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POSTTRAUMATIC STRESS DISORDER: AN ASSESSMENT OF HOSTILITY AND ANGER IN THE VIETNAM VETERAN

By

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ABSTRACT

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The purpose of this study was to examine the direction, focus, and intensity of the anger and hostility currently being experienced by Vietnam combat veterans with a diagnosis of Posttraumatic Stress Disorder. It was hypothesized that those with a diagnosis of Posttraumatic Stress Disorder would report more angry and hostile feelings than those with other clinical diagnoses. In addition, it was hypothesized that depression would be a significant symptom associated with Vietnam combat veterans. This study sought to clarify differences between an inpatient and outpatient population of Vietnam combat veterans. It was hypothesized that inpatients would be experiencing a greater degree of psychological dysfunction than the oupatient population.

The sample was drawn from a population of veterans who had some form of Veterans Administration contact. Subjects were Vietnam-era veterans having served in the armed forces between 1964 and 1975. They were volunteers randomly drawn from either an inpatient or an outpatient population. Volunteers completed the Minnesota

Multiphasic Personality Inventory, the Beck Depression Inventory, the Buss-Durkee Hostility Inventory, the Problem Checklist, and a short demographic form. A total of 120 veterans participated in the study.

Results supported the hypotheses presented. Overall, the combat group with a PTSD diagnosis reported significantly higher degrees of anger and hostility. They also reported having current difficulties with depression, guilt, anxiety, suspiciousness, and social isolation. Employment related problems and criminal justice contact were also concerns of veterans experiencing PTSD symptoms. Differences between inpatients and outpatients with a diagnosis of PTSD were less clear. In general, inpatients and outpatients reported experiencing similar life difficulties, but as predicted the inpatient group was experiencing greater degrees of difficulty. The problems of generalizability of results and accuracy of self-report questionnaires were addressed.

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Chapter I

INTRODUCTION

The Vietnam War was the longest and costliest war in United States history. Approximately nine million Americans were in the armed forces during the course of the war. Four million Americans were stationed in Indochina and about two million were assigned to the combat zone. It is these two million soldiers, and other military personnel, who are at very high risk for developing combat related Posttraumatic Stress Disorder (PTSD) (Lipkin et al., 1982). Yesavage (1983) estimated that the prevalence of PTSD and other related serious psychological disturbances in Vietnam veterans to be anywhere from 20% to 60%. Walker (1981) believed that the correct figure for those with symptoms of PTSD to be at least 1.5 million and that in the next few years reported cases would increase. In fact, this is what has occurred.

Posttraumatic Stress Disorder was included as a new diagnostic category in the Diagnostic and Statistical Manual of Mental Disorders, Third Edition (DSM-III, 1980). According to the recently revised version, the Diagnostic and Statistical Manual of Mental Disorders, DSM-III-R

(DSM-III-R, 1987), any traumatic event that is out of the realm of ordinary human experience such as natural disasters, rape, robbery, and war can cause PTSD symptoms. The disorder requires the following four criteria in order to be diagnosed: (1) the historical antedecent of a traumatic event; (2) a re-experiencing of the event through intrusive memories, dreams, or associations; (3) a decline in involvement with the environment by loss of interest in significant activities, distancing from others, or reduced affect; and (4) two other symptoms that were not present before the trauma including difficulty falling or staying asleep, irritability, difficulty concentrating, hypervigilance, exaggerated startle response, and re-experiencing of the event upon exposure to events that symbolize or resemble the traumatic event (DSM-III-R, 1987).

Even though there have been books and articles on the subject, many researchers (Blum et al., 1984; Lewis, 1975; Silver & Iacono, 1984; Strayer & Ellenhorn, 1975) believe that the hostile and angry feelings of the Vietnam combat veteran still need to be adequately addressed in the diagnosis, treatment, and understanding of PTSD. Research has pointed towards these symptoms as being important with the veteran population, as well as with other trauma victims. Even though there are many theories and case histories that try to explain the anger of the Vietnam

combat veteran, there have not been any well controlled nor psychometrically based studies which specifically address this most important issue.

