely stressful trauma.

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Lastly, I wish to dedicate this dissertation to me -- who persevered through this arduous and trying process of completing this dissertation and ultimately the Doctor of Philosophy degree. I am so proud!

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CHAPTER ONE

THE PROBLEM

The "Vietnam Era" was defined by Presidential proclamation as the period of time from August 5, 1964 to May 7, 1975. It is estimated by the Veteran's Administration that over 9.1 million persons served in the armed forces during that span of time. The prevalence figures regarding how many persons served specifically in Vietnam and how many now experience psychological difficulties are unclear. Ewalt (1981) tendered an approximation of 2.8 million persons serving in Vietnam, with 22% of the survivors receiving service-connected compensation at 50% or more. One in five of these individuals is being compensated for a psychiatric disability. He further estimated that "...of the total discharges in a year from the VAMC's (VA medical centers) psychiatric discharges show 39% are Vietnam Era veterans." He estimated that 20% of Vietnam Era veterans are experiencing "severe (adjustment) problems."

NEED

Assessing the prevalence and nature of psychological problems of Vietnam veterans has proved difficult. The President's Commission on Mental Health (1978) suggested that most of the mental health problems of Vietnam Era veterans occur among those who served specifically in Vietnam, also estimating this population to be 2.8 million persons. The figures for the percentage of psychologically troubled out of this

2.8 million range from 20% to 50%, according to various research findings (Center for Policy Research, 1979; Figley, 1978).

The purpose in presenting these discrepant and confusing estimates of the problem is to demonstrate that it is at this basic level that the confusion regarding the Vietnam veteran and his psychological difficulties begins. Current research findings on the etiology of Post-Traumatic Stress Disorder (hereafter referred to as PTSD) are varied and in conflict. Critical variables contributing to symptom formation are thought to be: 1) combat experience, 2) pre-service social adjustment, 3) voluntary or involuntary nature of service rendered, 4) a variety of post-war personality and attitudinal correlates, and 5) numerous factors related to the socio-political climate in the United States and in Vietnam during the Vietnam era.

PURPOSE

The purpose of this study was to identify pre-service, service, and post-service psycho-social variables associated with Vietnam veterans reporting Post-traumatic Stress Disorder (PTSD) symptoms. In addition to examining the associated variables of PTSD, clarification of the interaction among these variables was explored.

The results of this study are discussed within the context of previous research findings related to those of the work presented in Chapter 2. These findings help to clarify the relationship of

pre-service, service, and post-service variables to the current existence of symptoms of PTSD. Such research contributions may assist in the understanding of etiological factors of the disorder. Understanding the etiology assists in developing helpful treatment approaches to remedy symptoms of PTSD. Most importantly, understanding factors correlated with PTSD may have implications for interventions designed to prevent the development of severe, chronic, and disabiling symptoms of PTSD.

RESEARCH HYPOTHESIS

The generic research hypothesis of this study was:

There is a positive correlation between the existence of PTSD symtoms and pre-service psycho-social functioning, nature of entry into service, combat experience, social support upon return from military service, current subjective experiencing of the earlier traumatic stressor, and current levels of life stress.

THEORY

The concept of war neurosis has been observed since the early history of armed conflict, with reference being made to it as an observable entity in the Greco-Roman wars. Although it has been known by a variety of labels, e.g., "nostalgia," "traumatic neurosis,"

"shell shock," the symptoms observed have been similar.

The DSM-III criteria for Post-traumatic Stress Disorder are as follows:

I. The existence of a significant stressor

II. Re-experiencing of the traumatic event as evidence by at least one of the following:

A. Instrusive memories of the event

B. Recurrent dreams of the trauma

C. A sudden feeling or acting as if the traumatic event were recurring, triggered by an environmental or emotional stimulus

III. Numbing of experience, as evidenced by:

A. Diminished interest in activities

B. Feelings of alienation

C. Constricted affect

IV. At least two of the following symptoms that were not present before the trauma:

A. Exaggerated startle response to stimuli

B. Sleep disturbance

C. Survival guilt

D. Difficulty concentrating

E. Avoidance of activities that arouse recollection of the traumatic event

F. Intensification of symptoms by exposure to events that resemble the traumatic situation.

However, identification of a discrete symptom complex is only the first step toward effective psychological intervention.

The emotional arousal which is induced by a person's perception of his environment as threatening can be an adaptive response facilitating survival. Conversely, the response itself, if overwhelming, chronic and inappropriate to environmental stimuli, can lead to psychological disintegration and disability. In the investigation of an individual's reaction to stress, attention has been paid to the nature of the stressor itself, the psychological structure of the individual, the physiological mechanisms which are activated in reaction to the experience of stress, and the social context in which the individual exists.

Initial formal theoretical speculation regarding the etiology and dynamics of "traumatic neurosis" are frequently attributed to Breuer and Freud (1895). Freud observed

> We apply the word 'traumatic' to an experience which within a short period of time presents the mind with an increase in stimulus too powerful to be dealt with or worked off in a normal way, and thus must result in permanent disturbances of the manner in which the energy operates.

He emphasized the repetitive recollection and intrusion of the traumatic experience as an attempt at mastery of the traumatic experience.

Grinker and Spiegel (1963) in observing "war neurosis" of World War II veterans paralled Freud's analytic approach stating:

> The reaction to the stimuli of combat depends upon the meaning given to these stimuli in terms of recognizing them as a threat and of feeling confident of the ability to neutralize the threat.....Forces, located in the superego or in the external environment, demand a continued attempt to master the threat, and at their behest the ego attempts to inhibit or control the anxiety. (If) the ego loses its inhibitory power, anxiety dominates more and more, becoming an ungovernable force which swamps the ego and disintegrates its function.

Taking a macroscopic view which incorporated more than dynamic theory, Grinker postulated that the etiology of the condition lay in the interplay among the soldier's personality and character structure, his training and confidence, his personal and combat unit morale, and other impinging situational stressors. He thought that any person, under sufficiently intolerable stress, had the potential to develop "war neurosis" symptoms.

Rado (1942), distilling psychological thought on the "traumatic syndrome" seen in combatants of World War II , drew from Freud's explorations of trauma in formulating his theory. He emphasized "neurosis as a form of adaptation," a view which is echoed by contemporary theorists in PTSD research (Horowitz, 1976; Lifton, 1973). According to Rado, symptom formation was a by-product of the

intra-psychic experiences of "ego contraction" which he defined as the "shrinking of the organism's inner resources" (in the face of overwhelming trauma) and "(ego) disorganization rather than disintegration."

Lifton (1982), in an extension of Rado's views, perceives the development of PTSD as inevitable for anyone exposed to a sufficiently catastrophic trauma. He stated that "...predisposition is only a matter of degree." He elaborated upon the symptom complex by emphasizing the development of the "death imprint...the radical intrusion of an image-feeling of threat or end to life." Further, he stated that there is a tendency to cling to the "death imprint" through imagery and feeling in an attempt to master and assimilate the traumatic threat to life, as Freud also noted.

Even though much of Horowitz' work has been directed toward treatment, he has also explored those factors related to etiology and the personal meaning of the traumatic stressor. His theory has been an integration of object relations theory and developmental understanding of character structure.

> The state of stress imposed by a particular life event may impose a general regression in which developmentally primitive adaptive patterns will be noted, latent conflicts will be activated and more apparent, and increased demand for parental objects will affect all interpersonal relationships.

Horowitz suggests that an understanding of the nature of the stress response syndrome is dependent upon an exploration of pre-stressor psycho-social functioning. Further, he suggested that information regarding developmental stage achieved pre-morbidly be gathered in order to understand the individuals' adaptive and maladaptive style of coping with the activities of everyday existence consequent to the stressor. In summary, Horowitz states:

> Some persons are unable to complete trains of thought and affect instigated by the event because pre-existing problems or conflicts block the processing of these themes....This can lead to a prolonged post-traumatic reaction that may disrupt work and social functioning.

Wilson (1978), a Vietnam veteran and social psychologist, evaluated the impact of war-related trauma on Vietnam veterans within the context of psycho-social stages of development. The mean age of combatant in the Vietnam War was 20 years, which was the youngest age for American men to have seen combat in any American-fought war. Using Eriksonian stage theory, attention was drawn to the fifth psycho-social developmental crisis, Identity vs. Role Confusion. According to Erickson, the "task" of this developmental period is to develop a more integrated and enduring sense of self and personality structure. This stage of psychological growth and development is characterized as a time of: increasing autonomy from parental guidance, exploration of mutual heterosexual intimacy, initial career

decision-making, committment to ideological principles, values and morals, and the discovery and acceptance of one's strengths and weaknesses. Experiencing and observing oneself in all of these contexts provides further self-definition and clarification. Wilson suggested that young adults who might otherwise proceed through this developmental stage may experience an interuption when exposed to combat. In summary, Wilson stated:

> Under the best circumstances one would hope for good role models, a clear sense of purpose or mission, a moral and political cause worthy of committment, the opportunity to broaden one's geographical-historical world image, the opportunity to believe in the trustworthiness of authority and leaders, collectively shared experiences with age-mates such that a more positive sense of self emerges and finally, to come to a more profound and complex understanding of cultural processes and prevailing technologies.

It is not within the purview of this research to address the moral-laden issues provoked by Wilson's comment. However, his thoughts are offered in an effort to evoke thoughtful consideration of the psychological vulnerability of the young military recruit and appreciation for the impact of experiences, dilemmas, and threat to physical and psychological integrity experienced by many of these men, particularly given the morally conflict-laden context of the Vietnam War.

Understanding the environmental context in which the stressor occured and was experienced by the individual is a critical aspect of appreciating psychological sequelae. For example, Goodwin (1980) suggested that the unique qualities of the Vietnam War may have contributed to the development of a delayed stress reaction. Goodwin studied the DEROS system (date of expected return from overseas), which was intended to minimize psychological casualties. He found that the DEROS system proved disadvantageous in that it undermined unit morale, cohesion, and identification. He also noted that in previous wars, soldiers experienced emotional closeness and support for the working through of the experience of combat with each other during combat and the long trip home from overseas. However, it was common during the Vietnam War for a soldier to be in the midst of combat one day and back in his home town the next. Other factors which Goodwin noted were the confusing ideological and political conflict over the war effort, the lack of clear identification of the enemy, the unclear demarcation of enemy territory, difficulty in coping with women and children combatants, and the high rate of drug usage. Consequently, environmental factors external to the combatant may contribute to the development of PTSD symptoms.

The groundwork was laid for this research project--its implementation, the presentation and discussion of results--by reviewing the literature. The development of PTSD symptoms are understood from a review of the nature of the stressor, including it's

environmental context. An intra-psychic or dynamic appreciation of the individual from the analytic perspective helps to understand the formation of PTSD symptoms. The interface of psycho-social developmental tasks and the environment in military and combat experiences provide an understanding of the impact of military service upon the young military combatant.

In Chapter 2, research efforts specific to the psycho-social variables cited previously in the generic research hypothesis and their relationship to PTSD are reviewed and critiqued. In Chapter 3, the method by which the research hypotheses were operationally tested are described. The previous review of theories germane to the development of the symptom complex of PTSD serves as the foundation for the following discussion of specific variables assumed to be related to the existence of PTSD.

CHAPTER TWO

INTRODUCTION TO REVIEW OF LITERATURE

Much has been written in the last fifteen years about variables thought to be related to the existence and etiology of "maladjustment" of the Vietnam veteran. As with other issues warranting empirical study, research efforts on PTSD have been problematic. These problems include research endeavors which incorporate errors in method and those which are limited in scope of exploration. For example, investigators have explored one or more independent variables ranging across the time intervals which include pre-service, service and post-service experience. In some cases, the dependent or criterion variable has not been accurately measured or routinely defined as Post-traumatic Stress Disorder symptoms but has been imprecisely labeled "maladjustment," "depressive syndrome," and "attitude problems."

Since the Vietnam War, there has been an evolving recognition of a "delayed stress response" or PTSD symptoms. There has been empirical exploration of variables thought to be related to the development of symptoms of PTSD. This evolution of awareness of and exploration of PTSD is reflected in the chronology of research endeavor and theoretical postulation. This review is designed to critically examine those research efforts directly related to the work reported here. For a comprehensive review of the development of psychiatric nosology related to combat stress and a history of treatment for the condition the reader is referred to Figley (1978, Chaps 1 & 4).

REVIEW OF THE LITERATURE

In an early study evaluating Vietnam veterans, Huffman (1970) looked at the relationship of pre-service functioning and nature of entry into the service to "emotional difficulties precipitated by combat fatigue." His findings were based on interviewes of 610 "psychiatric casualties" of the Vietnam War. He reported that 11% of this sample were drafted into service. Of the 610 interviewed, only 48 experienced "emotional difficulties precipitated by combat." Through "brief psychiatric interviewing," the author determined that 28% of his sample had pre-service legal problems and 62% had not completed high school. He concluded that men with unsuccessful social adjustment prior to military service were prime candidates for emotional difficulties in combat. However, the author did not describe how "pre-service social adjustment" was measured.

Furthermore, efforts to standardize the interviewing procedure were not reported. The author acknowledged that interviewing depth and length varied among "subjects." Also, no explanation was given for the conclusion that only 48 of the 610 psychiatric casualties were suffering emotional difficulties precipitated by combat. Sampling procedures which would assist in determining the generalizability of his results to a broader population of Vietnam veterans were not described. Since interviews in Huffman's study were conducted in field hospital settings in Vietnam during 1970, he may not have

identified those soldiers who later developed a "delayed" post-traumatic stress disorder.

Strayer and Ellenhorn (1975) studied the relationship of a variety of service and post-service factors to post-service adjustment. Their sample of 40 was randomly selected from a pool of 1000 recently discharged army veterans whose names were obtained through the Veterans of Foreign Wars. Data were collected through taped, structured interviews and the administration of the California F Scale (an instrument to measure authoritarian personality charcteristics), Rotter's Locus of Control Scale (1966), and a sentence completion form developed by the authors. Transcriptions of the taped interviews were rated independently by three judges on the following post-service factors: goal orientation, hostility-aggression, attitude toward United States participation in the War, level of guilt feelings, adjustment to civilian life, and attitude toward college war protesters. Level of combat intensity experienced by subjects was measured by self-report on a 1 to 4 Lickert-type scale. Specific details of subjects' combat experiences were not identified or considered.

In reporting their findings, Strayer and Ellenhorn (1975) stated that introspective veterans who were involved in heavy combat tended to be apathetic, unemployed, and opposed to the war effort. On the contrary, authoritarian veterans tended to be employed, goal-oriented, opposed to anti-war protesters and in favor of the Vietnam War effort.

Strayer and Ellenhorn (1975) reported that adjustment to civilian life, feelings of hostility, depression, guilt and a negative post-service attitude toward the Vietnam War were all significantly associated with intensity of combat experience. Then they proceeded to state that "severity of adjustment problems were highly correlated with amount of combat experienced, low goal orientation, high hostility, positive attitudes toward the war protest movement, severe guilt feelings, poor self-concept, high intraception and severe depression."

Interpretation of Strayer and Ellenhorn's study was problematic. A dependent variable was not identified and statistical methods such as specific tests and levels of significance used were unreported. Causal statements made in the study were apparently based upon correlation coefficients.

Yager (1976) compared and contrasted post-service violent and non-violent veterans of active-duty combat. Thirty-one subjects were drawn from a population of patients either receiving in-patient or out-patient psychiatric care or who were referred for psychiatric consultation. In order to achieve "uniformity with regard to combat" the author limited the definition of combat and included only those combat soldiers who knew they killed at least one person in Vietnam.

Responses were elicited in "semi-structured interviews ...intended to have therapeutic benefit...(with each soldier being) interviewed for a period of from 2 to 20 hours." The dependent variable defined as "post-combat violent behavior" was measured by the number of self-reported violent outbursts against other persons. The independent variables hypothesized as related to post-combat violent behavior were: fighting with peers before entering the service, volunteering to serve in Vietnam, reenlisting for additional Vietnam tours, killing a larger number of people in Vietnam, and frequently participating in acts of "personal violence" in Vietnam. A positive correlation was found between the dependent variable and each independent variable. The author cautioned that the sample constituted psychiatrically maladjusting combat soldiers and should not be generalized to all Vietnam veterans.

Nace et al. (1977) evaluated the incidence of depression in a sample of 202 Vietnam veterans, 125 of whom were identified as "drug users" and 77 who were non-drug users. The sample was drawn from admission face sheets of potential patients at a military-operated drug treatment center and medical records from an Army hospital in Vietnam. Selected subjects had permanent addressess within a 55-mile radius of Philadelphia, Pennsylvania. During a 1-to-2 hour semi-structured interview data were gathered on each subject, including employment, marital status, drug and alcohol use, etc., as well as relevant past and current variables. Each subject completed

a Beck Depression Inventory which was the only measure taken of depressive symptoms and each was asked to provide a urine sample for drug detection. Approximately 33% of the sample were judged to be clinically depressed. Nace et al. (1977) found that mode of entry into service did not distinguish between the depressed and non-depressed groups. Although the authors found a greater trend toward depression among those subjects who were combat veterans, this trend was not statistically significant. Rather, those variables found to correlate with the existence of depressive symptoms were unemployment, current drug use, and marital disruption. The authors suggested that the depressed group of veterans demonstrated over-all maladjustment in activities of daily living. The authors noted a pattern of pre-service maladjustment as well, identifying in the depressed veterans: a higher incidence of pre-service alcohol use, a history of childhood "broken" homes, and a history of pre-service marriages which dissolved during or after service. The authors concluded that the depressed sample demonstrated a vulnerability toward developing depressive symptoms whose roots could be traced to pre-service factors.

Figley (1978) presented a thorough review of 33 studies of veterans of Vietnam which were conducted prior to 1978. He concluded that veterans who had been exposed to extreme stress in combat showed a greater incidence of psychologocial difficulties. He also critiqued the research methods of these studies, noting that a number of studies reported no differences between veterans and

non-veterans on mental health indices. In a data analysis that supported Figley's assumptions, Figley and Eisenhart (1975) found that noncombatants had fewer physical fights, arguments, conflicts with the law, violent dreams, and violent fantasies than combatants. Noncombatant veterans also had more close friends and used alcohol and marijuana less frequently than combatants. The authors concluded that "...there are at least dispositional differences between veterans who were exposed to combat and veterans who were not, and these differences continue long after release from military service."

Figley, in his review article of 1978, also addressed the pre-service or pre-dispositional factor in PTSD research. Even though he cited no supporting empirical work, he concluded that "pre-service factors including personality, family life and psycho-social variables appear to be related to in-service and post-service adjustment among Vietnam veterans."