In order for the veteran to recover from the horrors of war, it is deemed important for all their symptoms to be adequately addressed in diagnosis and treatment. The main purpose of this research was, therefore, to assess in Vietnam combat veterans the nature, extent, and severity of angry and hostile feelings. The relationship of these feelings to other symptoms of PTSD were assessed.

Vietnam-era veterans with and without a diagnosis of PTSD were included in this study. These veterans completed the following questionnaires: the Minnesota Multiphasic Personality Inventory (MMPI), the Beck Depression Inventory (BDI), the Buss-Durkee Hostility Inventory (BDHI), and the Problem Checklist (PC).

It was hypothesized that veterans with a diagnosis of PTSD would report, on the above mentioned questionnaires, significantly more PTSD symptoms, depression, and anxiety than veterans not so diagnosed. It was also hypothesized that those with a diagnosis of PTSD would report more angry and hostile feelings than those without a diagnosis of PTSD on the PC, the BDHI, and the Hostility (HOS), the Overcontrolled hostility (O-H), and the Hostility Control (Hc) scales of the MMPI. And finally, it was also expected to find that the angry and hostile feelings that

were reported on the PC, the BDHI, the HOS, the Hc, and the O-H would be significantly related to the symptoms of depression, guilt, and anxiety in both groups, but significantly more in the PTSD group.

The veterans were drawn from both an inpatient and outpatient population. Past research has dealt with either an inpatient, an outpatient or a combined inpatient and oupatient population of veterans. It has also combined both populations indiscriminately.

Part of this study, therefore, was to clarify any possible differences that may exist between the two groups. It was hypothesized that there would be significant overall differences, on the previously mentioned scales, between the inpatient and outpatient PTSD groups. However, it was hypothesized that the outpatient PTSD population would report, on the hostility scales mentioned above, more specific targets for their angry and hostile feelings than the inpatient PTSD group. It was also hypothesized that the inpatient PTSD group would have more inwardly directed hostile feelings than the outpatient PTSD group.

Chapter II

LITERATURE REVIEW

As mentioned in the introduction, over 1 million combat veterans of the Vietnam War may have symptoms of PTSD. Initially it was believed that Vietnam veterans had a lower incidence of psychiatric symptoms (1.2%) (Bourne, 1969) than among World War II veterans (23%) (Goodwin, 1980). This was partially due to symptoms related to PTSD developing in many veterans several years after their discharge from the service. In fact, reported cases of PTSD did not increase until the late 1970's and early 1980's.

Theories of Etiology

Many theories have been proposed as to why the disorder is so distinctive and pervasive among Vietnam veterans. Brende (1983) believed that part of the problem could be attributed to the average enlistment age of the Vietnam veteran (19.6 years) as compared to the average age of the World War II veteran (26 years). Brende reported that the separation from home, and the traumatic events which followed, disrupted the normal path of psychological development in the young and immature American soldier. This was in contrast to the World War

II soldier who was much more psychologically mature when confronted with separation, violence, and death. According to Brende, this maturity served to protect the World War II veteran from longterm psychological difficulties.

Others pointed to the abrupt and individualistic way the Vietnam veteran was trained and discharged (Frye & Stockton, 1982). Oftentimes the veteran was not transported to Vietnam with the unit of men with which he trained. In fact, many were shipped individually to Vietnam aboard commercial jets. Walker and Cavenar (1982) felt that this resulted in a lack of unit morale and identification. This method also led to lonely and vulnerable feelings. Developing a sense of belonging took many months and when that bond developed between soldiers, it was time to leave for home. Walker and Cavenar also reported that this procedure resulted in the goal of the soldier to be one of survival rather than one of winning.