Findings reported by Helzer et al. (1979) seemed to further cloud the disagreement over the extent to which pre-service adjustment or combat experience better account for the development of PTSD symptoms. Helzer et al. interviewed 571 Vietnam returnees, some of whom were identified as drug abusers. A sample of 284 controls was identified from men eligible but not drafted for Vietnam service. The two samples were matched on the basis of draft eligibility status, size and location of pre-draft residential area, age, and education level. The veteran and non-veteran group were compared for frequency

Of depressive symptoms and a depressive syndrome within the second and third year of the Vietnam veteran's return. The relationship of combat to any "excess of depression among the veterans" was studied. Helzer et al. (1979) found that "more of the veterans met our criteria for a depressive syndrome occurring at some time during the two-year follow-up (chi-square, p=.01)." They also found a relationship between combat and depressive symptoms. When the veteran sample was divided into two subsamples of combat and non-combat subjects, the relationship of depressive symptoms to combat was significant at the .02 level.

Helzer et al. (1979) further examined the influence of pre-service factors upon the interaction between combat assignment and depressive symptoms. In their first study they found four pre-service variables which predicted both combat assignment and depression. These were: anti-social behavior, education, parental psychiatric care, and parental arrest. When, in the second study, any one of these pre-service variables was controlled in the analysis, the relationship between Vietnam combat experience and subsequent depression was no longer significant. The authors concluded that their findings lent no support to the view that long-term depressive symptoms or syndromes might be attributed to the military experience. They further stated that "...the Vietnam conflict produced few long-term psychological effects of the type we inquired about."

Like earlier studies, interpretation of the work of Helzer et al. (1979) was problematic. There were differences in samples and definitions of combat and depressive symptoms between the two studies. In the second study, a subsampling of subjects from the earlier study were eliminated. Subjects from the least populous states and subjects inducted before 1969 were eliminated without explanation.

Scruggs, Berman and Hoage (1980) looked at the relationship of combat vs. noncombat status to a number of post-service adjustment and attitude factors. These factors included: trust, political alienation, approval of violence, and self-esteem. The sample of 233 was composed of non-combat Vietnam veterans, combat Vietnam veterans, and non-veterans. Subjects were drawn from a population of students at six college campuses in one urban area. They found no differences in self-esteem between combat and non-combat veterans. However, there was a significant difference ($p=.01$) between draftees and enlistees with draftees having lower self-esteem. Furthermore, combat veterans were found to be less trusting and more likely to approve of violence than non-combatants ($p=.05$). Political alienation was not significant in their analysis. In addition, combat veterans reported a greater rate of divorce, a greater belief in residual psychological impairment related to their Vietnam experiences and a greater frequency of Vietnam-related dreams than their non-combatant counterparts.

Although Scruggs et al. (1980) did not identify Post-Traumatic Stress Disorder, two of the variables found to distinguish between the combatant and non-combatant comprised part of the symptom complex of the syndrome. These two symptoms were: dreams related to the stressor and social withdrawal which may be related to lack of trust. The principal limitations of this study arose from the population sampled. Since all subjects sampled were college students, generalizability of these findings to Vietnam veterans in the general population was not appropriate.

Penk et al. (1981) tested Figley's primary assertion that combat veterans differ from non-combat veterans in stress response syndromes. The hypothesis was tested in two ways. First, "between group" comparisons were made. The groups compared were combat and non-combat veterans. Second "within group" comparisons were made. These subjects were heavy and light combat veterans. The sample was composed of 87 combat and 120 non-combat veterans, who were recruited from consecutive admissions to an alcohol and a drug treatment center. A combat veteran was defined as a subject who had served in Vietnam. A non-combat veteran was defined as a subject who was a Vietnam Era veteran who did not serve in Vietnam.

Even with this broad inclusion, Penk and colleagues found that combat veterans differed significantly from non-combat veterans on 15 of 31 problems from the Figley Problem Rating List, which is a measure of post-service adjustment. After controlling for age, race and

education, relationships remained the same as stated above, with the exception that combat veterans had significantly more difficulty in feeling and expressing emotions. Penk et al. (1981) stated that they found a similar pattern of differences between the heavy combat versus light combat groups. The authors interpreted these findings as empirical support for the method of measuring the criteria of combat.

Penk and co-workers measured retrospective responses to Moos' Family Environment Scale (1974), in order to test the effect of pre-service psycho-social factors on post-military adjustment. Moos' Family Environment Scale was the sole measurement used to derive the variables of pre-service psycho-social functioning. Using this single measure of pre-service psychosocial functioning, the authors concluded that post-service adjustment could not be attributed to pre-military adjustment.

Contrary to the findings of Penk et al., Frye and Stockton (1982) asserted that they observed maladjustment in many non-combatants and veterans who experienced low levels of combat. The authors proposed that other factors accounted for post-military problems. In an exploratory, retrospective study, Frye and Stockton examined pre-service, service and post-service variables which might distinguish between veterans who were symptomatic for post-traumatic stress disorder and those who were not.

A sample of 88 subjects were selected from an officer's training academy. The measure used for the criterion variables was DSM-III

criteria for PTSD. Nineteen predictor variables were selected as potential discriminators between the asymptomatic and PTSD symptomatic groups of veterans. They evaluated the impact of level of combat and certain aspects of social support upon return from Vietnam.

Frye and Stockton (1982) found that veterans with PTSD had a "negative perception of their family's helpfulness" upon return from Vietnam, a higher level of combat in Vietnam, an external locus of control, a more immediate discharge after the war, and a more positive attitude toward the war effort prior to service than after.

In analyzing their data, Frye et al. treated the criterion variable as if it were dichotomous. Only veterans who answered at the high end of a 1-4 point Lickert-type scale were considered to have the the full criteria for the diagnosis of PTSD, according to DSM-III criteria. Clinical experience demonstrates that there is a wide spectrum of severity of symptoms that Vietnam veterans experience. In defining the variable as dichotomous, Frye and co-workers may have overlooked valuable information regarding the characteristics of moderate rather than severe symptoms.

Like earlier studies, sampling methods hindered the generalizability of the findings of this study to the general population of Vietnam veterans. Frye and co-workers acknowledged this limitation by stating "the subjects in this study represent an extremely well-educated and financially secure sample."

Unlike earlier investigators, Frye and Stockton (1982) discussed specific aspects of social support during the initial post-service years. Perceived helpfulness of family was studied. Family was defined as the unmarried veteran's father and mother or a married veteran's wife and children. Perceived helpfulness of family was related ($p=.001$) to veterans asymptomatic for PTSD symptoms. Another aspect of social support addressed by the authors was the veteran's opportunity to talk about his Vietnam experiences. Although no statistics regarding the testing of this variable were reported, the authors state that veterans who did not talk about their experiences were more likely to have the symptoms of Post-traumatic Stress Disorder.

In a recent empirical study by Foy, Sipprelle, Rueger and Carroll (1984) 43 Vietnam veterans seeking psychological care at a Veterans Administration hospital were dichotomized into two groups, one was composed of subjects with Post-traumatic Stress Disorder and one was composed of subjects without the disorder. Foy and colleagues examined the contributions of pre-military adjustment, military adjustment and extent of combat exposure to the development of chronic PTSD.

Foy et al. carefully described their methods of data collection, including the actual scales used as well as the quantification of each of the predictor variables. Correlations among the three predictors were presented indicating a significant relationship between military

adjustment and combat exposure. Once again, as in earlier studies, the primary limit of this study was the generalizability of findings. All subjects sought psychological services. Even though Foy and co-workers (1984) did report primary diagnoses for subjects who were classified as not having PTSD, the sample was biased since all subjects were psychologically troubled to such an extent that they sought professional assistance. In this respect, the sample was not representative of Vietnam veterans at large. Also, information was collected regarding nature of entry into service yet no correlation between that variable and existence of PTSD symptomatology was presented.

CONCLUSIONS

Interpreting the body of research pertaining to etiology of and variables related to PTSD is problematic. Some investigations lacked a concise operational research design (Huffman, 1970; Strayer and Ellenhorn, 1975). Other studies, which lacked a representative sample of the national population of Vietnam veterans, did not discuss these limitations and their effect on the generalizability of research results to a larger population (Huffman, 1970; Yager, 1976; Helzer, 1979; Scruggs, et al., 1980; Penk, et al., 1981; Frye, et al., 1982; Foy, et al., 1984).

The definition and the operationalization of the dependent or criterion variable posed methodological problems. The "difficulties" of the Vietnam veteran were variously labeled as "emotional difficulties precipitated by combat" (Huffman, 1970), "severity of adjustment" (Strayer and Ellenhorn, 1975), "post-service hostility or violent behavior" (Yager, 1976), "depressive syndrome" (Nace et al., 1977), post-service "adjustment and attitude factors" (Scruggs, et al., 1980) and a variety of factors termed "post-military problems" (Penk et al., 1981). The criteria of Post-traumatic Stress Disorder were not specifically recognized as a diagnostic entity until the revision of the 1980 issue of DSM-III. Frye, et al. (1982) and Foy, et al. (1984) operationalized the variable of PTSD using the criteria as specified in the DSM-III. The diagnostic schema presented in the DSM-III will no doubt lend scientific rigor and credibilty to further research which operationalizes the difficulties of Vietnam veterans.

Similar problems prevailed in the identification and measurement of the independent or predictor variables thought to be related to the variously defined dependent or criterion variables. Particularly the definition and measurement of combat experience and intensity was inconsistently operationalized (Yager, 1975; Penk, et al., 1981). Pre-service adjustment, which has also been thought to be related to the disorder, was variously, inconsistently and inadequately operationalized.

Studies of PTSD have not yielded consistent findings regarding the contribution or relationships of various independent or predictor variables with the criterion or dependent variable. For example, the contribution of pre-service adjustment to the development of "post-military maladjustment" or PTSD symptoms remained equivocal (Nace, et al., 1977; Figley, 1978; Foy et al., 1984). Results conflicted concerning the relationship between combat exposure and PTSD symptom development (Helzer, 1979; Frye et al., 1982). Likewise, the findings regarding the relationship of the dichotomous and measurable variable of entry status into the military to the development of PTSD symptoms conflicted (Scruggs et al., 1980; Huffman, 1970).

The study reported here attempted to rectify some of the methodological problems of previous empirical efforts, within the limits imposed by the methodology used. The following efforts reflected an attempt to clarify the relationship of six psycho-social variables thought to relate to PTSD symptoms:

1. The relationship of entry status into military service was re-explored.

2. A more rigorous and comprehensive measure of combat intensity was used.

3. Efforts to develop a comprehensive and reliable measure of pre-service psycho-social functioning was attempted.

4. The impact of social support upon return from Vietnam was again explored

5. The relationship between PTSD symptoms and current life stress was explored, as this variable has not been previously examined in the literature. The rationale for the exploration of this variable was to identify potential areas of life events that may have been especially troublesome for veterans with more PTSD symptoms. Clinical experience with this population indicated that this hypothesis may have been verified through empirical exploration.

6. The current impact of the previously-exerienced stressor upon current cognitive and affective experience was explored, as this factor has not been examined in previous reports on PTSD research. The rationale for examining this variable was that to identify the quality of the impact of a previously-experienced stressor on cognition and affect may shed helpful information on the disabling impact of the disorder.

7. The criterion variable of PTSD symptoms was operationalized and measured in a standardized fashion according to replicable procedures, using the DSM-III criteria.

CHAPTER 3

DESIGN OF THE STUDY

In this chapter, research hypotheses are specified. Sampling procedures, selection criteria and exclusion criteria are discussed. Methods for operationalizing the measurement of each variable, composition of the independent and dependent variables, research design and subsequent data analysis are also described.

RESEARCH HYPOTHESES

The primary question which stimulates the following hypotheses is: What psycho-social variables distinguish those Vietnam veterans who develop more symptoms of PTSD from those Vietnam veterans who develop less symptoms?

The specific hypotheses to be tested are the following:

1. The reported frequency of PTSD symptoms will be higher for drafted veterans than for enlisted veterans.
2. Those veterans who report more symptoms of PTSD will have experienced more intense combat and will score higher on the Combat Rating Scale than those veterans who are less symptomatic for PTSD.
3. Those veterans with more reported symptoms of PTSD will be experiencing greater current subjective stress related specifically to the experiences of Vietnam conflict and will score higher on the Impact of Events Scale than their less symptomatic counterparts.

4. Those veterans with more symptoms of PTSD will have more recent life stress, as measured by the Life Events Inventory than Vietnam veterans less symptomatic for PTSD.

5. Those veterans who report more symptoms of PTSD will have had less social supports available to them within their first year of return from Vietnam and will score lower on the Social Support Questionnaire than those veterans who report less symptoms of PTSD.

6. Those veterans with more symptoms of PTSD will have more problematic pre-service psycho-social functioning as evidenced by higher scores on the Pre-Service Social History Questionnaire than less symptomatic Vietnam veterans.

SAMPLE

The sample was drawn from a population of Vietnam veterans served by the Ann Arbor VA Medical Center. It is estimated that in Washtenaw County alone (only a portion of the Ann Arbor VA Medical Center's catchment area) there are approximately 11,660 Vietnam Era veterans, according to Health Services Research and Development Division of the Veteran's Administration. Based on nation-wide percentages, it could be postulated that there are approximately 3,380 veterans who served specifically in Vietnam in the Washtenaw County area. A figure of 20%

to 50% of psychologically disturbed Washtenaw County veterans could be extrapolated from this figure.

During fiscal year 1981, the Ann Arbor VA Medical Center served 939 Vietnam Era veteran in-patients, 282 (30%) of which were discharged from the psychiatric in-patient service. In fiscal year 1981, 2150 Vietnam era veterans were seen for out-patient care and, again using a percentage of 30, it may be approximated that 645 potential Vietnam Era veterans received psychiatric out-patient care during that fiscal year at the Ann Arbor VA Medical Center. Therefore, it was determined that a sample for study could be drawn from Vietnam veteran patients seen at the Ann Arbor, Veterans Administration Medical Center.

METHOD OF SAMPLING

Initially, sampling was attempted in a systematic fashion in the following manner. As part of any treatment visit, a form called a "router" is filled out on each patient at the hospital each time he/she receives any in-patient or out-patient care. The routers were obtained on all 694 patients served within the months of March and April, 1983. Each router (containing demographic information on a patient) was then reviewed for information regarding era of service or Vietnam veteran status. Each patient identified as a Vietnam veteran or a veteran of that era was then contacted by phone (where phone

numbers were available from patient information or telephone directory information) or by mail where no phone number was available. The purpose in drawing a systematic and sequential sample using this router system was to minimize biases resulting in differential selection of respondents for each group. Two hundred and fifty-six subject candidates were contacted by phone and 338 were contacted by mail. The results obtained from this method of sampling are described in Table 3.1.

TABLE 3.1

RESULTS OF INITIAL SYSTEMATIC SAMPLING PROCEDURE

Outcome	Total
Did not serve in Vietnam	104 (17.5%)
Lived too far away to participate	19 (3.1%)
Refused to participate	32 (5.5%)
Met other exclusion criteria	67 (11.3%)
Did not respond to phone messages or letters	341 (57.4%)
Met inclusion criteria	31 (5.2%)
Total:	594 (100%)

It took approximately 9 months to recruit 51.4% of the final sample of 60. Because of time and monetary constraints, it was necessary to sacrifice this systematic and sequential method of sampling. A description of the method by which the remainder of the sample was drawn may be found in Chapter 4, pps. 56-58.

SELECTION CRITERIA

Each subject candidate was initially screened by phone to determine if they met any exclusionary criteria. Where phone numbers were unavailable for subject candidates, they were sent a letter requesting that they contact the investigator by mail or telephone. When the potential subject was contacted, a brief description of their military involvement and emotional sequelae was elicited. Demands of study participation were then discussed with each potential participant. If the subject candidate indicated interest in voluntarily participating in the project an appointment was scheduled.

At this appointment, the subject candidate was asked to read and sign the informed consent form (appendix B). The informed consent form also served as a means of assuring reading level and comprehension by having each subject read aloud and paraphrase aloud the first paragraph of the form. The subject was then interviewed by

one of two psychiatrists involved in the project to determine the extent of PTSD symptoms by use of the Figley Rating Scale (appendix C). The scale was administered in a structured interview format (refer to Chapter 4, pps. 71-74 for details regarding the Figley Rating Scale and it's application). Also, each psychiatrist was to further assess the existence of any exclusion criteria that may have been overlooked in the initial screening process (see Chapter 3, pg. 36 for exclusion criteia).

After this psychiatric interview, if the subject was accepted into the study, data collection was begun, under the direct supervision of the investigator. It took approximately two to four hours for completion of all instruments, depending upon reading skill. All paper-and-pencil questionnaires were completed at the hospital. Each questionnaire was then reviewed by the investigator with the subject to assure that all items were responded to where appropriate and all inconsistencies were rectified, where possible.

Each subject completed a Minnesota Multiphasic Personality Inventory (MMPI) as part of the research project. Initially, the MMPI was to be used as a means of identifying and excluding those subject candidates who appeared to meet psychotic criteria (through application of Henrich's Rules for scale configuration). It became apparent after running the first six subjects through this screening that all met psychotic criteria or were "indeterminant" as the clinical scales were quite elevated for those subjects who were

experiencing greater degrees of PTSD. Those subject who appeared psychotic or indeterminant in their MMPI profiles were not identified in the psychiatric interviews, nor by the researcher, as exhibiting any clinical indications of psychosis. Keane, a nationally-known researcher in the field of PTSD, was consulted (personal communication, 1983). He has extensive experience in the research and clinical use of the MMPI with persons experiencing PTSD. His observations confirmed the above findings (Malloy et al., 1983). It was his opinion that many Vietnam veterans with PTSD symptomatology appear psychotic according to the MMPI scale elevations--with a predominant pattern of 2-8 or 8-2, but do not present as psychotic in clinical evaluation (personal communication, February, 1983). His observations have been supported elsewhere (Foy et. al, 1984). It was Keane's opinion that the phenomenon was a clinical aberration to be explored through further research. He recommnded that MMPI score configurations not be used as exclusion criteria for this study. His recommendations were implemented.

At the point of data collection, each subject was assigned a code number. This number only was placed on questionnaires, survey instruments and demographic data forms to assure subject confidentiality.

EXCLUSION CRITERIA

Subject candidates were excluded if they were referred from the Alcoholism Treatment Unit but had not been sober for at least one month. Also, there were two instances where subject candidates came for evaluation for the study and were obviously intoxicated. In these two cases, questionning revealed a history of alcoholism treatment admissions as well. Because of the nature of the study, requiring detailed memory of certain experiences and feelings these individuals were excluded from the study.

Subjects were screened for the nature and extent of drug use/abuse since discharge from the service. Based on self-report, no individual appeared to be habituated to narcotic or narcotic-like substances. However, there were subjects who were chronic users of marijuana. This information was elicited and quantified, although no subject was excluded for marijuana use. To do so would have excluded a large number of the sample drawn. Clinical experience and empirical observation suggests that a significant minority of Vietnam veterans continue to be regular marijuana users. For this reason, no subject candidate was excluded because of marijuana use.

No person was accepted into the study who had been served on the Neurology in-patient or out-patient service because of the same concerns for acuity of memory and affective experience.

GROUPING OF SAMPLE

Initially, two groups were to be drawn, a symptomatic group and an asymptomatic group. This procedure would have allowed the dependent variable of PTSD symptoms to be treated dichotomously, thereby simplifying data analysis. However, this was not done for two reasons. First, it was apparent after examining 30 subjects that there were no asymptomatic Vietnam veterans in the sample. That is, all subjects appeared to experience some symptoms of PTSD. These symptoms ranged in severity from mild to severe. Second, even though it may have been possible to identify asymptomatic Vietnam veterans outside of the VA health care system, this procedure was beyond the scope of this study.

SAMPLE SIZE

The method for determination of sample size was that based on formulas available in Beyer (1966). These formulas were based on the method of analysis to be used using one-way analysis of variance. According to Glass and Stanley (1970), the same assumptions hold true for multiple analysis of variance and therefore, were considered appropriate for this study. For those measures using scales with range of scores from 1 to 5, with an alpha of 0.05 and beta of 0.80,

one would need a sample of 17 in order to detect a difference of at least two points, if a significant difference exists. For those measures using scales with range of scores from 1 to 4, with an alpha of 0.05 and beta of 0.80, one would need a sample size of 11 in order to detect a difference of at least two points, if such significance exists. The total sample drawn was 60. Glass and Stanley further assert that the normal distribution prevails for an N of 30. The sample of 60 which was studied and reported here appears more than adequate for the analysis of the research hypotheses.

MEASURES

The previously identified hypotheses were operationally tested through the administration and statistical analysis of the measures identified in Table 3.2:

TABLE 3.2

MEASURES USED IN THE QUANTIFICATION OF THE INDEPENDENT VARIABLES

Hypothesis	Variable Studied	Means of Measurement
1	Draft or volunteer status	Military History Form
2	Combat intensity	Combat Rating Scale
3	Current subjective impact of Vietnam experiences	Impact of Events Scale
4	Recent life stress	Life Events Inventory
5	Post-service social support system	Social Support Questionnaire
6	Pre-service psycho-social functioning	Pre-Service Social History Questionnaire

Explanations of the instruments used to test the hypotheses mentioned above follow below.

Social Desirability Scale The Social Desirability Scale (Crowne & Marlowe, 1961) is a 33-item self-report questionnaire designed to assess propensity or "set" to present oneself in a socially desirable or undesirable way (see appendix D). Social desirability was defined

by its originators as "...behaviors which are culturally sanctioned and approved but which are improbable in occurrence." The 33 items included in the final Marlowe-Crowne revision were found to discriminate at the .05 level or better between high and low scores. Internal consistency using Kuder-Richardson's split-half formula was estimated to be .88 by Crowne and Marlowe (1961).

The use of the Social Desirability Scale for this study was to aide in the identification of those subjects who were unreliable historians because of the "set" to present their behavior in a socially acceptable fashion.

Impact of Events Scale The Impact of Events Scale (see appendix E) is a 15-item self-report scale developed by Horowitz et al. (1979). The purpose of the scale is to assess the form and quality of conscious experiences (related to a previously experienced traumatic event) during a recent (past seven days) period, with the event specific to the subject inserted on the form as referrent for response to the list of questions.

Examples of items from the Impact of Events Scale are: 1. (During the last seven days) I thought about Vietnam when I did not mean to; 2. (During the last seven days) I avoided letting myself get upset when I thought about Vietnam or was reminded of it. The Impact of Events Scale was considered appropriate for testing hypothesis three: "Those veterans with PTSD will be experiencing

greater current subjective stress related specifically to the experiences of Vietnam conflict and will score higher on the Impact of Events Scale than those veterans with less symptoms of PTSD."

According to Zilberg et al., (1982), the past seven days (the time referrent for assessing the subjective on-going impact of a previous stressor) was found to be the best time unit for clinically valid reports of current subjective distress and state of mind related to the stressful life event.

The scale yields two sub-scales, that of intrusion and avoidance. The items were found to be both logically and empirically consistent. According to Zilberg et al. (1982), the reliability of internal consistency of these subscales was estimated to be 0.78 for intrusion and 0.82 for avoidance in the original research. In a replication study of the scales' psychometic properties (Zilberg, et al., 1982), alpha coefficients ranged from 0.86 to 0.89 for three groups over a period of time.

Combat Rating Scale The Combat Rating Scale (see appendix F) is a 10-item self-report scale quantifying combat intensity. Six items receive a single rating of one and four items receive a double rating of two. The scale ranges from a score of 0 (no combat) to a maximum of 14 (most intense combat). This scale is a revision of the original scale devised by the Center for Policy Research (1979). The revision by Gallup, Laufer, and Yager is an

unpublished version which correlates highly with the old scale (Cronbach's alpha of 0.84) but is simpler and shorter for administration. It is a statistically reliable measure of combat experience.

The Combat Rating Scale was used to identify the level of combat intensity experienced by each subject. An example of items taken from the scale are as follows: 1. In an artillery unit which fired on the enemy; 2. Flew in an aircraft over Vietnam; 3. Stationed at a forward observation post. This scale was used to test hypothesis two: "Those veterans who report more symptoms of PTSD will have experienced more intense combat and will score higher on the Combat Rating Scale than those veterans who are less asymptomatic for PTSD."

Life Events Inventory The Life Events Inventory (Cochrane and Robertson, 1972) is a 55-item self-report questionnaire designed to measure current levels of life stress (see appendix G). It is a revision of the Schedule of Recent Events (Holmes and Rahe, 1967), attempting to remedy the following deficiencies noted in the Schedule of Recent Events: inappropriate, irrelevant or ambiguous items, a lack of systematic inquiry into common stressful events in peoples' lives, and lack of weights assigned to the life events being meausured to increase the accuracy of the assessment of the impact of the stressful life event. The authors of the Life Events Inventory concluded that "...(the scale) is a comprehensive measure of recent life stresses equally suitable for use with all sections of the population."

The Life Events Inventory was used to test hypothesis four: "Those veterans with more symptoms of PTSD will have more recent life stress, as measured by the Life Event Inventory than Vietnam veterans less symptomatic for PTSD." An example of items considered to be potential life stressors and taken from the Life Events Inventory are: 1) Unemployment (of head of household), 2) Trouble with superiors at work, 3) New job in the same line of work.

Each of the 55 items is weighted, with a theoretical range of scores from 0 to 2,879. Three groups of judges (psychiatrist/psychologists, students, and psychiatric in-patients) were asked to weight each item according to face validity for amount of stress. Coefficients of concordance for all three groups was 0.89. Therefore, the weights attached to each stressful life event were deemed to be evidence of face validity of that events' degree of impact on a person.

The Life Events Inventory was specifically designed to quantify the amount of "turmoil, disturbance and upheaval" that people are subjected to, rather than simply pleasant or unpleasant life events, which is the index of life stress that would assist in the exploration of Hypothesis 4.

Social Support Questionnaire The Social Support Questionnaire was an instrument developed for the purposes of this study (see appendix H). A review of the literature indicates that there has been no

instrument developed to measure the nature of social support available in a person's past history. It was developed to measure sub-factors of the general concept of social support available to the veteran during the first year of his return from Vietnam. Sarason et al. (1982) have identified the number of persons available to the subject and the degree of satisfaction with the available support as the two basic elements imbedded in the concept of social support. Therefore, sub-factors measured were the number of individuals comprising the social network of a subject and the satisfaction inherent in the subject's relationship with each person comprising the social network.

Three items were included in the measurement of social support which pertain to the subject's ability to use the social support network to assist in coping and adaptation during that first year of return from Vietnam. These items were: "talking with people about Vietnam experiences," "feeling close to anyone" during the first year of return from Vietnam, "spending time with anyone during the first year of return" from Vietnam. For the purposes of standardization, if a subject asked what was meant by "talking about Vietnam experiences" and/or "spending time with..." the reply was "whatever that means to you." If a subject asked for a definition of "feeling close," the standardized response was "feeling emotionally close to someone."

The measurement of quantity of people comprising the subject's

social support network was operationalized by simply asking the veteran to indicate the first name and relationship of each person that he considered important to him during his first year of return from Vietnam. To insure standardization, if a subject asked for the definition of "important" the standard response was "whatever important means to you."

The instrument gives an index of satisfaction with the social supports available to him when he first returned from Vietnam. This sub-scale index was derived by asking the subject to rate the relationship that he had with anyone he indicated as important to him during his first year of return from Vietnam on the qualities of "degree of contact," "how important," "helpfulness," "sharing," and "good or bad feeling." These concepts were used by Pattison in the development of the Pattison Psycho-Social Inventory (1981).

This instrument was used to test hypothesis five: "Those veterans who report more symptoms of PTSD will have had less social supports available to them within their first year of return from Vietnam and will score lower on the Social Support Questionnaire than those veterans who report less symptoms of PTSD." The hypothesis was derived from the observations that social support contributes to positive adjustment and personal development and provides a buffer against the effects of stress (Bowlby, 1969; Hirsch, 1980; Bronfenbrenner, 1961).

Military History Questionnaire The Military History Questionnaire (see appendix I) is a 29-item self-report instrument designed to elicit information regarding military experiences while in Vietnam. It was developed for use in this study. The questionnaire is a derivation and abbreviation of the Figley Vietnam Era Veterans Survey (1977). In the modification of the Figley Vietnam Era Veterans Survey, items were deleted that seemed redundant or more detailed than deemed necessary for this study's purpose. A revision was piloted on four hospitalized Vietnam veterans with Post-traumatic Stress Disorder. The final version used in this study was based on input from the pilot cohorts.

Examples of the kind of information elicited from the questionnaire are draftee or volunteer status, length of tour in Vietnam, drug and alcohol usage while in Vietnam, and nature of job or military occupational status while in Vietnam.

Only one item from the questionnaire contributed to the testing of the research hypothesis. The question was "Were you drafted or did you volunteer for military service?" Therefore, a dichotomous variable was created for the testing of the following hypothesis: "The reported frequency of PTSD symptoms will be higher for drafted veterans than for enlisted veterans." No information regarding psychometric properties of this instrument is available. It's use was considered exploratory in nature.

Preservice Social History Questionnaire The Preservice Social History Questionnaire (see appendix J) is a 43-item self-report instrument designed specifically for this study to elicit information indicative of the quality or nature of psycho-social adjustment prior to entering the service. The questionnaire is composed of sub-scales of items for six areas of psycho-social functioning. These areas of functioning were determined through consultation with social science researchers at the Institute for Social Research (personal conversations with Amiram Vinakour and Melvin Manis; November, 1982) at the University of Michigan.

Furthermore, a review of the literature regarding social functioning (Moos, 1974; Horowitz, 1979; Weissman, et al., 1981) indicates that the areas addressed in the subscales are critical components of the predictor variable of pre-morbid psycho-social functioning. The following is a description of each subscale and the information assessed. Scores are derived for each subscale with lower scores indicating least problematic functioning and higher scores indicating more problematic pre-morbid functioning. The seven subscales are:

1. Family History. This subscale includes 11 questions regarding the stability of the environment of the home of origin, mental health history of immediate family members, household moves and unemployment of the head of household. The subscale yields a score ranging from 0 to 11.

2. School History. This subscale includes six questions regarding academic performance, disciplinary problems and last grade completed. The subscale yields a score ranging from 0 to 6.

3. Legal History. This subscale contains three items and assesses information regarding juvenile pranks, involvement with juvenile authorities, or arrests prior to entering the service. The subscale yields a score ranging from 0 to 3.

4. Relationship History. This subscale contains eight items and includes questions about the nature and depth of friendships, supportive relationships with an adult, and significant intimate relationships and their outcome. The subscale yields a score ranging from 0 to 7, as the responses to item 26 from the scale were not used in the ultimate subscale and scale scores.

5. Drug and Alcohol History. This subscale contains nine items and assesses information regarding drug and alcohol intake habits prior to entering the service. The subscale yields a score ranging from 0 to 9.

6. Mental Health History. This subscale contains six scorable items which measure information regarding emotional difficulties and help sought by the subject prior to entering the service. The subscale yields a score from 0 to 6.

A subscale of employment history was originally incorporated into the scale. There were only two items comprising the subscale, with

only one item yielding a score contributing to a measure of pre-service psycho-social functioning. Therefore, this item was used ultimately in analysis incorporating a total scale score. No psychometric data regarding the use of the subscale was computed, however.

This instrument was piloted on four psychiatric in-patients to assess the instruments clarity. Furthermore, the pilot cohorts were asked if there were other areas of functioning or other questions that they thought would be helpful to ask in assessing a person's pre-service psycho-social functioning. Some revisions and rewriting of items were conducted based upon this input.

This instrument was used to test hypothesis six: "Those veterans with more symptoms of PTSD will have more problematic pre-service psycho-social functioning as evidenced by higher scores on the Pre-Service Social History Questionnaire than less symptomatic Vietnam veterans."

COMPOSITION OF DEPENDENT/CRITERION VARIABLE

The dependent or criterion variable was treated as either categorical or continuous, depending upon the demands of the analysis being performed. The categorical variable was formed in the following manner. The Figley Rating Scale, with scores ranging from 0 to 61, was the source for forming the categorical variable. Three groupings

were formed, titled "mild," "moderate," and "severe." Efforts were made to balance the number of cases in each group. The final group formation was: the mild group included 21 cases, the moderate group included 20 cases, and the severe group included 19 cases. There were uneven numbers in each group because of ties between individuals at the extremes of each group.

COMPOSITION OF INDEPENDENT VARIABLES

There were eight independent or discriminating variables used for the study of the previously-presented hypotheses. In considering the correctness of the main analyses, the following generic or global hypothesis was tendered: There is a statistically significant and measurable relationship between any one of the eight independent variables and the dependent variable of post-traumatic stress disorder symptoms. The description and composition of each independent variable is as follows.

Nature of Entry Into Service This variable is assessed in the Military History Questionnaire, question number 2, and is scored as a dichotomous variable (draftee or enlistee).

Combat Intensity This variable is a composite score of all item ratings from the total score on the Combat Rating Scale. It is scored as a continuous variable, ranging from 0 to 14.

Current Impact of Previous Stressor This independent variable was composed of the total score on the Impact of Events Scale. It was a continuous variable with theoretically ranging scores from 0 to 75.

Recent Life Stress This independent variable was continuous. It was derived as the total score from the Life Events Inventory. Theoretically, scores ranged from 0 to 2,879.

Pre-Service Psycho-Social Functioning This independent variable was composed of the total score on the Pre-Service Social History Questionnaire. It was a continuous variable with theoretically ranging scores from 0 to 43.

Social Support Upon Return from Vietnam The means of quantifying this variable and the testing of the related hypothesis were more complex. Three variables were derived to measure certain aspects of the social support system. One variable was composed of the total number of people in the veteran's social network during the first year of return from Vietnam. The second variable used in the testing of this hypothesis referred to the quality of the relationship with each

person indicated as important by the veteran during the first year of return from Vietnam (see appendix H, page 2 for a definition of each criteria composing the quality index). The third variable used in the testing of the relationship between PTSD symptoms and social support within the first year of return from Vietnam was the sum of positive responses to three dichotomously scored questions taken from the Social Support Questionnaire. The variable yielded a score ranging from 0 to 3. These questions were: 1) During you first year of return from Vietnam, did you talk with anyone about your experiences in Vietnam? 2) Did you spend time with anyone during the first year that you returned from Vietnam? and 3) Did you feel close to anyone during the first year that you returned from Vietnam? Thus, three variables comprised the operationalization of the social support network of the veteran upon return from Vietnam.

DESIGN

The study design was retrospective and exploratory in nature. Data were collected retrospectively to evaluate the relationship between PTSD symptoms and six psycho-social variables. There was no experimental treatment to be applied and measured. As noted by Campbell and Stanley (1963), there are potential sources of invalidity in this design.

The lapse of time since the traumatic event introduces possible bias in memory, a confound that can not be identified, nor kept standardized across all subjects. Furthermore, the nature of data collection relied heavily on self-report of past history (see Chapter 5, pps. 115-116 for detailed discussion of verification of data collected).

In the gathering of specific facts of self-reported history, attempts were made to elicit data which was concrete and specific. Data was collected through a self-administered questionnaire format to eliminate the potentially confounding variable of interviewer bias or interviewer effect on subject response.

There is also the potential for sampling bias in the design in that sampling was not conducted in a random fashion. Futhermore, since no subject was accepted with a recent history of drug and/or alcohol abuse or neurological impairment, this introduced a selection bias in the sample drawn (see Chapter 5, pps. 112-113 for additional discussion of potential sampling bias).

ANALYSIS

The appropriate statistical model for data analysis is derived from the previously stated research question: What psycho-social variables distinguish those Vietnam veterans who develop more symptoms of PTSD from those Vietnam veterans who develop less symptoms?

The initial plan was to conduct a discriminant function analysis, treating the criterion variable of PTSD symptoms as categorical. The purpose of the discriminant function analysis was to evaluate the non-linear relationship between each of the independent variables and the dependent variable while controlling for the influence of variance of the other independent variables (Klecka, 1980). Through the course of data collection, it became apparent that to treat the dependent variable as categorical would result in a spurious depiction of the relationship of the dependent variable to the independent variables. That is, in the clinical state, PTSD symptoms do not present as mild, moderate or severe. There appears to be a continuum from non-existent to very severe symptomatology. For this reason, data analysis was conducted differently from that initially proposed (see Chapter 4, pps. 93-97, for detailed description of final data analysis).

Two univariate analyses were performed to facilitate the interpretation of the main multivariate analyses. Correlations between each independent variable and the dependent variable were computed to measure the degree of linear relationship between each independent variable and the dependent variable without reference to the influence of the other independent variables.

One-way analyses of variance was then computed between each independent variable and the dependent variable to test for non-linear relationships. The dependent variable was treated as trichotomous--rather than dichotomous--to allow for assessment of

non-linearity in the relationship between each independent variable and the dependent variable, independent of the influence of the other independent varibles.

SUMMARY

As stated in the procedures section, all subjects appeared to experience some symptoms of PTSD, with a wide range in the degree of symptomatology across the sample. It was determined that to force subjects into two groupings based on symptomatology would be to spuriously and inaccurately characterize the nature of the criterion variable. Therefore, in the main analysis, the criterion variable was treated as both categorical and continuous. Interpretation of the two main forms of analysis were facilitated by univariate analyses using analyses of variance and Pearson's product moment correlation coefficients.

CHAPTER 4

ANALYSIS OF RESULTS

In this chapter, the final sampling procedure and outcome is discussed. Descriptive information of the sample drawn is presented. Descriptive statistics concerning the independent variables are presented. Psychometric properties of the instruments used for the testing of the hypotheses are described. The influence of response set bias is examined. Results of the data analyses for the hypotheses are presented, which include multivariate and univariate analysis.