When his enlistment ended, he usually returned to civilian life within 1 week. Many report being back at home within forty-eight hours. This can be contrasted to World War II veterans who both trained and served in units. When they were released from combat duty they spent weeks, sometimes months, in declassification together before being back in civilian clothes. In

Vietnam, soldiers were transported from a land of violence and uncertainty to home with family and friends. There was little opportunity to develop a support system within the community or with other vets. Many veterans report being shunned by other veterans and veteran organizations such as the Veterans Of Foreign Wars (VFW). Because of their abrupt return to their communities, the veteran had little time to discuss with other soldiers their experiences and feelings.

Many veterans report being asked by civilians about the war. Many Vietnam veterans felt that civilians couldn't understand the war and so avoided discussing their experiences. Since there were no organizations for them to discuss their difficulties, they harbored their feelings until they could no longer do so.

According to Blum et al. (1984), another contributing factor to the current high rate of PTSD was the rejection and ostracism experienced after returning home. Many of the men who entered the service were outgoing, mature, and trusting individuals (Lewis, 1975). It has been reported that during their time in Vietnam, the American soldier bore up very well psychologically as compared to American soldiers in other wars. The Vietnam veteran assumed that when they returned from war, they would be accepted and praised for their contributions to freedom and the American way of life. This did not occur. Lewis (1975)

thought their unrealistic expectations often led them to distrust and feel angry towards the civilian population.

Many veterans felt extreme alienation on their return stateside (Strayer & Ellenhorn, 1975). The divided sentiment at home was very confusing to the returning veteran (Figley and Leventman, 1980). The veteran returned to a country rejecting his war and his sacrifices. He had no way to justify his part in the war. There were no cheering crowds as there were for veterans of other wars. As one veteran commented (in Strayer & Ellenhorn, 1975):

> "Understand me, man, I went in as GI Joe, hot to save America from the Communists. I spent 11 months in Nam and got the Bronze Star. Now I'm back and I find I've been had. I've got no job and I'm nobody's hero. Sure I'm bitter. Shouldn't I be?" (p.81)

The type of warfare and the way it was strategically conducted by superiors has also been hypothesized to be leading causes of the high rate of PTSD in Vietnam veterans. ~~Vietnam was almost totally a guerrilla war~~, with the enemy frequently going unseen. ~~Due to the ever present dangers of guerrilla warfare, the soldier became~~ ~~hyperalert~~. In addition, many veterans felt that they could not trust the Vietnamese people nor their Vietnamese allies in arms. Even children were not to be trusted.

Sleep was reduced to a bare minimum. Land was captured from the enemy, only to be abandoned and then recaptured at some later time. Many were lost fighting for the same terrain that was earlier captured and then abandoned. Many Vietnam veterans expressed dissatisfaction with their immediate superiors and with the way the war was handled in general (Williams, 1980). These factors, plus the experience of killing other human beings, or witnessing comrades and civilians being killed or mutilated, were extremely traumatic.

Postservice Difficulties

Whatever the cause or causes of PTSD, it is a very devastating and debilitating disorder. According to Lipkin et al. (1982), PTSD produces the following alterations in the course of the veteran's life: (1) chronic underachieving and instability in education or work; the veteran finds himself settling for less, for the dullness that he for so long desired while in combat, (2) a wandering lifestyle - going from job to job, school to school, drifting without progressing toward any goal, and (3) an antisocial criminal acting out that is primarily a result not of pre-existing criminality, but of the stress experienced.

The Vietnam combat veteran's interpersonal relationships have also been affected. The percentage of divorces among veterans is higher than in the general

population. This may be due to their difficulties in achieving intimacy with a significant other (Lipkin et al., 1982). According to Lipkin et al., they also have trouble relating to their own or other children. These authors stated that this has been traced to the veteran's hearing, seeing, or even personally hurting or killing Vietnamese children.