FINAL SAMPLING PROCEDURE AND OUTCOME

Initially, sampling was attempted in a systematic fashion using the router method (as discussed in Chapter 3, pps. 31-32). After nine months using the router method, only 31 (51.2%) appropriate subjects were identified and examined. Because of time constraints, financial considerations, and lack of personnel, adjustments were implemented in the original sampling procedure to expedite sampling.

Therefore, potential subject candidates were recruited also from in-patient and out-patient medical and psychiatric treatment staff. This comprised 29 of the total sample of 60.

Since no financial incentive for participation in the study was available, it proved expedient and practical to schedule a subject candidate for the study when their appointments coincided with other hospital-related appointments.

Twenty-five subjects were referred for the study from in-patient and out-patient primary therapists (usually psychiatrists, psychiatric residents, psychology interns, psychologists, or social workers). Four subjects were referred for study from medical treatment staff. In Table 4.1, the source of referral by severity of PTSD symptoms is described.

TABLE 4.1

REFERRAL SOURCE*

Referral Source	Mild	Moderate	Severe	Total
Router	18	10	3	31 (51.7%)
In-Patient Psych.	0	2	7	9 (15.0%)
Out-Patient Psych.	3	5	8	16 (26.7%)
Other	0	3	1	4 (6.7%)

chi-square, *p=.001 DF=6

This compromise in the original systematic and chronologically sequential selection of subjects introduced potential selection bias. Note that there was a significant relationship between source of referral and severity of PTSD symptoms. Therefore, The sample drawn

was not necessarily representative of the VA population of Vietnam veterans. This conclusion must be considered in generalizing the results of this study beyond the sample examined.

INDEPENDENT VARIABLE MEANS AND STANDARD DEVIATIONS

In tables 4.2 and 4.3 the mean scores and standard deviation scores among the three groups for the eight independent variables are presented. The reader is referred to Chapter 3, pps.49-50 for the method by which the dependent variable of PTSD symptoms was categorized into mild, moderate and severe groupings.

TABLE 4.2

MEAN SCORES BY PTSD GROUP ON INDEPENDENT VARIABLES

VARIABLE	MILD	MODERATE	SEVERE	ALL GROUPS
Draftee vs. volunteer	1.71	1.85	1.89	1.82
Combat intensity	7.29	12.20	13.42	10.87
Impact of Events Scale	13.29	34.10	56.95	34.05
Life Events Inventory	325.33	336.30	693.74	445.75
Number in social network	4.90	5.30	5.32	5.17
Quality of network	2.99	3.04	2.85	2.96
Relations with others	.55	.56	.38	.50
Preservice functioning	7.67	5.60	7.21	6.83

TABLE 4.3

STANDARD DEVIATIONS BY PTSD GROUPS ON INDEPENDENT VARIABLES

Variable	Mild	Moderate	Severe	All Groups
Draftee vs. volunteer	.56	.49	.32	.47
Combat intensity	4.62	1.96	1.50	3.08
Impact of Events Scale	13.34	17.20	8.61	13.58
Life Events Inventory	166.66	209.99	365.53	258.14
Number in social network	2.59	3.18	3.02	2.93
Quality of network	.81	.84	.90	.85
Relations with others	.24	.32	.30	.29
Preservice functioning	4.29	4.23	3.95	4.17

SAMPLE CHARACTERISTICS

The majority of veterans who served in Vietnam were male. Only males saw combat conditions. For the purpose of this study, only males were included as subjects.

In Tables 4.4 through 4.9, current demographic and descriptive information of the sample drawn is presented. In Tables 4.10 through 4.14 significant pre-service and military descriptive information is provided.

TABLE 4.4

AGE OF RESPONDENTS*

BY DIAGNOSTIC GROUPING

Age	Mild	Moderate	Severe	Total
Mean	35.57	35.25	34.80	35.57
Standard Deviation	3.33	2.97	2.59	3.33
Range				31.0 - 43.0

*chi-square, non-significant

TABLE 4.5

MARITAL STATUS OF RESPONDENTS*

Marital Status	Mild	Moderate	Severe	Total
Never Married	2	0	1	3 (5.0%)
In First Marriage	11	7	3	21 (35.0%)
In Second Marriage	3	3	3	9 (15.0%)
In Third Marriage	1	4	2	7 (11.7%)
Divorced Once	2	5	3	10 (16.7%)
Divorced Twice	2	0	2	4 (6.7%)
Separated--First Marriage	0	0	2	2 (3.3%)
Separated--Second Marriage	0	0	3	3 (5.0%)
Living Together	0	1	0	1 (1.7%)

*chi-square, non-significant

TABLE 4.6

RACE OF RESPONDENTS*

Race	Mild	Moderate	Severe	Total
White	20	16	18	54 (90.0%)
Black	1	3	1	5 (8.3%)
Chicano	0	1	0	1 (1.7%)
Other	0	0	0	0 (0.0%)

*chi-square, non-significant

TABLE 4.7

CURRENT EMPLOYMENT STATUS OF RESPONDENTS*

Employment Status	Mild	Moderate	Severe	Total
Employed	16	12	6	34 (56.7%)
Unemployed	5	8	13	26 (43.3%)

*chi-square, p=.02 DF=2

TABLE 4.8

INCOME OF RESPONDENTS*

Income	Mild	Moderate	Severe	Total
Under $10,000	5	1	6	12 (20.7%)
$10,000 - $20,000	7	7	6	20 (34.5%)
$21,000 - $30,000	4	6	3	13 (22.2%)
$31,000 - $40,000	4	3	1	8 (13.8%)
$41,000 - $50,000	0	2	0	2 (3.4%)
Over $51,000	1	1	1	3 (5.1%)

*chi-square, non-significant

TABLE 4.9

RESPONDENTS CURRENTLY IN PSYCHOLOGICAL TREATMENT*

Treatment	Mild	Moderate	Severe	Total
Yes	3	8	14	25 (41.7%)
No	18	12	5	35 (58.3%)

*chi-square, p=.001 DF=2

TABLE 4.10

RESPONDENTS' AGE AT ENTRY INTO SERVICE*

Age at Entry	Mild	Moderate	Severe	Total
18 years or less	9	12	11	32 (53.3%)
19 - 21 years	10	8	7	25 (41.7%)
22 - 25 years	2	0	1	3 (5.0%)

*chi-square, non-significant

TABLE 4.11

NATURE OF ENTRY INTO SERVICE OF RESPONDENTS*

Entry Status	Mild	Moderate	Severe	Total
Draftee	7	4	2	13 (21.7%)
Volunteer	14	16	17	47 (78.3%)

*chi-square, non-significant

TABLE 4.12

EDUCATION OF RESPONDENT AT TIME OF ENTRY INTO SERVICE*

Education	Mild	Moderate	Severe	Total
Less than Grade 12	5	6	11	22 (36.6%)
Completed High School	13	13	7	33 (55.0%)
Some College	3	1	1	5 (8.4%)

*chi-square, non-significant

TABLE 4.13

RANK OF RESPONDENT AT TIME OF DISCHARGE FROM SERVICE*

Rank	Mild	Moderate	Severe	Total
E4 or less	7	12	10	29 (48.3%)
E5 - E6	14	7	8	29 (48.3%)
E7 or more	0	1	1	2 (3.4%)

*chi-square, non-significant

TABLE 4.14

DISCIPLINARY ACTION AGAINST RESPONDENT WHILE IN SERVICE*

Discipline	Mild	Moderate	Severe	Total
None	10	13	9	32 (53.3%)
Article 15	7	6	6	19 (31.7%)
Court Martial	1	1	2	4 (6.7%)
Both	0	0	2	2 (3.3%)
Other	3	0	0	3 (5.0%))

*chi-square, non-significant

In analyzing the significance of the relationship between the degree of PTSD symptoms and the demographic variables, the dependent variable of PTSD symptoms could have been treated as continuous or dichotomous. The following assumptions pertain to the use of one-way analysis of variance (Hays, 1973):

1. normal distribution of variance
2. homogeneity of variance
3. independence among source of error
4. equal distribution of cases per cell

From observation, it is readily apparent that the assumption of equal cases per cell is violated. From this violation, homogeneity of variance is suspect. Further, there is no evidence of normal distribution of variance available. Therefore, it was determined that the most appropriate test of signficance for assessing the degree of relationship between the descriptive variables and PTSD symptoms was chi-square. Recognizing that chi-square is a less powerful non-parametric test of signficance, analyses of variance were also conducted on the relationship between the descriptive variables and PTSD symptoms. The results of the ANOVAs supported the chi-square tests reported above.

PSYCHOMETRIC PROPERTIES OF SCALES

The following section describes psychometric properties of scales used for the operationalization of the independent variables, where available.

Social Desirability Scale

The use of the Social Desirability Scale for this study was to aide in the identification of those subjects who were unreliable historians because of the "set" to present behavior in a socially acceptable fashion. Cronbach's alpha was computed as an estimate of internal consistency for the data collected from the Social Desirability Scale, which was .82. This instrument is considered a reliable measure of response set bias for this sample (the reader is referred to Chapter 3, pp. 39-40 for further information on the Social Desirability Scale).

Impact of Events Scale

The Impact of Events Scale was used a measure of the impact of a previously-experienced stressor on current affect and cognition. Estimates of internal reliability were computed for the Impact of Events Scale based on data collected in this study. On the seven-item subscale, "intrusion," internal reliability using Cronbach's alpha was estimated to be .94. On the subscale measuring "avoidance" the alpha coefficient of internal reliability was estimated to be .90. The internal reliability of the total scale was estimated to be .95. The estimates were a higher meausure of internal consistency than those estimates of internal reliablity based on the normative sample (the reader is referred to Chapter 3, pp 40-41 for further details on the Impact of Events Scale). These estimates of reliablity support the scale's use in this study as a stable measure of the impact of previous trauma on current affect and cognition.

Combat Rating Scale

The Combat Rating Scale provided a measure of the intensity of combat experienced in Vietnam. An estimate of internal consistency reliability, was derived on the scale from the data collected for this study. Cronbach's alpha was computed to be .83. Therefore, the Combat Rating Scale was determined to be a sufficiently reliable measure of the intensity of combat experience (the reader is referred to Chapter 3, pp. 41-42 for further information on the Combat Rating Scale).

Life Events Inventory

The Life Events Inventory was used to measure the current level of life stress in a subject's life. The inventory was concluded to be a reliable measure of life stress for this study's purpose. An estimate of internal consistency was derived from the data collected for this study, using Cronbach's alpha. The estimate was computed to be .83 (the reader is referred to Chapter 3, pp. 42-43 for further details on the Life Events Inventory).

Social Support Questionnaire

This scale was developed specifically for this study to provide a measure of the social support network available to the veteran within the first year of return from Vietnam. No psychometric data are available on the scale. The scale was pilot tested with four persons typical of the subjects used in this study and revisions were made accordingly, prior to it's use in the study. As stated in Chapter 3, pps. 43-46, because three variables constituted the measurement of social support, the scoring method does not lend itself to computation of internal consistency.

Pre-Service Social History Questionnaire

The Pre-Service Social History Questionnaire was also designed specifically for this study to elicit that information indicative of the nature of psycho-social functioning prior to entering the service (the reader is referred to Chapter 3, pp. 47-49 for details regarding the development and composition of the scale).

The six subscales contained in the Pre-Service Social History Questionnaire were analyzed for further refinement after completion of data collection and prior to the main data analysis. Each item was evaluated for degree of correlation with other items comprising it's subscale. The SPSS subprogram of Reliability enables one to identify the change in alpha level of a subscale if an item is deleted from the subscale. After identifying those items that could be deleted to increase the estimate of internal reliability, it appeared unfeasible. The alpha level could have been increase by .015 by deleting four scored items. It was determined that the possible modest increase in alpha did not warrant revising the subscales items and total scale.

In Table 4.15, information regarding the nature of the subscale, number of items comprising each subscale, Cronbach's alpha for the subscale, number of items comprising the total subscale, and Cronbach's alpha estimating the internal consistency of the overall scale of Pre-Service Social History are described.

TABLE 4.15

INTERNAL CONSISTENCY ESTIMATES

OF PRE-SERVICE SOCIAL FUNCTIONING SCALE

Subscale	Number of Items	Cronbach's Alpha
Family History	11	.67
School	6	.63
Legal	3	.67
Relationship History	7	.24
Drugs/Alcohol Use History	9	.66
Mental Health History	5	.67
Total Scale	43	.72

A subscale of employment history was originally incorporated into the scale. There were only two iems comprising the subscale, with only one item yielding a score contributing to a measure of pre-service psycho-social functioning. Therefore, this item was used ultimately in analysis incorporating a total scale score. No psychometric data regarding the subscale was computed, however.

Military History

The only item from the Military History Questionnaire which was used in data analysis was one dichotomously scored item. Therefore, it was not appropriate or necessary to derive psychometric properities of this questionnaire for this study.

VERIFICATION OF PTSD SYMPTOMS

The verification of reliability of assessing symptoms of PTSD was done in the following way. Each subject was interviewed separately by a psychiatrist and the investigator, using a semi-structured interview format. Each interviewer blindly rated each subject on the type and frequency of symptoms of PTSD. The Figley Rating Scale (Figley, 1978) was used for this purpose (see appendix C). The symptoms elicited in the interviews were those used in the DSM-III criteria for post-traumatic stress disorder (see appendix A).

There was no criterion-based validity check. Criterion-based validation was not possible as there is no accepted criterion-based measure of PTSD. The diagnositic description available in the DSM-III is in common clinical use and is the most-commonly agreed-upon clinical description of the symptoms constituting PTSD.

The Figley Rating Scale is based on the DSM-III classification of

PTSD. The Figley Rating Scale was developed by Charles Figley (1978) for his pioneering work in the identification of PTSD as a diagnosable and treatable psychological syndrome. From personal communication with Figley (November, 1983), it was learned that no psychometric data has ever been reported on this scale.

Therefore, a measure of internal consistency using Cronbach's alpha was computed from the data collected on the described sample. The scale is broken into four subscales, corresponding to items A through D of the DSM-III criteria for PTSD. In Table 4.16, the nature of the subscale, number of items comprising the subscale, reliability estimates for the subscales and total scale are described.

TABLE 4.16

INTERNAL CONSISTENCY ESTIMATES ON FIGLEY RATING SCALE

Subscale	Number of Items	Alpha
Stressor	9	.93
Reexperiencing of stressor	4	.75
Social withdrawl	5	.79
Symptoms	7	.77
Total Scale	25	.92

The Figley Rating Scale yields a score ranging from 0 - 61. As stated above, two psychiatrists interviewed subjects to determine existence and degree of PTSD symptoms. In addition, all subjects were interviewed and diagnosed by the investigator. Not all subjects were interviewed and rated by the same psychiatrist. Twenty subjects were interviewed and rated by psychiatrist "A" and forty subjects were rated by psychiatrist "B." Each subject was interviewed twice, once by one of two psychiatrists and then the investigator. All three raters were experienced in the diagnosis and psychotherapeutic treatment of PTSD and had extensive experience providing psychological and psychiatric services to Vietnam veterans.

To assure a high level of inter-rater reliability the following procedure was followed. Prior to beginning the study, the two psychiatrists and the investigator conducted three group interviews with three seperate Vietnam veterans who were not included in the study. Each interviewer elicited information from the veteran through the course of the group interview. Each psychiatrist and the investigator then rated the existence and frequency of symptoms based on information elicited during the interview without collaboration. Ratings were compared, contrasted, and discussed where rating were discrepant. In this way, efforts were made to enhance consensual perception of symptoms and symptom severity. The success of this

initial "pilot" effort is demonstrated by the following Pearson's product moment correlation coefficients of inter-rater reliability, described in Table 4.17:

TABLE 4.17

INTER-RATER RELIABILITY COEFFICIENTS

ON THE FIGLEY RATING SCALE

SUBSCALES	RATERS (n=3)	*R=
Stressor	psychiatrist 1 x investigator	.89
	psychiatrist 2 x investigator	.93
Reexperiencing of stressor	psychiatrist 1 x investigator	.88
	psychiatrist 2 x investigator	.89
Social withdrawl	psychiatrist 1 x investigator	.65
	psychiatrist 2 x investigator	.81
Symptoms	psychiatrist 1 x investigator	.82
	psychiatrist 2 x investigator	.91
Total scale	psychiatrist 1 x investigator	.95
	psychiatrist 2 x investigator	.95

*R= Pearson's product momemt correlation coefficients

ASSESSING RESPONSE SET BIAS

Another effort to assess reliability of data collected was done by using the Social Desirabilty Scale (Crowne and Marlowe, 1961), to identify the influence of response set bias on data collected.

Each item from each scale used in the quantification of the independent variables was correlated with the total score on the Social Desirability Scale. Each item was correlated with the PTSD Index (the overall rating of severity of symptoms of PTSD). Each item was also correlated with the total score for the scale from which the item was drawn. The purpose of this correlational analysis was to determine if each item's correlation with response set bias was stronger than each item's correlation with the construct which the item was intended to measure. If any item correlated significantly with the Social Desirability Scale, and less so with the PTSD index and it's own scale total. this item was noted. The pattern of correlation with the PTSD index and it's own scale was then observed. If the item correlated .08 or higher with the Social Desirability Scale total than the other two factors and at a significant level, this item was then judged to be unacceptablely contaminated by response set bias.

Pre-Service Psycho-Social History Questionnaire Three items from the Pre-Service Social History Questionnaire were identified as signficantly correlated with social desirabilty. Each of these

items' correlations with social desirabilty, PTSD symptoms, and the Pre-Service Social History total score is described in Table 4.18.

TABLE 4.18

INFLUENCE OF SOCIAL DESIRABILTY ON RESPONSES TO PRE-SERVICE SOCIAL HISTORY QUESTIONNAIRE

Item	SDS CORR	PTSD CORR	SCALE CORR
21. Arrested prior to service	-.28*	.07	.46**
30. Relationship broke up within two years return from Vietnam	-.31*	.24	.19
32. Fights related to alcohol prior to Vietnam duty	.33*	-.01	.30*

*p=.05 **p=.01

These three items from the Pre-Service Social History Questionnaire were significantly correlated with social desirability. Item 21 was more highly correlated with it's scale total than with social desirability, yet proved to have no relationship with the criterion variable. Item 30 appeared to have even less merit in

addressing the relationship between pre-service social functioning and PTSD symptoms in that it was significantly correlated with social desirability but neither with the criteiron variable nor it's own scale subtotal. Item 32 also proved to have no value in addressing the research hypothesis, being significantly loaded with response set bias, a poor predictor of the criterion variables of PTSD symptoms and less correlated with it's own scale total than social desirabilty.

Out of 43 items comprising the total Pre-Service Social History Questionnaire, only the three items identified in Table 3.17 appeared to be significantly biased by perceived response demand. Therefore, because of the large number of uncontaminated items, the data provided in response to the questionnaire appear to have been minimally uncontaminated by the influence of response set bias.