The incidence of substance abuse among Vietnam veterans has also been reported to be higher than the general population (Brende & Parson, 1985; Nace et al., 1978; Penk et al., 1981). Even before the veteran returned home from combat there were many concerns regarding the reported high use of drugs overseas. An early report by Postel (1968) reported that fifty-six per cent of his psychiatric population used marijuana in Vietnam. Heroin and alcohol abuse has also been mentioned as problems (Baker, 1971; Nace et al., 1978; Brende & Parson, 1985). There were fears that as the veteran returned home these addictions would continue. Robins (1974) and Nace et al. (1978) found evidence to the contrary. A review of their articles indicates a continued dependence on substances only by those veterans who were suffering negative affects from the war.

At first when this high substance abuse rate was being reported, various explanations were proposed. One explanation was that there was an endless supply of highly

purified and inexpensive heroin (Baker, 1971). This was reported to be true of various types of drugs. This endless supply theory coupled with the relatively young age of the American soldier far from home were argued as being the major causes for the epidemic proportions of soldiers abusing drugs.

Others pointed towards personality characteristics as being the reason for substance abuse. Bey and Zecchinelli (1971) believed that the soldier that was abusing drugs was doing so to cope with identity diffusion, low self-esteem, ego weakness, and shallow object relationships. They disregarded the high levels of stress, life threatening situations, death, bereavement, etc., as being possible contributory factors.

It was only until several years later that mental health workers and researchers began to realize that veterans have used substances in futile attempts at self-medication. Lacoursiere, Godfrey, and Ruby (1980) stated that "The acute administration of alcohol relieves many of the symptoms of classical traumatic neurosis" (p.966). Some persons suffering from PTSD have realized that alcohol, and other drugs such as minor tranquilizers, marijuana, and barbituates, relax them and help them to sleep at night. This use of drugs to alleviate symptoms only leads to a vicious cycle with increased tolerance and dependence on the drug of choice. Chronic

use of substances only leads to the exacerbation of the symptoms (Brende & Parson, 1985; Lacoursiere, Godfrey, and Ruby, 1980; Penk et al., 1981). Brende and Parson found that veterans who used alcohol as self-medication reported more problems with intrusive images and unpleasant memories than those who didn't. The authors also noted aggressive outbursts were also more common with those who used alcohol. Drug abuse, therefore, remains a problem for many veterans which eventually effects their personal, social, and employment situations.

Veterans report being very disenchanted and suspicious of any agency that is connected with the government they felt betrayed them (Williams, 1980). Many currently feel that they were not given the help needed at the time they required it and so they are against receiving such help today. Blum and associates (1984) reported that Vietnam veterans were disenchanted with the Veterans Administration (VA). One of the most common complaints by the veterans that Blum et al. interviewed was that the VA was insensitive to the needs of the Vietnam veteran.

The veteran, in general, feels alienated and detached from the natural processes of adulthood such as marriage, children, career, and social and political affiliations. This disruption of the maturation process eventually leads to a loss of social and vocational effectiveness. Brende

and Lipkin et al. noted that the veteran who abused drugs seemed "stuck" at the age they were when they were in the service. For many veterans trying to cope with the horrors of war, the use of drugs for self-medication purposes has been detrimental to their attempt at resocialization.

Comparison of Vietnam Veterans to Those of Previous Wars

As stated above, the Vietnam conflict was regarded as a unique war. However, there have been attempts at comparing and contrasting the Vietnam experience with other wars the United States has been involved with in the past. In this section, an attempt will be made to discuss the major findings in this area.

Comparison with World War II veterans. Greenson (1945) described three types of neuroses in World War II veterans resulting from traumatic war experiences which are similar to PTSD in Vietnam veterans. The first he termed a danger-anxiety type, the symptoms of which included startle reactions, nervous trembling, insomnia, and recurrent battle dreams. The second type had symptoms of apathy, submissiveness, and resignation. The final type that Greenson discussed is a guilt laden type. These were the veterans who were very aggressive both during and following combat. Greenson theorized that their aggressiveness was a means of covering their underlying guilt feelings.

Menninger (1946) described the same type of identity change occurring in the World War II soldier as was descibed above with the Vietnam soldier. Menninger reported that the soldier had to give up his identity as an individual and become the member of a team. According to Menninger, this team unity, with the leaders serving as father figures, served to give them permission to kill their enemies. This killing behavior, which was so antithetical in their preservice life, became condoned by the father figure and their society as a whole. According to Menninger, the resultant guilt was shared by the group. This gave the World War II soldier, who was usually in the battle field longer than the Vietnam soldier, a psychological protection which enabled them to go on performing their duty. Ironically, this supposed shared guilt and condoning of killing may have led to greater psychological damage to the World War II soldier than should have been allowed.

Menninger theorized that posttraumatic stress disorder was due to a combination of traumatic events, varying degrees of soldier predisposition, the peculiar psychological setting of the armed services, and the occurrence of a particular event which precipitates the incapacitating results. Menninger reported that the majority of men who developed posttraumatic symptoms were relatively normal, healthy individuals who were

placed in situations of abnormal stress. However, he couldn't quite relinquish the predisposition hypothesis when he stated that "these soldiers must have some predisposition" to developing the disorder (Menninger, 1946, p.203).

Blum et al. (1984) compared Vietnam veterans to World War II and Korean War veterans. Of the 1050 questionnaires mailed, 486 were included in their data base. They reported that the stress symptoms reported by Vietnam veterans were significantly more severe than either of the other two groups. When external adjustment was assessed, such as problems with family, friends, and employment, no significant differences between groups were found. Therefore, Vietnam veterans reported more symptoms, but did not appear to be suffering any social difficulties as a result of these symptoms. Blum and associates reported that a problem with this study was the relatively long time since the earlier wars and the difference in ages between the veterans. Another possible explanation for this difference was that World War II and Korean War veterans come from a different era where the revealing of personal psychological problems was less likely to occur.

Comparison with Korean War veterans. Thienes-Hontos and associates (1982) took exception to seeing Vietnam veterans and the Vietnam War as unique. In order to test their theory, these researchers compared the frequency of

stress-disorder symptoms reported by Vietnam and Korean veterans in hospital files. The reseachers recognized that there may have been differences in how records were kept. Therefore, the differences in frequencies of a set of non-stress-disorder "control" symptoms was compared to the frequency of stress-disorder symptoms. Twenty-nine veterans from the Korean War and 29 from the Vietnam War were included in the study.

The findings were that both groups reported virtually the same amount of stress-disorder symptoms. In addition, the same percentage of Korean War and Vietnam War veterans reported symptoms that fell into the stress-disorder category. The symptoms of constricted affect, memory impairment, and diminished interests were reported significantly more by the Korean War group than the Vietnam group. The Vietnam veterans reported more recurrent dreams. The researchers concluded that the two groups were very similar in the prevalence and nature of the stress symptoms experienced. There appear to be some problems with this study such as: a) using chart reviews, b) record keeping, c) no psychometric measures given or assessed, and d) few veterans diagnosed with PTSD (11 Korean War and 7 Vietnam War veterans).

The Experience of Traumatic Events in Other Populations

Of course combat veterans are not the only group that can develop PTSD. Anyone who experiences a traumatic life

event may do so. In an early article by Warner (1972), an elucidation of the term "traumatic" syndrome was attempted. Warner identified the common denominators of traumatic experiences to be: (1) Risk of attack or injury, (2) Danger of death and a sense of vulnerability, (3) Family separation and loss, (4) Deprivation, fatigue, hunger, exposure to the elements, torture, and economic social chaos. He further theorized that the premorbid personality, secondary gains, the presence of serious risk to self-preservation, and a reinforcing environment are all factors in the development of symptom severity. He further theorized that the defense mechanisms of wish-fulfilling hallucinations, psychic numbing or closing off, depersonalization, derealization, regression, denial, and identification guilt may be employed by the traumatized individual.