Impact of Events Scale Of the 15 items comprising the Impact of Events Scale, only three were significantly correlated with social desirability. In Table 4.19, each item and it's correlation with social desirability, the criterion variable and it's scale total are displayed.

Table 4.19

INFLUENCE OF SOCIAL DESIRABILTY ON RESPONSES TO THE IMPACT OF EVENTS SCALE

ITEM	SDS CORR	PTSD CORR	SCALE CORR
6. I had dreams of Vietnam	-.27*	.75**	.82**
11. Other things making me think about Vietnam	-.29*	.75**	.84**
Intrustion subscale total	-.26*	.83**	.95**

*p=.05 **p=.01

Every item from the Impact of Events Scale correlated significantly with the criterion of PTSD symptoms. Furthermore, although correlated with social desirabilty at the .05 level, each item was increasingly correlated with PTSD symptoms and it's own scale total at the .01 level. Responses to these three items are assumed to be largely unbiased by social desirabilty in their measure of the influence of a previous stressor on current cognition and affect.

Life Events Inventory Ten of the 55 items from the Life Events Inventory were found to be significantly influenced by social desirability. Each item's correlation with the criterion variable and with the Life Events Inventory total is depicted in Table 4.20.

TABLE 4.20

INFLUENCE OF SOCIAL DESIRABILITY ON ITEMS FROM THE LIFE EVENTS INVENTORY

ITEM	SDS CORR	PTSD CORR	SCALE CORR
2. Trouble with superiors at work	-.31*	.00	.35*
4. New Job in new line of work	-.32*	-.06	.14
8. Moving to a new residence	-.30*	.24	.49**
18. Involvement in a fight	-.49**	.40**	.53**
19. Immediate family member starts drinking heavily	-.32*	.11	.24
25. Gain of a new family member	-.33**	.17	.25
26. Problems with drugs/alcohol	-.36**	.26	.48**
38. Increase in number of arguments with spouse	-.27*	.12	.49**
46. Marital separation	-.35**	.39**	.74**
47. Extra-marital sexual affair	-.35**	.37**	.44*

*p=.05 **p=.01

The correlational pattern between each item and it's correlation with social desirabilty, PTSD symptoms, and each item's correlation with it's own scale appeared to be more eradic than that seen with the Impact of Events Scale. Of all ten items mentioned which appeared influenced by social desirability, only items 46 and 47 were more highly correlated with PTSD symptoms and the Life Events Inventory total scale score than with social desirability. This finding would argue that these items are less influenced by social desirability and are valuable in the overall measurement of the relationship of life stressors to PTSD symptoms. However, items 2, 4, 19 and 25 appear distorted by response set bias. Therefore, their validity as items contributing to the measurement of the relationship between life stressors and PTSD symptoms is compromised by response set bias. Items 8, 18, 38 and 26 appear questionnable in their usefulness in the testing of the research hypothesis in that these three items all appear to be correlated with social desirability and with their own scale total but significantly less so with PTSD symptoms.

Essentially, from the 55-item Life Events Inventory, the data elicited on eight items appears contaminated by the influences of response set bias. In conclusion, because of the correlational findings, there appeared to be sufficient response set bias. Interpretation of analyses based on the use of the Life Events Inventory must be considered cautiously in light of these findings.

Combat Rating Scale Correlational analyses were conducted on the 10 items comprising the Combat Rating Scale and the Social Desirability Scale, PTSD symptoms and the Combat Rating Scale total. Unlike the Pre-Service Social History Questionnaire, the Impact of Events Scale and the Life Events Inventory, no item from the Combat Rating Scale correlated significantly with social desirabilty. Rather, all but one item from the Scale was significantly correlated with PTSD symptoms. The responses given to items from the Combat Rating Scale appear to be uneffected by response set bias to any measurable degree.

Post-Service Social Support The three independent variables used to address the hypothesis regarding social support within the first year of return from Vietnam were each correlated with the Social Desirability Scale total and PTSD symptoms. There was no total scale score for Social Support Questionnaire. Therefore it was not possible to correlate each variable with an overall scale total of social support. In Table 4.21, the correlations among the three independent variables and the Social Desirability Scale and PTSD symptoms is reported.

TABLE 4.21

INFLUENCE OF SOCIAL DESIRABILITY ON THE REPORTING OF SOCIAL SUPPORT UPON RETURN FROM VIETNAM

Item	SDS CORR	PTSD CORR
Quality of relationships in the social support network (mean score for quality of all relationships in network)	.11	-.26*
Extent of relating upon return from Vietnam (items 2, 5, and 6, appendix I)	.21	-.17
Number of people comprising the social support network (total number indicated in section B, (appendix I)	.33**	.05

*p = .05 **p = .01

The only variable of the three signficantly influenced by response set bias appears to be the number of people reported to comprise the social support network upon return from Vietnam. That is, those subjects scoring in the positive direction on the Social Desirability Scale also tended to report more individuals in their social support network upon return from Vietnam. This finding may be interpreted in a different fashion than the previous items analyzed. Those persons with a higher number of people in their social support network were also high in the need for social approval by others.

The variable composed of the number of people constituting the social support network may be less contaminated by the perceived response demands of the testing situation than by the personal need of approval by others. The item is uncorrelated with PTSD symptoms. The findings on the item may argue less for the impact of number of people constituting a social support network as a measure of psychological pathology and more for the item's function as a measure of style of adaptation or coping.

The other two items used to operationalize the concept of post-service social support appear relatively uncontaminated by response set bias.

Figley Rating Scales The assessment of the influence of social desirabilty on the measurement of the criterion variable, PTSD symptoms, was also critical to assess. To do so, each item from the

investigator-rated and psychiatrist-rated Figley Rating Scales was correlated with the Social Desirability Scale total, with it's own scale total, and with the criterion variable. (N.B.: the correlation of each item with PTSD symptoms and it's own scale are over-inflated in that the PTSD symptom index was formulated by averaging the scores from the Figley Rating Scales obtained by a psychiatric rater and the investigator.)

In Table 4.22, the significant correlations between the psychiatrist-obtained PTSD symptom rating, social desirability, and the Figley Rating Scale total are described.

TABLE 4.22

INFLUENCE OF SOCIAL DESIRABILTY ON PSYCHIATRIST-RATED SYMPTOMS OF PTSD

Item	SDS CORR	PTSD CORR	SCALE CORR
12. occasionally think of Vietnam unexpectedly	-.31*	.41**	.58**
15. have a tough time completing anything you start	-.50**	.47**	.46**
25. worry about losing your temper and hurting someone	-.49**	.37*	.45**
Subtotal for symptoms of social withdrawal	-.39**	.64**	.57**
Subtotal for variety of symptoms of PTSD	-.36*	.67**	.74**
Total Scale	-.24		

*p = .05 **p = .01

In Table 4.23, the significant correlations between items from the investigator-rated Figley Rating Scale, social desirability scale total, PTSD symptoms, and Figley Rating Scale total score are described.

TABLE 4.23

INFLUENCE OF SOCIAL DESIRABILITY ON INVESTIGATOR-RATED SYMPTOMS OF PTSD

ITEM	SDS CORR	PTSD CORR	SCALE CORR
12. occasionally think of Vietnam unexpectedly	-.36*	.33**	.48**
16. feel that the older you get the less you need people	-.38*	.20	.23**
21. guilty about surviving the war when others did not	-.35*	.57**	.41**
25. worry about losing your temper and hurting someone	-.43**	.60**	.53**
Subtotal for symptoms of social withdrawal	-.37*	.62**	.57**
Subtotal for variety of symptoms of PTSD	-.33*	.73**	.77*
Total scale	-.29		

*p = .05 **p = .01

It appears that social desirability may have exerted more influence on the data collected from subjects by the investigator than on that data collected by the psychiatric raters. Three items in Table 4.22 proved signficantly correlated with social desirability whereas four items in Table 4.23 were influenced by social desirability. Furthermore, the overall scale total of the investigator rating correlated at -.29 with social desirability; the overall scale total for data collected by the psychiatrists correlated at -.24 with social desirability. Although these variations are not pronounced they are noteworthy. Variations may be explained by the influence of sex of the interviewer and the subsequent perception by subjects of response expectation. Both psychiatric raters were male. The investigator was female.

The Figley Rating Scale is composed of 25 items. As shown in Table 4.22, only two items (numbers 15 and 25) appeared to be more highly influenced by response set bias than by PTSD symptoms or the items' correlations with their own scales of origin. In Table 4.23, only two items (numbers 12 and 16) were more highly correlated with social desirability than with PTSD symptoms or their own scale correlations. Given the modest influence of social desirability in both psychiatrist-rated and investigator-rated scales, it appears that response set bias did not presented major distortion in the data collected regarding PTSD symptoms.

From clinical experience, item 25, "worry about losing your temper and hurting someone," is an especially sensitive and painful issue for Vietnam veterans who saw combat. It is noteworthy (but not surprising) that this affect-ladened issue was influenced by response set bias.

Summary of Response Set Bias Results In summary, substantial efforts were exerted to assess the influence of response set bias and perceived demands of the testing situation on the veracity of data collected. Such bias may have exerted a significant influence on the Life Events Inventory. On all of the other instruments used to operationalize the testing of the criterion and independent variables, it appears that response set bias was not influential.

ASSESSING ACCURACY OF SELF-REPORTED DATA

The Significant Other Questionnaire, designed for this study, was also used to identify response set or lack of accuracy in information elicited (see appendix L). The Significant Other Questionnaire, composed of eight items, was sent to a person that each subject identified as someone who knew him well prior to going to Vietnam and immediately upon his return.

Two of the eight items elicited demographic information from the signficant other. The content of six questions concerned life events during the veteran's adolescence. These six items were used in the analysis as an operational measure of the veteran's status

prior to service. Subjects were asked to sign a release of information form which was sent to the "signficant other" permitting the investigator to seek this information by mail (see appendix M).

Forty-seven Significant Other Questionnaires were returned, from a total of sixty. If questionnaires were not returned within two weeks of initial mailing, follow-up letters were sent. Also, one subsequent phone call was made encouraging return of the questionnaires followed by a second mailing of the questionnaire with cover letter.

A percentage of agreement between the "signficant other's" reponse and that of the veteran's response to the same question was computed using Kendall's coefficient of concordance (Hays, 1973). The coefficients are a measure of agreement between the responses of the significant others and each subject. Data in Table 4.24 indicates content of the six questions asked of the subject and his designated "significant other." The coefficients of concordance are also displayed:

TABLE 4.24

COEFFICIENTS OF CONCORDANCE BETWEEN SIGNIFICANT OTHERS AND SUBJECTS

QUESTION	COEFFICIENT*
Who spent the most time raising him from birth to age 18?	65%
Grade of school completed prior to entering the service?	94%
Did he have at least one close friend during teenage years?	89%
Was he involved in outside-of-school activities?	78%
Was he ever arrested prior to entering the service?	72%
Was he ever in a car accident, physical fight or legal trouble while under the influence or drinking alcohol?	83%

*coefficients of concordance or agreement

There are no standards for acceptable levels of agreement since the Significant Other Questionnaire was developed specifically for this study. Therefore, it was decided that the percentage of agreement between respondents and their significant others was acceptable. The last two items in Table 4.24 were somewhat influenced by social desirability or response set bias (correlation of each item with social desirability was -.28 and .33 respectively) but still maintained a high level of response concordance. This analysis was conducted in an effort to assess the potential bias introduced by distortion of memory over time (Campbell and Stanley, 1963)

RESULTS OF DATA ANALYSIS

In order to test the relationship among the independent variables, a correlation matrix was constructed. The intercorrelation among the independent variables and their correlation with the dependent variable of PTSD is presented in Table 4.25

TABLE 4.25

CORRELATION BETWEEN INDEPENDENT VARIABLES AND THE DEPENDENT VARIABLE

Variables	PTSD	Draftee vs. volunteer	Combat Scale	Impact of Events Scale	Life Events Inventory	Number in social network	Quality of netword	Relations with others	Preservice functioning
PTSD	1.00								
Draftee vs. volunteer	.12	1.00							
Combat Scale	.76***	-.01	1.00						
Impact of Events Scale	.83***	.25	.48***	1.00					
Life Events Inventory	.45**	.02	.24	.55***	1.00				
Number in social network	.05	-.11	.04	-.04	.00	1.00			
Quality of network	-.17	-.10	-.11	-.16	-.15	.39*	1.00		
Relations with others	-.26*	-.25	-.15	-.33*	.01	.22	.39*	1.00	
Preservice Functioning	.08	.08	.08	.03	.33*	-.11	-.01	.19	1.00

*.01 p=.05 **.001 p=.01 ***p=.001

Correlational Analysis

Of the eight independent variables, three proved to be positively correlated with the dependent variable of PTSD symptoms at a statistically significant level. These variables were: combat intensity, the current subjective impact of a previously-experienced stressor on affect and cognition, and the current level of life stress. There appeared to be a statistically significant negative correlation between PTSD symptoms and one of the three variables comprising the quantification of social support available to the veteran during the first year of return from Vietnam. This variable measured the extent of relating with people that the veteran engaged in during that first year of return from Vietnam. The finding was in the opposite direction from that originally hypothesized. There were also some intercorrelations of statistical significance among the independent variables, most notably between the Impact of Events Scale and the Life Events Inventory and between the Combat Rating Scale and the Impact of Events Scale. No other intercorrelations were found to be statistically significant.

Regression Analysis

A regression analysis was conducted, treating the criterion variable as continuous. The purpose of the multiple linear regression analysis was to evaluate the linear relationship between each of the independent variables and the dependent variable, and again, controlling for the influence of variance introduced by the other independent variables in the analysis.

Table 4.26 documents the values for each independent variable calculated from the multiple regression analysis.

TABLE 4.26

RESULTS OF THE MULTIPLE REGRESSION ANALYSIS

ENTRY ORDER	R	R	R CHANGE	BETA	T
Impact of Events Scale	.825	.681	.681	.599	10.1***
Combat Scale	.921	.848	.167	.466	7.89***

*p = .05 **p = .01 ***p = .001

Examination of the multiple regression revealed that variables 1) intensity of combat experienced and 2) the current subjective distress experienced from exposure to a previous trauma are most likely to predict existence of PTSD symptoms from the eight predictor variables evaluated. Status at entry into military service, current levels of life stress, magnitude and nature of social support network upon return from Vietnam and pre-service psycho-social functioning do not contribute significantly to the prediction of the existence of PTSD symptoms.

In summary, the multiple regression analysis showed that the existence of PTSD symptoms was significantly predicted by the two predictor variables cited in Table 4.26, $F(2, 57)=158.69$, p .001.

Discriminant Function

To clarify and substantiate the findings of the regression analysis, a stepwise discriminant function (Nie, et al.; 1970) was conducted using a categorical variable derived from the previously continuous dependent variable of PTSD symptoms (see Chapter 3, pg. 50 for explanation of grouping). A variable composed of three categories of mild, moderate, and severe PTSD symptoms was created and used as the dependent variable. The independent variables remained the same as those described in Chapter 3, pp. 50-52.

Three independent variables were entered into the stepwise discriminant function which produced a highly significant function, Wilk's Lambda=.232; Rao's approximate F-statistic, $F(6, 110)= 19.73$, $p = .001$. This discriminant function was associated with an overall correct classification rate of 75% of total cases (n=60). Independent variables in the order of entry into the discriminant function were: combat intensity, Impact of Events scale total, and Life Events Inventory total.

Jackknifed classification (Lachenbruch and Mickey, 1968) was performed as a test of the accuracy of the prediction. Results of the jackknife verification are displayed in Table 4.27.

TABLE 4.27

JACKKNIFE VERIFICATION OF THE DISCRIMINANT FUNCTION RESULTS

GROUP	PERCENT CORRECT	NUMBER OF CASES CLASSIFIED INTO GROUPS		
		Mild	Moderate	Severe
Mild	71.4	15	5	1
Moderate	70.0	2	14	4
Severe	84.2	0	3	16
Total	75.0	17	22	21

Analysis of Variance

Univariate one-way analysis of variance tests were performed as an adjunct to the main multivariate tests. In Table 4.28, the results of the one-way ANOVA's are displayed.

TABLE 4.28

ONE-WAY ANOVAS OF INDEPENDENT VARIABLES WITH THE DEPENDENT VARIABLE

VARIABLE	DF	F	SIGNIFICANCE
Impact of Events Scale	2, 57	51.53	.001
Combat intensity	2, 57	22.63	.001
Life Events Inventory	2, 57	12.84	.01
Relations with others	2, 57	2.37	non-significant
Preservice functioning	2, 57	1.37	non-significant
Draftee vs. volunteer	2, 57	.80	non-significant
Quality of network	2, 57	.25	non-significant
Number in social network	2, 57	.13	non-significant

SUMMARY

In general, both the univariate and multivariate tests appear to support one another. The Impact of Events Scale proved to be most highly correlated with the existence of PTSD symptoms in the regression analysis, the correlational analysis and the analyses of variance. In conjunction with the Combat Scale, the Impact of Events Scale yielded an accuracy of prediction in the discriminant function significant at the .001 level.

Combat intensity proved to rank second as an independent variable correlating with the existence of PTSD symptoms, in all analyses but the discriminant function. In the discriminant function, combat

intensity was the first independent variable identified as most predictive of the existence of PTSD symptoms.

In all but the regression analysis, the current level of life stress (as measured by the Life Events Inventory) proved to be significantly associated with the existence of PTSD symptoms. In the discriminant function, the correlation and the analysis of variance, the Life Events Inventory was identified as third in it's degree of relationship to the existence of PTSD symptoms.

Surprisingly, the independent variable quantifying the extent to which the veteran related to others within the first year of return from Vietnam proved to be negatively correlated with the dependent variable in the correlational analysis at the .05 level. The reason for this finding is unclear, nor did the other univariate nor the multivariate tests yield the same finding regarding this independent variable.

The other independent variables of number of persons comprising the social support network during the first year of return from Vietnam, quality of those relationships, and pre-service psycho-social functioning proved not be significantly associated with the existence of PTSD symptoms.

In Table 4.29, the independent variables identified as significant in each analysis, are presented in the order of their rank of significance or correlation in each of the tests conducted.

TABLE 4.29

SUMMARY OF SIGNIFICANT INDEPENDENT VARIABLES

DISCRIM FUNCTION	REGRESSION ANALYSIS	CORRELATION	ANALYSIS OF VARIANCE
Combat Scale	Impact of Events Scale***	Impact of Events Scale***	Impact of Events Scale***
Impact of Events	Combat Scale***	Combat Scale***	Combat Scale***
Life Events Scale		Life Events Scale**	Life Events Scale**
		Relations with others*	

CHAPTER FIVE

SUMMARY AND CONCLUSIONS

In chapter five, a summary of the purpose. theory, methodology, and results are presented. Conclusions based upon results are tendered and implications for future research are offered.