One of the earlier studies of the psychological effects on disaster victims was conducted by Raker, Wallace, and Rayner (1956). They found that victims became less efficient at home and work. Tyhurst (1957) was among the first to categorize the reactions to a disaster into the following stages: impact, recoil, and the posttraumatic period.

In a review of the literature, Krupnick and Horowitz (1981) assessed the frequency of ten themes associated with those experiencing a trauma in the case material of

30 patients with PTSD. The themes that they assessed were the following: (1) Rage at the Source; (2) Sadness Over Loss; (3) Discomfort Over Vulnerability; (4) Discomfort Over Aggressive Impulses; (5) Fear of Loss of Control Over Aggressive Impulses; (6) Guilt Over Responsibility; (7) Fear of Similarity to the Victim; (8) Rage at Those Exempted; (9) Fear of Repetition; and (10) Survivor Guilt. The patients were either those who suffered a personal loss or personal injury.

The authors found that for the bereavement cases, 80% reported Rage at the Source. This was the third most frequent theme cited. The first two were Sadness Over Loss (93%) and Discomfort Over Vulnerability (87%). In the personal injury group, Fear of Repetition and Guilt Over Responsibility were 1 and 2 while Rage at the Source was again the third most frequent theme. The authors were surprised at how frequent the theme of rage was reported in comparison to the themes of fear, sadness, and shame. The authors had expected the latter three themes to be more frequently reported in this population.

Wilson, Smith, and Johnson (1985) compared the symptoms of persons involved in rape, combat in Vietnam, serious life-threatening events, divorce, the death of a significant other, near fatal illness, family trauma, multiple traumatic events, and a control group. In order to assess the severity of the symptoms, the Impact of

Events Scale, the Beck Depression Inventory, the Stress Assessment Scale for PTSD from the Vietnam Era Stress Inventory, and the Sensation Seeking Scale were administered. The researchers sought to assess the effects of stress on the following dimensions of personality: (1) psychosocial development (Erikson, 1982) (2) psychoformative processes (Lifton, 1979); (3) learned helplessness (Seligman & Garber, 1980); and (4) cognitive processing of trauma (Horowitz, 1979).

They reported that Vietnam veterans manifest the most PTSD symptoms. The next highest level of PTSD symptoms was exhibited by rape victims. The rape victim had similar scores to the veterans on the Impact of Events Scale. However, their scores on the other scales were somewhat lower. Wilson, Smith, and Johnson concluded that "the severity of PTSD is, in part, a function of the severity of life-threat and bereavement" (1985, p.25). A further finding was that the more loss experienced, the more severe were the symptoms.

A four year follow-up of the children from Chowchilla, California who were kidnapped while on their school-bus was conducted by Terr (1983). Terr (1981) had originally studied the children immediately following the traumatic event. The children reported symptoms similar to those mentioned by Horowitz (1979) (i.e. feelings of vulnerability, unusual fears, and intrusive thoughts).

Terr found that four years later, the children still exhibited symptoms of PTSD.

Even though these other life events are traumatic, the experience of war trauma must be considered an especially severe and unique event (Pearce et al., 1985; Warner, 1972; Wilson, Smith, & Johnson, 1985). DSM-III-R acknowledges that "the symptoms are more severe and are longer lasting" (DSM-III-R, p.248) when the event is man-made, as in the case of war, as opposed to a natural disaster of some kind. Warner (1972) stated that a civilian trauma doesn't lead to the total transformation of personality and life style as does a war trauma. As reported in another section of this dissertation, veterans who experienced war related traumatic events reported more current symptoms than those veterans who experienced a non-war trauma (Pearce et al., 1985).

Wilson et al. (1985), found that Vietnam veterans had significantly more symptoms than other victims of traumatic events. The Vietnam veteran was exposed daily, and for many months, to very high levels of life threat. The veteran, even though prewarned about becoming attached to other soldiers, felt many instances of loss and bereavement. He was also at times agent and victim of the trauma. He was placed in a situation of high moral conflict. All of these factors, plus the ones mentioned previously as causes of PTSD (e.g. guerrilla warfare, lack

of support upon return, confusion as to reasons for war, being perceived as failures, etc.), serve to explain the high incidence and distinctiveness from other trauma victims.