SUMMARY

The purpose of this study was to evaluate certain pre-service, service and post-service psycho-social variables thought to be related to PTSD symptoms. Clarification was sought regarding the inter-relationship among these variables. The variables were thought to be: 1) nature of entry into military service 2) intensity of combat experienced, 3) the current level of subjective experiencing of a previously-encountered traumatic stressor, 4) current level of life stress, 5) the nature of social support available to the veteran within the first year of return from Vietnam, and 6) the nature of pre-service psycho-social functioning.

The body of research pertaining to etiology of and variables thought to be related to PTSD has been plagued with methodological flaws. Some of these flaws have been: lack of representative samples and other sources of sampling bias, spuriously generalized results, difficulties with definitions of and operationalization of the psychological distress of Vietnam veterans, and problems with indentification and quantification of independent variables. All of these methodological difficulties have most likely contributed to the

confusing and inconsistent findings regarding the etiology and correlates of PTSD symptoms.

In the research endeavor discussed herein, subjects were drawn from that population of Vietnam veterans seen from March and April, 1983 at the Ann Arbor VA Medical Center at various psychological/psychiatric and medical in-patient and out-patient services The sample included veterans from rural as well as large metropolitan areas. All subjects appeared to be experiencing some symptoms associated with PTSD, with a wide range in the extent of symptomatology across the sample. The means of quantification of the independent variables was examinded and is reiterated as follows:

Nature of entry into service. This predictor was a simple dichotomous variable (draftee vs. enlistee). It was assessed in the Military History Questionnaire, question number 2, (appendix G).

Combat intensity. This variable was composed of the total score on the Combat Rating Scale. It was a continuous variable with scores theoretically ranging from 0 to 14.

Current impact of previous stressor. This independent variable was composed of the total score on the Impact of Events Scale. It was a continuous variable with a theoretical range from 0 to 75.

Recent life stress. This independent variable was continuous. It was derived as the total score from the Life Events Inventory. Scores theroetically ranged from 0 to 2,879.

Social support upon return from Vietnam. Three variables were derived to measure certain aspects of the social support system. One variable was composed of the total number of people in the veteran's social network during the first year of return from Vietnam. The second variable used in the operationalization of this variable is the quality of the relationship with each person indicated as important by the veteran during the first year of return from Vietnam (see appendix F, page 2 for a definition of each criteria composing the quality index). The third variable used in operationalizing the testing of the relationship between PTSD symptoms and social support within the first year of rturn from Vietnam was the sum of positive responses to three dichotomously scored questions taken from the Social Support Questionnaire. These questions were: 1) During your first year of return from Vietnam, did you talk with anyone about your experiences in Vietnam? 2) Did you spend time with anyone during the first year that you returned from Vietnam? and 3) Did you feel close to anyone during the first year that you returned from Vietnam? Thus, three variables constituted the operationalization of the social support network of the veteran upon return from Vietnam.

Pre-Service Psycho-Social Functioning. This independent variable was composed of the total score on the Pre-Service Social History Questionnaire. It was a continuous variable with theoretically ranging scores from 0 to 43.

PTSD Symptoms/Dependent Variable. The method of assessment of PTSD symptoms and the treatment of that dependent variable as both continuous and categorical was discussed. To reiterate, the dependent or criterion variable was treated as either categorical or continuous, depending upon the demands of the analysis being performed. The continuous variable was formed by using the mean score from two independently-rated structured interviews using the Figley Rating Scale of PTSD symptoms. The scale yielded a score ranging from 0 to 76. Three categories of symptom severity were formed: "mild," "moderate," and "severe." Efforts were made to balance the number of cases in each group. The final group formation was : the mild group included 21 cases, the moderate group included 20 cases, and the severe group included 19 cases. There were uneven numbers in each group because of ties betweeen individuals at the extremes of each group.

A main analysis using multivariate techniques was employed to test the relationship between the dependent and independent variables. A discriminant function analysis was conducted to evaluate the non-linear relationship between each of the independent variables and the dependent variable while controlling for the influence of variance introduced by the other independent variables. The regression analysis was conducted to evaluate the linear relationship between each of the independent variables and the dependent variables, controlling for the influence of variance introduced by the other

independent variables in the analysis.

Two univariate analyses were performed as an adjunct to the main analysis. Correlations between each independent variable and the dependent variable were computed to measure the degree of linear relationship between each independent variable and the dependent variable without reference to the influence of the independent variable.

One-way ANOVA's were computed between each independent variable and the dependent variable to test for non-linear relationships

CONCLUSIONS

Conclusions regarding the findings pertaining to each hypothesis are as follows:

Hypothesis one There appeared to be no significant relationship between the nature of entry into service and the existence of PTSD symptoms in any of the univariate or multivariate tests performed

Hypothesis two The intensity of combat experienced proved to be highly correlated and predictive of the existence of PTSD symptoms. Combat intensity proved to be the most highly predictive variable in the discriminant function analysis and second most highly correlated variable in the other tests of signficance performed.

Hypothesis three The total score on the Impact of Events Scale proved to be most highly correlated with the existence of PTSD symptoms of all of the independent variables studied. Since the Impact of Events Scale consists of two subscales, intrusion of thoughts and memories of the previously-encountered stressor and avoidance of memories or thoughts of the stressor, the high correlation would argue for the powerful relationship of current affect and image of previously-traumatic events.

Hypothesis four The Life Events Inventory demonstrated significance at the .01 level in all tests but the regression analysis where it's significance was too weak to contribute to the regression. However, from these findings, it is concluded that the current level of stress being experienced by the veteran is signficantly correlated with the current existence of PTSD symptoms.

Hypothesis five The nature and extent of social support available to the Vietnam veteran within the first year of return from Vietnam did not prove to be significantly correlated with the existence of PTSD symptoms. This was a surprising finding in that the lack of correlation argues against the theory of the "buffer effect" of social support in integrating and coping with a traumatic life experience. The variable composed of a positive response to three questions inquiring about the extent of relating to others upon return from Vietnam did prove to be significantly negatively correlated wth the existence of the disorder, that is, in the opposite

direction than that hypothesized. The reason for the reversal finding was unclear and was unsubstanciated in the other analyses.

Hypothesis six The independent variable of pre-service psycho-social functioning proved to be unrelated to the existence of PTSD symptoms. The relationship of pre-service functioning has been an issue of debate and controversy in the PTSD research. Because the instrument used for the testing of hypothesis six proved to be acceptably reliable and none of the tests of signficance yielded a positive finding, for the sample studied, the variable proved unrelated to the existence of PTSD symptoms.

DISCUSSION OF SIGNIFICANT FINDINGS

The following section contains a discussion and critique of the significant findings of the study. Methods implemented for verification of data are also discussed.

Findings from the Impact of Events Scale.

The results of the main and adjunct data analyses indicates that the current ongoing impact of a previously-experienced stressor is strongly associated with the current existence of PTSD symptoms. The robustness of this finding is further supported by substantial estimates of internal consistency reliability of the Impact of Events Scale. The alpha coefficient estimated was .94, which was even higher than that estimate attained on the scales normative group. Not only

did the Impact of Events Scale prove reliable in this fashion, the scale was not influenced by response set bias, as measured by the lack of correlation between each item from the scale and the Social Desirability Scale total.

Findings of the primacy of the relationship between the total score on the Impact of Events Scale and the existence of PTSD symptoms is not surprising. A central diagnostic feature of the DSM-III criteria for PTSD has to do with experiences of intrusive thoughts and avoidance of ideas and feelings related to a serious life event. The usefulness of this finding of the relationship between the Impact of Events Scale and it's high correlation with the dependent variable may be a further demonstration that there is indeed a discreet and measurable complex of symptoms that constitute the psychological disorder known as Post-traumatic Stress Disorder. The issue of the validity of the diagnosis of PTSD has been a controversial one, especially within the VA health care system. Recognition of the complex of symptoms constituting the disorder has also had legal ramifications because there are an increasing number of legal cases where the defense has rested upon the existence of PTSD.

At the time of implementing this research study, there had been no results published on the use of the Impact of Events Scale with Vietnam veterans (personal communication with D.S. Weiss). The strength and sensitivity of the Impact of Events Scale in its association with PTSD symptoms presents strong support for the scale's

cross validation. The fact that the Impact of Events Scale, which has been cross-validated on samples who have experienced sudden death of parents and traumatic bodily assault, does provide data which supports and argues for the existence of a quantifiable constellation of symptoms related to psychological sequelae as a result of trauma.

Findings from the Combat Rating Scale

The results of the main and adjunct data analyses indicate that the intensity of combat experienced was strongly asociated with the current existence of PTSD symptoms. As with the Impact of Events Scale, substantial estimates of internal consistency reliability were computed on the data collected from the Combat Rating Scale. The alpha coefficient estimated from the scale was .83. The items from the Combat Rating Scale did not appear to be influenced by response set bias, as measured by the lack of correlation of any item from the Combat Rating Scale with the total scale score from the Social Desirability Scale.

Findings of the relationship between combat intensity and the existence of PTSD symptoms is consistent with those of Helzer (1979), Penk et al. (1981), Frye et al. (1982), and Foy et al. (1984). The results are also convergent with related studies of natural disaster victims that highlight the apparent eminence of trauma exposure among etiological factors in the development of PTSD (Melick, Logue and Frederick, 1982; Horowitz, 1976).

Findings from the Life Events Inventory

Of the eight independent variables studied, the Life Events Inventory, measuring current level and type of life stress, was third in signficant association with PTSD symptoms. Individual items were correlated with the categorical dependent variable of PTSD symptoms. In Table 5.1, each item from the Life Events Inventory significantly correlated with PTSD symptoms is identified by it's number in the scale (see appendix E), content of the item, and the Pearson's product moment correlation coefficient.

TABLE 5.1

CORRELATION OF LIFE EVENTS INVENTORY ITEMS WITH PTSD SYMPTOMS

Item	Content	R
10	new neighbors	.31*
11	quarrel with neighbors	.32*
17	jail sentence	.29*
18	involvement in a physical fight	.40**
26	problems related to drugs or alcohol	.26*
27	serious restriction of social life	.28*
30	prolonged ill health requiring treatment by a doctor	-.27*
31	sudden impairment of vision or hearing	.30*
33	sex difficulties	.46**
39	increase in arguments with immediate family (not spouse)	.31*
42	children in the care of others	.30*
43	trouble or behavior problems with your own children	.29*
47	extra-marital sexual affair	.38**
53	problems realted to sexual affair	.97***
54	increase in the number of family arguments	.71***
55	break-up of family	.97***

*p = .05 **p = .01 ***p = .001

By inspection, the significant items have to do with interpersonal turmoil ranging from physical fights to sexual difficulties. Although the DSM-III criteria does not speak specifically to interpersonal difficulties, this symptom may be implied by the diagnostic indicators of "feelings of alienation" and "constricted affect."

The relationship of stressful current life events with PTSD is somewhat weaker in it's statistical strength than the findings regarding combat intensity and the current subjective impact of a previously-experienced trauma. There are several possible ways to understand this finding. The scale's estimate of internal reliability on the sample studied was .83 (in comparison with internal consistency estimates from the normative sample of .89). Although this estimate is acceptable for group data, it is not outstanding. Further, correlation of the Life Events Inventory scale items with social desirability demonstrated that for 10 of the 55 items, response set bias was a significant factor perhaps introducing distortion in the data collected. It appears that the scale has acceptably identified interpersonal turmoil as an aspect of current life stress experienced by the sample studied.

DISCUSSION OF NON-SIGNIFICANT FINDINGS

Non-significant findings are discussed in the following section. Reasons for lack of relationship with the criterion variable are also examined.

Findings from Entry Status in Service

There proved to be no relationship between entry status into service and the current existence of PTSD symptoms. This finding goes contrary to the initial hypothesis. Findings reported in literature reviewed regarding the relationship of entry status to the development of psychological symptoms after return from Vietnam are inconsistent and contradictory findings (Strayer and Ellenhorn, 1975; Huffman, 1970; Nace. 1977; Scruggs et al., 1980). This variable was easily operationalized as a dichotomous response, i.e. "draftee or volunteer." The variable was not contaminated by response set bias as evidenced by the lack of correlation with the Social Desirabilty Scale total score. There appears to be no reason to question the conclusion that, at least within the group of 60 Vietnam veterans sampled, there appeared to be no relationship between entry status into military service and the current existence of PTSD symptoms.

Findings from Post-Service Social Support Questionnaire

The relationship between social support upon return from Vietnam and PTSD symptoms was non-significant. This finding is contrary to the so-called buffer effect of social support in mitigating the influence of a traumatic experience. This finding may well be explained by the difficulties in operationalizing the concept of retrospective perception of social support. Recall that the scale was developed specifically for this study. The initial intent in the development of the scale was to incorporate the measurement of the

quantity, quality and extent of social support and relating. The attempt to comprehensively operationalize the concept of post-service social support resulted in three separate variables used in the measurement and testing of the hypothesis concerning the impact of social support upon current PTSD symptoms. Constructing the Social Support Questionnaire in this fashion and using three separate variables to operationalize the variable may have weakened the actual results concerning the relationship of post-service social support to current existence of PTSD symptoms. It may have served to diffuse any detectable relationship that existed.

It may well be, however, that there really is no relationship between post-service social support and the existence of PTSD symptoms. This finding is contrary to an already-established theoretical base concerning the value of social support in integrating traumatic experience. Furthermore, the method of operationalizing the concept in the study appears questionnable. In light of these considerations, the finding from this study of the lack of relationship between current PTSD symptoms and post-service social support must remain speculative.

Findings from the Pre-Service Social History Questionnaire

The main and adjunct analyses indicated that there was no relationship between the current existence of PTSD symptoms and pre-service psycho-social functioning. However, this finding too must remain suspect for the following reasons. There were potential

difficulties with the way in which pre-service social functioning was measured. The seven sub-scale areas of psycho-social functioning seemed comprehensive and appropriate to the concept meausured. However, there were only two items in the employment subscale. This subscale did not have enough items to lend itself to computation of internal consistency reliability estimates. There were only three items in the subscale of legal history, which may have been too constricted in it's scope to assess the concept of legal difficulties prior to the service. Ideally, a more powerful scale for the measurement of pre-service social functioning might have been developed by incorporating many more items, collecting data with the preliminary scale on Vietnam veteran cohorts, and then refining the scale through item analysis. As used, the overall estimate of internal reliability was .72. Although not impressive, it was acceptable for the scope of this study.

The findings from the literature review reveal confusing and inconsistent findings regarding the relationship of pre-service psycho-social functioning and current PTSD symptoms. Previous empirical endeavors have poorly operationalized the concept of pre-service psycho-social functioning. The reserch presented here has more comprehensively and carefully documented efforts to operationalize this methodologically-illusive concept. Yet the negative finding reported here is contrary to the reports of previous

authors (Helzer, 1979; Huffman, 1970). Figley (1978), without support of empirical research, made the clinical observation that there appeared to be a relationship between pre-service psycho-social difficulties and the later development of PTSD after Vietnam. The hypothesis was tested in the work reported here was also supported by clinical observation. The finding reported is contrary to that hypothesized. Until further evidence is generated from sound research methodology, the relationship between PTSD symptoms and pre-service psycho-social functioning remains unclarified.

CHOICE OF INDEPENDENT VARIABLES

Six independent variables were chosen for study in this research after a thorough review of empirical investigations and theoretical literature regarding the etiology and dynamics of the development of PTSD symptoms.

The variables identified for study were "psycho-social" in nature. These varaibles were chosen for study in the work presented here for several reasons. First, these six variables (nature of entry into service, pre-service psycho-social functioning, intensity of combat experience, nature of social support upon return from Vietnam, current life stress, and current subjective impact of the previously-experienced trauama) were most frequently mentioned in empirical investigations of correlates and possible etiological

factors in the development of PTSD. Second, these research endeavors contained methodological flaws and inconsistent findings. Third, it appeared to be challenging and intriguing to identify valid, reliable and comprehensive means of operationalizing these concepts, in a more rigorous and empirically sound fashion than had previously been atempted. Fourth, clinical experience of the investigator and psychiatric collaborators indicated that these variables were most likely related to or implicated in the development of PTSD symptoms. Fifth, due to constraints in time, monetary support and personnel, these appeared to be reasonable variables to explore and within the scope of resources available.

There was no attempt to evaluate any hereditary predisposition to psychological-psychiatric disturbance. Nor was an effort made to acknowledge or assess those factors that could be considered "psycho-biological" in nature. Such efforts were well beyond the scope of this research endeavor. However, it is narrow-sighted and naive to overlook the potential influence of biological factors in predisposition or development of PTSD symptoms.

According to DSM-III classification schema, PTSD is a subtype of the broader category of Anxiety Disorders. There is increasing evidence of a familial predisposition and possible biological determinants of certain anxiety disorders (e.g., simple phobias and panic disorder). The relationship of PTSD to Panic Disorder is yet to be explored. In clinical work, the similarity of the

experience of panic attack with the "flashback" experience of the combat survivor is fascinating and striking. Many autonomic symptoms reported by persons experiencing panic attacks or "flashbacks" are similar--tachycardia, hot and/or cold flashes, profuse diaphoresis, trembling and shaking, and waves or surges of panic, terror, or sense of impending death.

The relationship or differentiation of PTSD, Panic Disorder, and other anxiety disorders should be pursued with the ultimate goal of establishing etiology and subsequent effective treatment.

SAMPLING PROCEDURE

Initially, sampling was attempted in a systematic fashion by contacting and screening each willing Vietnam veteran seen consecutively during the months of March and April, 1983. It took nine months to recruit one-half of the sample by this method. Because of the difficulty in procuring the necessary sample of 60 within a reasonable length of time, this method of subject recruitment was abandoned after 31 subjects were examined. Because of time, monetary and personnel constraints, referral of potential subjects were accepted from in-patient and out-patient medical and psychiatric services.

The sample selection compromise may have introduced a potential source of sampling bias. Interpolated figures available from the Ann

Arbor VAMC office of Health Services Research and Development indicated that in 1981, 30% of in-patients and out-patients discharged were from psychiatric and/or psychological services. According to demographic information from the sample of this study, 41.7% were referred from in-patient or out-patient psychiatric or psychological services. Furthermore, there appeared to be a significant relationship between source of referral and degree of PTSD symptoms. The generalizability of these findings to the Ann Arbor VA Medical Center and the national VA health care system must be considered in light of this demographic information.

Those subject candidates who experienced alcohol and/or drug problems of clinical significance were screened out. Those with neurological impairment were also excluded from study. The intent in this exclusionary criteria was acceptable, that is, "concern for acuity of memory and affective experience (see pp 40-41, Chapter 3). However, the exclusion process may have introduced potential sampling bias obviating or underestimating the extent of drug and/or alcohol problems among subjects in the sample.

These potential sources of sampling bias must be considered in the interpretation and generalizability of the findings of this study.

RATING OF PTSD SYMPTOMS

Degree of symptoms of PTSD (the measurement of the criterion variable) was done by having the investigator and a psychiatric rater interview each subject separately using a semi-structured interview format (the Figley Rating Scale). The scores from the two independent ratings were then averaged to yield a total index of PTSD symptoms. Two psychiatrists participated with the investigator in the rating procedure (see Chapter 3, pp 43-44 for details). The adequacy of the method of measurement of the criterion varable is demonstrated by impressively high levels of inter-rater reliability (see Table 3.16, pg. 65). Had there been no time or monetary constraints, it would have been ideal to have the same psychiatrist involved in the rating of all 60 subjects.

An even more rigorous method of establishing PTSD symptoms might have been implemented by having two psychiatrists interview jointly each subject and then blindly rate for existence of symptoms.

There was evidence of potential influence of the sex of the raters in reviewing the influence of response set bias on the Figley Rating Scales (see pps. 75-77, Tables 3.21 and 3.22). If symptoms had been assessed by both male psychiatrists rather than by a male psychiatrist and a female investigator, the potential bias introduced by sex of the rater may have even greater. Again, given time and personnel constraints, and in light of the impressively high inter-rater

relablity estimates, the method used in this study for assessment of PTSD symptoms appears quite adequate.

EFFORTS TO VERIFY COLLECTED DATA

An outstanding feature of the methodology of the study was the rigorous attempt to validate the accuracy of data provided by subjects.

In retrospective survey research, there is always potential bias from perceived response demand, inaccurate memory and conscious omission or distortion of information. Attempts were made in this study to address all three areas of potential bias.

The influence of social desirability or response set bias was assessed with each item from each scale used in this study. In no other research endeavor mentioned in the literature review have such efforts been made.

Efforts were made to control for improverished or distorted memory of events and affect connected to these events. This was done by deleting potential subjects who appeared to suffer from drug and/or alcohol problems of clinical significance or neurological impairment. The trade-off in implementing these criteria was a potential underestimation of these problems aomong the sample cohorts.

The use of a questionnaire sent to a significant other to validate the accuracy of pre-service psycho-social functioning is unique to this study. Coefficients of concordance or agreement between information provided by the significant other and each subject were

computed. No statement regarding their comparisons to norms can be made, as there is no criterion with which to compare these findings. Upon observation, however, it appears that an acceptably high level of agreement was achieved. The two questions which would most likely be influenced by response set bias (see appendix L, items 7 and 8) had coefficients of agreement of 72% and 83% respectively.

The three above-described procedures were implemented to address and correct some of the inherent limitations and dangers associated with retrospective clinical survey studies. These efforts appear unique and innovative in the area of empirical research on PTSD.

IMPLICATIONS FOR FUTURE RESEARCH

A substantial and noteworthy contribution made by this research en-d eavor has been further validation of a quantifiable complex of symptoms known as PTSD. The credibility of this diagnostic classification continues to undergo question and attack within the VA health care system and more recently within the judicial system.

Evidence for the ability to diagnose and assess severity of PTSD symptoms is witnessed by the impressively high inter-rater reliability coefficients on the Figley Rating Scales (see Table 3.16, pg. 65).

The Impact of Events Scale proved to be a possible replication of the quantification of the criterion variable. The Impact of Events Scale correlated with the PTSD index at .83 ($p = .001$). Furthermore,

the Imact of Events Scale demonstrated a remarkable internal consistency estimate at .95. It proved to substantiate the hypothesis that those veterans reporting more symptoms of PTSD will also be experiencing greater current subjective stress related to experiences in Vietnam. To reiterate, it provides further substantiation of the existence of the diagnostic entity of Post-traumatic Stress Disorder.

Failure of this study to support two hypotheses provide the spring board for further empirical exploration on the nature of psycho-social variables associated with the existence of PTSD symptoms. As stated previously, potential methodological flaws in the operationalization of the concepts of post-service social support and pre-service psychosocial functioning render the current negative findings questionnable. The flaws in the testing of these two variables might be addressed in the following way.

Pre-service psycho-social functioning may be operationalized through a more powerful measure of the concept. The seven sub-factors comprising the concept of psycho-social functioning seem appropriate. However, the scale lacked scope in content of items for adequate measurement of legal and employment difficulties prior to entry into military servce. Through the use of item analysis, items might be added or deleted through further pilot testing to maximize the scale's power as a consistent measure of pre-service psycho-social functioning.

The method for measuring the concept of post-service social support must be more carefully developed. It would be ideal to develop an instrument that would allow for comprehensiveness in the scope of testing the concept of social support (e.g. quantity of the network. quality of relationships and extent of use of the network), as was attempted in this study. However, in order to detect significant differences, a social support scale may need to ultimately yield one index that incorporates a comprehensive notion of social support. Further scale refinement by the adding and deleting of items, pilot testing, and item analysis may further produce a psychometrically sound and robust meaure of the concept of social support.

The issue of cause and effect can only be addressed through the following suggestion of the ideal empirical exploration of the issues that have been addressed in this retrospective correlational study. The ideal empirical endeavor would identify a larger sample of military recruits. These persons would be sampled randomly across the nation in an effort to maximize generalizability of research findings. Pre-service psycho-social functioning may be more easily assessed at this time, free from the distortions introduced in retrospective data collection. These recruits would then be followed through their military experiences. It would be feasible at the point of debriefing and departure from military service to assess the extent of military and combat experiences. These veterans could then be

approached one year after departure from the service for assessment of social support available to them since their year of return from the service. The sample cohorts could then be monitored and followed over a ten to fifteen year period of time to assess the development of PTSD symptoms.

An adjunctive study may evolve that could provide information regarding effective treatment for the disorder. A subsample of the original sample may be identified that develop symptoms of PTSD that are measurable and quantifiable over time. One subsample may serve as an untreated control group. Another subsample may be provided psychotherapeutic intervention at this perviously identified level of symptom severity. A third group might be offered psycho-pharmacological intervention with anxiolytic medications without psychotherapy. The purpose of such an experimental design would be to identify the maximally effective therapeutic intervention.

There are a number of variations possible based on the model research designs proposed above. That which has been proposed is under ideal circumstances for empirical inspection. However, the design also requires a sample of recruits who undergo the experience of "conventional" warfare. Should such tragic events occur again, it appears critical to understand etiological factors and to identify the most effective and immediate treatment methods. If such efforts were

made, it might possibly serve to curtail the ongoing human suffering for veterans, their family and friends. It might also ultimately be less costly in terms of disability compensation and use of costly personnel time in providing chronic and paliative treatment.

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APPENDICES

APPENDIX A

Diagnostic criteria for Post-Traumatic Stress Disorder:

A. Existence of a recognizable stressor that would evoke significant symptoms of distress in almost everyone.

B. Reexperiencing of the trauma as evidenced by at least one of the following:

(1) recurrent and intrusive recollections of the event

(2) recurrent dreams of the event

(3) sudden acting or feeling as if the traumatic event were reoccuring, because of an association with an environmental or ideational stimulus

C. Numbing of responsiveness to or reduced involvement with the external world, beginning some time after the trauma, as shown by at least one of the following:

(1) markedly diminished interest in one or more significant activities

(2) feeling of detachment or estrangement from others

(3) constricted affect

D. At least two of the following symptoms that were not present before the trauma:

(1) hyperalertness or exaggerated startle response

(2) sleep disturbance

(3) guilt about surviving when others have not, or about behavior required for survival

(4) memory impairment or trouble concentrating

(5) avoidance of activities that arouse recollection of the traumatic event

(6) intensification of symptoms by exposure to events that symbolize or resemble the traumatic event

CONSENT FORM

ADDENDUM B

Subject's Name	Study Code Number
Subject's Address	Telephone Number

I hereby volunteer and consent to participate in a research project being conducted by Monica A. Green through the facilities of the Ann Arbor VA Medical Center. The primary investigator, Monica Green, has talked with me about the research and given me sufficient time and information to consider participation. Specifically, the following has been explained to me verbally and in writing:

A) Purpose: The purpose of this study is to identify experiences and conditions that contribute to the development of post-traumatic stress disorder. I realize that the information learned from the study may help in the treatment of conditions like mine.

B) Procedures: At the beginning of the study, I will be given an interview with two psychiatrists to talk with me about my concerns. I will then be asked to take a number of paper-and-pencil tests and questionnaires which will take approximately two hours to complete. I

also understand that a questionnaire will be sent to someone who knew me before going to Vietnam and that I will be asked to give my permission in writing for that person to be contacted by mail and/or telephone.

C) Risks and Discomforts: There are no physical risks or discomforts anticipated. I realize that the paper-and-pencil tests and psychiatricinterviews may require me to discuss and remember certain experiences that may cause me some emotional discomfort.

D) Benefits: At the end of the research project, the results of the study will be discussed with me and I will be provided with information about post-traumatic stress disorder, if I wish. The results of this study may aid in the assistance of patients with similar problems.

E) Alternative Course of Action: I have the option of not participating in this study. I realize that my participation in this study is voluntary and I may withdraw and discontinue participation at any time. I know that withdrawing from the study will not jeopardize my benefits or services entitled to me within the VA health care system. If I choose not to participate and/or withdraw from the study, the resercher will refer me to the appropriate clinics within the hospital to treat my problems.

F) Confidentiality: The researcher and the Ann Arbor VA Medical Center will not identify me in any write-ups of this procedure and will keep records identifying me confidential to the extent provided by federal, state and local law.

If I have any questions now or during the course of my participation in this study, I can call Monica Green at (313) 769-7100, ext 485.

Subject's Signature	Date
Witness's Signature	Date
Investigator's Signature	Date

APPENDIX C

FIGLEY RATING SCALE

If you were in the combat zone, indicate how often, if ever, that you:

NEVER = 1 RARELY = 2 SOMETIMES = 3 OFTEN = 4 VERY OFTEN = 5

1. fired your weapon at the enemy____
2. killed the enemy____
3. saw someone killed____
4. saw the enemy wounded____
5. Saw our guys wounded____
6. saw dead enemy____
7. saw our dead____
8. found yourself in a situation you thought you'd never survive____

9. When all things re considered, to what degree were your experiences stressful?

not at all stressful____ somewhat stressful____ not sure____

stressful____ highly stressful___

ANSWER EITHER YES OR NO	YES	NO
10. frequently have vivid recollections of Vietnam, especially the bad scenes?	___	___
11. sometimes have dreams/hightmares about Vietnam?	___	___
12. occasionally think about Vietnam unexpectedly?	___	___
13. ever seem to feel just like you were back in Vietnam?	___	___
14. feel that it is often not worth getting close to others?	___	___
15. have a tough time completing anything you start?	___	___
16. feel that the older you get the less you need people?	___	___
17. ever worry about anything keeping your interest for long?	___	___
18. frequently feel like shutting the rest of the world away?	___	___
19. hate to be startled?	___	___
20. have trouble sleeping?	___	___
21. ever feel guilty about surviving the war, when others did not?	___	___
22. find that certain things (helicopters, gun fire, etc.) remind you of Vietnam?	___	___
23. get nervous when certain things remind you of Vietnam?	___	___
24. find yourself avoiding the topic of Vietnam with others?	___	___
25. worry about losing your temper and hurting someone?	___	___

ADDENDUM D

SOCIAL DESIRABILITY SCALE

Listed below are a number of statements concerning personal attitudes and traits. Read each item and decide whether the statement is true or false as it pertains to you personally. Mark the appropriate space with a check
mark ( ).

1. Before voting I thoroughly investigate the qualifications of all the candidates.

a) definitely true___ b) true___ c) not true___ d) definitely not true___

2. I never hesitate to go out of my way to help someone in trouble.

a) definitely true___ b) true___ c) not true___ d) definitely not true___

3. It is sometimes hard for me to go on with my work if I am not encouraged.

a) definitely true___ b) true___ c) not true___ d) definitely not true___

4. I have never intensely disliked anyone.

a) definitely true___ b) true___ c) not true___ d) definitely not true___

5. On occasion I have had doubts about my ability to succeed in life.

a) definitely true___ b) true___ c) not true___ d) definitely not true___

6. I sometimes feel resentful when I don't get my way.

a) definitely true___ b) true___ c) not true___ d) definitely not true___

7. I am always careful about my manner of dress.

a) definitely true___ b) true___ c) not true___ d) definitely not true___

8. My table manners at home are as good as when I eat out in a restaurant.

a) definitely true___ b) true___ c) not true___ d) definitely not true___

9. If I could get into a movie without paying and be sure I was not seen, I would probably do it.

a) definitely true___ b) true___ c) not true___ d) definitely not true___

10. On a few occasions, I have given up doing something because I thought too little of my ability.

a) definitely true___ b) true___ c) not true___ d) definitely not true___

11. I like to gossip at times.

a) definitely true___ b) true___ c) not true___ d) definitely not true___

12. There have been times when I felt like rebelling against people in authority even though I knew they were right.

a) definitely true___ b) true___ c) not true___ d) definitely not true___

13. No matter who I'm talking to, I'm always a good listener.

a) definitely true___ b) true___ c) not true___ d) definitely not true___

14. I can remember "playing sick" to get out of something.

a) definitely true___ b) true___ c) not true___ d) definitely not true___

15. There have been occasions when I took advantage of someone.

a) definitely true___ b) true___ c) not true___ d) definitely not true___

16. I'm always willing to admit it when I make a mistake.

a) definitely true___ b) true___ c) not true___ d) definitely not true___

17. I always try to practice what I preach.

a) definitely true___ b) true___ c) not true___ d) definitely not true___

18. I don't find it particularly difficult to get along with loud mouthed, obnoxious people.

a) definitely true___ b) true___ c) not true___ d) definitely not true___

19. I sometimes try to get even rather than forgive and forget.

a) definitely true___ b) true___ c) not true___ d) definitely not true___

20. When I don't know something I don't at all mind admitting it.

a) definitely true___ b) true___ c) not true___ d) definitely not true___

21. I am always polite, even to people who are disagreeable.

a) definitely true___ b) true___ c) not true___ d) definitely not true___

22. At times I have really insisted on having things my own way.

a) definitely true___ b) true___ c) not true___ d) definitely not true___

23. There have been occasions when I felt like smashing things.

a) definitely true___ b) true___ c) not true___ d) definitely not true___

24. I wold never think of letting someone else be punished for my wrong-doings.

a) definitely true___ b) true___ c) not true___ d) definitely not true___

25. I never resent being asked to return a favor.

a) definitely true___ b) true___ c) not true___ d) definitely not true___

26. I have never been irritated when people expressed ideas very different from my own.

a) definitely true___ b) true___ c) not true___ d) definitely not true___

27. I never make a long trip without checking the safety of my car.

a) definitely true___ b) true___ c) not true___ d) definitely not true___

28. There have been times when I was quite jealous of the good fortune of others.

a) definitely true___ b) true___ c) not true___ d) definitely not true___

29. I have almost never felt the urge to tell someone off.

a) definitely true___ b) true___ c) not true___ d) definitely not true___

30. I am sometimes irritated by people who ask favors of me.

a) definitely true___ b) true___ c) not true___ d) definitely not true___

31. I have never felt that I was punished without cause.

a) definitely true___ b) true___ c) not true___ d) definitely not true___

32. I sometimes think when people have a misfortune they only got what they deserved.

a) definitely true___ b) true___ c) not true___ d) definitely not true___

33. I have never deliberately said something that hurt someone's feelings.

a) definitely true___ b) true___ c) not true___ d) definitely not true__

ADDENDUM E

IMPACT OF EVENTS SCALE

During the period of _____ to _____ you experienced combat in the Vietnam War.

Below is a list of comments made by people after stressful life events. Please CHECK EACH ITEM ( ), indicating if these comments were true for you DURING THE PAST SEVEN DAYS. If they did not occur during that time, please mark the "not at all" category.

During the last 7 days:

1. I thought about Vietnam when I did not mean to.

a) not at all___ b) rarely___ c) sometimes___ d) often___

2. I avoided letting myself get upset when I thought about Vietnam or was reminded of it.

a) not at all___ b) rarely___ c) sometimes___ d) often___

3. I tried to remove Vietnam from my memory.

a) not at all___ b) rarely___ c) sometimes___ d) often___

During the last 7 days:

4. I had trouble falling asleep or staying asleep.

a) not at all___ b) rarely___ c) sometimes___ d) often___

5. I had waves of strong feelings about Vietnam.

a) not at all___ b) rarely___) c) sometimes___ d) often___

6. I had dreams about Vietnam.

a) not at all___ b) rarely___ c) sometimes___ d) often___

During the last 7 days:

7. I stayed away from reminders of Vietnam.

a) not at all___ b) rarely___ c) sometimes___ d) often___

8. I felt as if Vietnam hadn't happened or it wasn't real.

a) not at all___ b) rarely___ c) sometimes___ d) often___

9. I tried not to talk about Vietnam.

a) not at all___ b) rarely___ c) sometimes___ d) often___

During the last 7 days:

10. Pictures about Vietnam popped into my mind.

a) not at all___ b) rarely___ c) sometimes___ d) often___

11. Other things kept making me think about Vietnam.

a) not at all___ b) rarely___ c) sometimes___ d) often___

12. I was aware that I still had a lot of feelings about Vietnam but I didn't deal with them.

a) not at all___ b) rarely___ c) sometimes___ d) often___

During the last 7 days:

13. I tried not to think about Vietnam.

a) not at all___ b) rarely___ c) sometimes___ d) often___

14. Any reminder brought back feelings about Vietnam.

a) not at all___ b) rarely___ c) sometimes___ d) often___

15. My feelings about Vietnam were kind of numb.

a) not at all___ b) rarely___ c) sometimes___ d) often__

ADDENDUM F

COMBAT SCALE

Please indicate if any of the followig combat-related experiences happened to you while serving in Vietnam by placing a check mark ( ) next to those incidences that happened to you:

	Check Here:	YES	NO
1.	In an artillery unit which fired on the enemy.	( )	( )
2.	Flew in an aircraft over Vietnam.	( )	( )
3.	Stationed at a forward observation post.	( )	( )
4.	Received incoming fire.	( )	( )
5.	Encountered mines and boobytraps.	( )	( )
6.	Received sniper or sapperfire.	( )	( )
7.	Unit patrol was ambushed.	( )	( )
8.	Engaged VC in a firefight and/or engaged NVA in a firefight.	( )	( )
9.	Saw Americans killed and/or saw Vietnamese killed.	( )	( )
10.	Was wounded.	( )	( )

Total: _____

ADDENDUM G

LIFE EVENTS INVENTORY

Please indicate which of the following events have happened to you within the past one year by placing a check mark ( ) under th "yes" column if the event has happened to you within the past year. If the event has not happened to you within the past year place a check mark ( ) under the "no" column for the event.

	YES	NO
1. Unemployment (of head of household)	___	___
2. Trouble with superiors at work	___	___
3. New Job in the same line of work	___	___
4. New job in new line of work	___	___
5. Change in hours or conditions in present job	___	___
6. Promotion of change of responsibilities at work	___	___
7. Retirement	___	___
8. Moving house (meaning where you live)	___	___
9. Purchasing own house (taking out a mortgage)	___	___
10. New neighbors	___	___
11. Quarrel with neighbors	___	___
12. Income increased substantially (by 25%)	___	___
13. Income decreased substantially (by 25%)	___	___

	YES	NO
14. Getting into debt beyond means of repayment	___	___
15. Going on vacation	___	___
16. Conviction for minor violation (e.g. speeding or drunkenness)	___	___
17. Jail sentence	___	___
18. Involvement in fight	___	___
19. Immediate family member starts drinking heavily	___	___
20. Immediate family member attempts suicide	___	__
21. Immediate family member sent to prison	___	___
22. Death of immediate family member	___	___
23. Death of close friend	___	___
24. Immediate family member seriously ill	___	___
25. Gain of new family member (immediate)	___	___
26. Problems rlated to alcohol or drugs	___	___
27. Serious restriction of social life	___	___
28. Period of homelessness (no place to stay)	___	___
29. Serious physical illness or injury requiring hospital treatment	___	___
30. Prolonged ill health requiring treatment by own doctor	___	___
31. Sudden and serious impairment of vision or hearing	___	___
32. Miscarriage	___	___
33. Sex difficulties	___	___

SECTION II: (Ever married only--skip this part if you have never been married)

	YES	NO
36. Marriage	___	___
37. Pregnancy (of wife)	___	___
38. Increase in number or arguments with spouse	___	___
39. Increase in number or arguments with other immediate family (such as children)	___	___
40. Trouble with other relatives (such as in-laws)	___	___
41. Son or daughter left home	___	___
42. Children in the care of others	___	___
43. Trouble or behavior problems with your own children	___	___
44. Death of spouse	___	___
45. Divorce	___	__
46. Marital separation	___	___
47. Extra-marital sexual affair	___	___
48. Break-up of affair	___	___
49. Infidelity of spouse	___	___
50. Marital reconciliation	___	___
51. Wife begins or stops work	___	___

SECTION III: (Fill this section out only if you have never been married)

	YES	NO
52. Break-up with stead boy or girlfriend	___	___
53. Problems related to sexual relationship	___	___
54. Increase in number of family arguments (such as with parents)	___	___
55. Break-up of family	___	__

ADDENDUM I

SOCIAL SUPPORT QUESTIONNAIRE

Please answer the questions in SECTION A with a check mark ( ) in the appropriate space. SECTION B will be filled out in the presence of the researcher; therefore, leave SECTION B blank for now.

SECTION A

1. During your first year after returning from Vietnam, with whom did you live? (may indicate more than one)

a) alone___ e) girlfriend___

b) parents___ f) wife___

c) brother___ g) friend(s)___

d) sister___ h) other

(explain)_____

2. During your first year of return from Vietnam, did you talk with anyone about your experiences in Vietnam?

a) yes___ b) no___

3. If yes to #2, with whom did you talk? (may indicate more than one)

a) mother___ e) no one___ i) Vietnam veterans___

b) father___ f) girlfriend___ j) older veterans___

c) brother___ g) wife___ k) minister/clergy___

d) sister___ h) friends___ l) co-workers___

4. Did you ask anyone for advice during the first year that you returned from Vietnam?

a) yes___ b) no___

If you answered "yes", what people from #3 did you ask advice of?

---

5. Did you spend time with anyone during the first year that you returned from Vietnam?

a) yes___ b) no___

If you answered "yes," what people from #3 did you spend time with?

---

6. Did you feel close to anyone during the first year that you returned from Vietnam?

a) yes___ b) no___

If you answered "yes," what people from #3 did you feel close to?

SECTION B

Make a list of the people you considered important to you when you first returned from Vietnam.

1._____ 8._____

2._____ 9._____

3._____ 10._____

4._____ 11._____

5._____ 12._____

6._____ 13._____

7._____ 14._____

Now with each person you listed as important to you during the first year that you returned from Vietnam, please rate your reltationship with each of them on the following factors:

1. Degree of contact (meaning how often you had any kind of contact through letters, phone calls, face-to-face, etc.)

2. How important (meaning the value of investment you had in the relationship)

3. Helpfulness (how much you could count on that person for concrete help, like borrowing money, car, a place to stay, etc.)

4. Sharing (meaning a mutual sharing of experiences and thoughts)

5. Good or bad feelings (meaning the kind of emotion you had toward that person when you first returned from Vietnam)

1. Person: _____

Check one line for each category.

	Very little	Little	Some	A Lot
a. contact:	_____	_____	_____	_____
b. how important:	_____	_____	_____	_____
c. helpfulness:	_____	_____	_____	_____
d. sharing:	_____	_____	_____	_____

e. good/bad feeling:

bad___ mildly bad___ mildly good___ good___

2. Person: _____

Check one line for each category.

	Very little	Little	Some	A Lot
a. contact:	_____	_____	_____	_____
b. how important:	_____	_____	_____	_____
c. helpfulness:	_____	_____	_____	_____
d. sharing:	_____	_____	_____	_____

e. good/bad feeling:

bad___ mildly bad___ mildly good_____ good_____

3. Person: _____

Check one line for each category.

	Very little	Little	Some	A Lot
a. contact:	_____	_____	_____	_____
b. how important:	_____	_____	_____	_____
c. helpfulness:	_____	_____	_____	_____
d. sharing:	_____	_____	_____	_____

e. good/bad feeling:

bad___ mildly bad___ mildly good___ good___

4. Person: _____

Check one line for each category.

	Very little	Little	Some	A Lot
a. contact:	_____	_____	_____	_____
b. how important	_____	_____	_____	_____
c. helpfulness:	_____	_____	_____	_____
d. sharing:	_____	_____	_____	_____

e. good/bad feeling;

bad___ mildly bad___ mildly good___ good__

ADDENDUM I

MILITARY HISTORY

Please answer the following questions regarding your military experiences. Place a check mark ( ) on the appropriate line. Where a longer response is required, write clearly.

1. How old were you when you first entered the service?

   a) 18 years or under___ b) 19 to 21 years___

   c) 22 to 25 years___ d) 26 to 30 years___

   e) 31 years or older___

2. When you first joined the service, were you:

   a) drafted___ b) volunteered___

3. If you answered "enlisted" to the above question, was it because you thought you would be drafted anyway?

   a) yes___ b) no___

4. For how long were you in the service on your first tour?

   (check only one)

   a) did not complete tour___ b) two years or less___

   c) three years or less___ d) four years or less___

5. Did you ever reenlist in the service?

a) yes___ b) no___

6. Did you ever serve more than one tour in Vietnam?

a) yes___ b) no___

7. If you did reenlist, what were your total years of military service?

(skip this question if you did not reenlist)

a) 4 years or less___ b) 4 to 6 years___

c) 6 to 8 years___ d) 8 to 10 years___

e) 10 years or more___

8. What was/were the year(s) of your tour(s) in Vietnam?

---

9. What was your rank in the service upon discharge?

---

10. What was your MOS during your tour in Vietnam?

(What was your job or mission?)

---

11. Did you have any disciplinary action(s) against you while you were in the service?

a) yes___ b) no___

12. If you answered yes to #11 above, what type(s) of disciplinary action was taken against you? (skip this question if you answered "no" to #11)

a) article 15___ b) court martial___

c) other

(explain)_____

_____

13. What was the nature of your discharge from the service at the time that you were discharged?

a) honorable___ b) dishonorable___ c) general___

14. While in Vietnam, were you primarily in a support or combat unit? (check the kind of unit you were in most of the time)

a) combat___ b) support___

15. What unit(s) were you

in? _____

_____

16. Were you in the same unit during your entire tour in Vietnam?

a) yes___ b) no___

17. Did you ever talk to any social worker, psychologist, and/or psychiatrist while in Vietnam?

a) yes___ b) no___

18. If yes to #17, how many times did you talk to this person about your experiences or concerns?

a) once___ b) 2 to 4 times___ c) 5 or more times___

19. Did you ever smoke marijuana or hash while in Vietnam?

a) yes___ b) no___

20. If yes to #19, did you use it (check only one)

a) once per week___

b) twice per week___

c) 3 or more times per week___

d) once per month___

e) twice per month___

f) 3 or more times per month___

21. Did you use any other drugs while in Vietnam?

a) yes___ b) no___

22. If yes to # 21, please indicate which other drugs you used while in Vietnam: (may indicate more than one)

a) speed/amphetamines___

b) downers/tranquilizers/binoctal___

c) LSD/mescaline/hallucinogens___

d) opium___

e) heroin___

f) other

(explain)_____

23. Did you drink alcohol while in Vietnam?

a) yes___ b) no___

24. If yes to #23, please indicate the drinking pattern that most describes you while in Vietnam: (check only one--drinks refers to a 12 oz glass of beer, one glass of wine, or one shot of liquor)

a) 0-2 drinks per day___

b) 3-5 drinks per day___

c) 6-12 drinks per day___

d) 0-2 drinks per week___

e) 3-5 drinks per week___

f) 6-12 drinks per week___

g) other (please

explain)_____

25. Were you ever in a combat situation in Vietnam where you felt that you let your buddies down?

a) yes___ b) no___

26. If yes to #25, how much did this bother you than?

a) a little___ b) somewhat___ c) a lot___

27. Does this still bother you now?

a) a little___ b) somewhat___ c) a lot___

28. Did your father serve in the armed forces?

a) yes___ b) no___

29. If yes to #28, was he a combat veteran?

a) yes___ b) no__

ADDENDUM J

PRE-SERVICE SOCIAL HISTORY

Please answer the following questions about your life prior to going to Vietnam. Place a check mark ( ) on the appropriate line. Where a different response is required, please print.

Family History:

1. Who raised you from birth to age 18? (Indicate only one)

   a) both parents___ d) grandparents___

   b) mother___ e) other (specify)_____

   c) father___

2. How many brothers and sisters did you have not counting yourself?

   a) only child___

   b) one___ e) four___

   c) two___ f) five___

   d) three___ g) six or more___

3. Are you the oldest child in your family?

   a) yes___ b) no___

4. Did your parents separate and/or divorce during the time that you lived at home?

   a) yes___ b) no___

5. Did either of your parents die during the time that you lived at home?

a) yes___ b) no___

6. Did your mother drink excessively, in your opinion, when you lived at home?

a) yes___ b) no___

7. Did your father drink excessively, in your opinion, when you lived at home?

a) yes___ b) no___

6. Did any member of your immediate family have mental, emotional, or nervous problems during the time that you lived at home?

a) yes___ b) no___ c) don't know___

7. Was the head of the household, when you were growing up, unemployed more than once?

a) yes___ b) no___ c) don't remember___

8. Did any member of your immediate family have drug or alcohol problems during the time that you lived at home?

a) yes___ b) no___ c) don't know___

9. Were there ever any social services or community agencies involved with your family while you were growing up, such as children's Protective Services or Big Brothers of Big Sister's?

a) yes___ b) no___ c) don't know___

If yes, please name the agency and the service it provided to you and your

family:_____

10. How many times did you move and have to start up at a new school during the time that you grew up in your originial family?

a)none___b) once___c) twice___d) three or more times___e) don't know___

11. Were these moves hard for you in terms of making a new adjustment (such a making new friends, getting comfortable at the new school)?

a) yes___ b) no___ c) don't remember___

Employment History:

12. Did you earn money at a job prior to entering the service?

a) yes___ b) no___

13. Were you ever fired (not laid off) from any job prior to entering the service?

a) yes___ b) no___

School History:

14. What is the last grade you completed prior to entering the service?

(indicate the grade here)_____

15. Did you ever repeat a grade for any reason?

a) yes___ b) no___ c) don't remember___

16. Were you ever suspended from school (made to temporarily leave school for disciplinary reasons)?

a) yes___ b) no___ c) don't remember___

17. Were you ever expelled from school (made to permanently leave school for disciplinary reasons)?

a) yes___ b) no___ c) don't remember___

18. How would you describe your grades from kindergarten through eigth grade?

a) below average___ b) average___ c) above average___

d) excellent___ e) don't remember___

19. How would you describe your grades from grade nine on up?

a) below average___ b) average___ c) above average___

d) excellent___ e) don't remember___ f)quite school before 9th grade___

Legal History:

20. Were you ever involved in juvenile pranks during your childhood or teenage years without being caught (such as shoplifting, stealing, damaging or ruining property)?

a) yes___ b) no___ c) don't remember___

21. Were you ever arrested prior to entering the service?

a) yes___ b) no___ c) don't remember___

22. Were you ever involved with the juvenile court system prior to entering the service?

a) yes___ b) no___ c) don't remember___

Relationship History:

23. When you were growing up, do you remember having one supportive adult that you felt cared about you in your home? (such as a mother, father, grandparent, aunt, uncle, etc.)

a) yes___ b) no___ c) don't remember___

24. Did you have at least one close friend in grade school?

a) yes___ b) no___ c) don't remember___

25. Did you have at least one close friend in your teenage years?

a) yes___ b) no___ c) don't remember___

26. When you were in your teenage years, how much time do you think you spent with your friends?

a) not much___ b) some___ c) a lot___ d) all the time___

27. Did you get involved in any activities like sports, clubs, or student organizations, (such as boy scouts, soft ball, etc.), as a teenager?

a) yes___ b) no___ c) don't remember___

28. Did you have an important or significant relationship (such as going steady, engaged, living together or married) that broke up prior to going to Vietnam that was real upsetting or hard on you?

a) yes___ b) no___

29. Did you have an important or significant relationship (such as going steady, engaged, living together or married) that broke up while you were in Vietnam that was real upsetting or hard on you?

a) yes___ b) no___

30. Did you have an important or significant relationship (such as going steady, engaged, living together or married) that broke up within the first two years that you returned from Vietnam that was real upsetting or hard on you?

a) yes___ b) no___

Drug and Alcohol History:

31. Did you drink regularly prior to entering the service?

a) yes___ b) no___ c) other (please explain)_____

32. Prior to going to Vietnam, did you ever have a car accident, get into physical fights, or get into legal trouble while drunk of under the influence of alcohol?

a) yes___ b) no___

33. Please check the amount of drinking that most fit your common use of alcohol prior to entering the service: (check only one--drinks refers to 12oz. glass of beer, one glass of wine, or a drink with 1oz of liquor)

a) never drank prior to entering the service___

b) 0-2 drinks per day___

c) 3-5 drinks per day___

d) 6-12 drinks per day___

e) 0-2 drinks per week___

f) 3-5 drinks per week___

g) 6-12 drinks per week___

h) other (please explain)_____

34. Did you use any drugs without a perscription, illegal drugs, or "street" drugs prior to entering the service?

a) yes___ b) no___

35. Prior to entering the service, did you use marijuana: (check only one)

a) never___

b) once per month___

c) two to four times per month___

d) other (please explain):_____

36. Please check the other drugs you may have used prior to entering the service and indicate how often you used them per month:

a) speed/amphetamines___ How often?_____

b) downers/tranquilizers___ How often?_____

c) LSD/Hallucinogens, etc.___ How often?_____

d) heroin___ How often?_____

e) others (describe)_____

How often?_____

f) never used any drugs____

Mental Health History:

37. Prior to entering the service, did you ever have any of the following problems: (check the problems that you felt you had)

a) loneliness___

b) depression___

c) nerves/anxiety___

d) drugs and/or alcohol___

e) family problems___

f) other (please explain)_____

g) never had any of these problems___

38. Did you ever talk to a school counselor, teacher, minister, physician, and/or mental health professional about having any of the above-mentioned problems?

a) yes___ b) no___ c) never had any of those problems___

ADDENDUM K

SIGNIFICANT OTHER QUESTIONNAIRE

Date: _____

Your Name: _____

Veteran's Name: _____

PLEASE CHECK ( ) THE APPROPRIATE LINE TO THE FOLLOWING QUESTIONS

1. What is your relationship to the person listed above? (check only one)

a) mother___ d) sister___ g) wife___

b) father___ e) friend___ h) minister___

c) brother___ f) girlfriend___ i) other___

2. How well did you know the person listed above during his adolescent years?

a) a little___ b) somewhat___ c) a lot___

d) very well___

3.* Who spent the most time raising him from birth to the age of 18? (check only one)

a) both parents___ b) mother___ c) father___

d) grandparents___ e) other___

4.* What grade of school did he complete prior to going into the service?

a) did not finish high school___ b) high school graduate___

c) some college___ d) college graduate___

e) beyond the bachelor degree___

5.* Did he have at least one close friend during his teenage years?

a) yes___ b) no___ c) don't know___

6. Was he involved in any outside-of-school activities, such as sports, clubs, plays, school newspapers, etc.?

a) yes___ b) no___ c) don't know___

7.* Was he ever arrested prior to entering the service?

a) yes___ b) no___ c) don't know___

8.* Prior to going entering the service, did he ever have a car accident, get into physical fights, or get into legal trouble while drunk or under the influence of alcohol?

a) yes___ b) no___ c) don't know___

APPENDIX L

SUBJECT CONSENT TO SIGNIFICANT OTHER

Date:

I, _____, give my permission for the primary researcher, Ms. Monica Green, to contact _____. I have designated the above-named person as a "significant other" who knew me well prior to the time that I went to Vietnam and immediately upon my return from Vietnam.

I give my permission for the researcher to request information of my "significant other" regarding my life before and after returning from Vietnam. I understand that the researcher will send questionnaires to be completed by the designated person and may contact this person by telephone as well and discuss this information with them. This consent form also serves as my consent for _____ to answer and return the questionnaires to Monica Green for the purposes for this research.

_____ _____

Subject's Signature Date

_____ _____

Researcher's Signature Date

_____ _____

Witness's Signature Date

ADDENDUM L1

SIGNIFICANT OTHER LETTER

Date:

Dear _____:

Mr. _____ has given your name as someone who knew him well during his teenage years and during the time when he first returned from military service in Vietnam.

He has volunteered to participate in a research study designed to give us more information on how to help Vietnam veterans who have been adjusting since they returned from Vietnam.

I am asking your help in completing this study, which may eventually help Vietnam veterans. Please notice that the veteran who is taking part in this study has signed the enclosed form giving permission for you to fill out the questionnaire on his experiences.

The information you provide will only be used for research purposes and will be treated as confidential. Only the primary researcher will have access to the information which you provide. To assure further confidentiality, the peel-off tape with this person's name on it will be removed when you return the completed questionnaire. A code number will be inserted for the person's name.

The information you provide is confidential. It will not be passed on to any other individual(s) or agency(s) inside or outside of the VA health care system. It will not be shown to the veteran unless he requests in writing to see the completed questionnaire.

Thanks so much for your time and effort in completing this questionnaire. If you hve questions or concerns about completing the attached form and wish to talk with the primary researcher before doing so, please call Monica Green at (313) 769-7100, ext ___.

Sincerely,

Monica A. Green, M.A.

Primary Research Investigator