Feelings of Anger and Hostility in the Vietnam Veteran

Many reports suggested that one of the major difficulties Vietnam veterans expressed having was in controlling their angry feelings and hostile impulses (Figley, 1978; Hyer et al., 1986; Levy, 1970; Shatan, 1978). Figley noted that rage was one of the six most common themes of the Vietnam veteran. He attributed this rage to feelings of betrayal and manipulation. He also reported that combat veterans were involved in more verbal altercations and had more frequent violent fantasies and daydreams than noncombat veterans. This was a surprising finding to Figley in that the population he assessed was composed of relatively well adjusted, affluent, and educated veterans who had returned to college.

Shatan (1978) commented that in his groups rage, and other violent impulses, was one topic of six that repeatedly surfaced. Brende and Parson (1985) noted that many veterans equate interpersonal or socially directed anger, and mental and physical violence with destroying and killing. Many secretly feared losing self-control. This may have led to a self-imposed exile in order to avoid situations where they might have become angry and

possibly acted on their service training of attacking perceived aggressors. Brende and Parsons reported that 66% suffer from aggressive outbursts, emotional detachment, and risk-taking behaviors. This same group used substances to control these symptoms. Of these, 33% used marijuana to control their aggressive outbursts.

Shatan believed that the veterans indiscriminate rageful impulses were related to the type of training received and warfare experienced. Lifton (1973) identified three different patterns of rage and violence that are related to Shatan's concept. The first of these was a habit of violence. The veteran, who was a young and impressionable young man during his enlistment in the service, had learned that violence was a quick and easy solution. The second was a pervasive feeling of betrayal. As does Figley, Shatan (1978) and Bourne (1969) theorized that their rage was not only tied to feelings of betrayal, but to feelings of manipulation. The veteran was put in a position of killing and suffering many hardships and then ignored on his return stateside. Their rage was expressed in what has been termed a "victims rage".

The last pattern identified was a rage at opening oneself up to family, friends, and acquaintances and then being rebuked. Many veterans reported people asking them naively and callously "How was it to kill someone?" One veteran reported being sent a box of dog

biscuits with a note inside calling him an animal. Others were considered murderers by family and friends. The veteran, on the other hand, feels that he was just doing his job, his duty to his country.

In a study by Strayer and Ellenhorn (1975), 40 recently discharged army veterans were assessed using a structured interview, the California F Scale, the Internal-External (I-E) Control Scale, and a sentence completion test. They found that hostility, depression, and guilt were cardinal features of those veterans experiencing severe adjustment problems. Over 40% of the veterans evaluated themselves as strongly hostile while others expressed being more angry and hostile since their combat experiences. Strayer and Ellenhorn reported that their hostility was significantly associated with the intensity of combat the veteran experienced. In their concluding remarks, however, the intensity of the veterans angry and hostile feelings were not addressed.

In a more recent study, Silver and Iacono (1984) attempted to assess the criteria for PTSD. In the first part of their two-part study, subjects were all Vietnam combat veterans. There was no control group and subjects were not assessed as to whether or not they met the criteria for PTSD. All subjects filled out a 29 item Likert scaled questionnaire. The questionnaire was then factor analyzed. One of the four factors extracted was

termed "Detachment and Anger". The items included in this factor were of a very general nature.

In the second part of their study, the researchers compared Vietnam veterans to non-Vietnam veterans using the same scale minus four items that particularly mentioned Vietnam or war experiences. A factor analysis of this data was then computed. The resulting factors this time were termed Depression, Re-experiencing the Trauma, Anger, and Detachment. However, there were only three items included in the Anger category. They were: (1) losing temper easily, (2) having arguments with others, and (3) feeling angry or irritable. The researchers recognized that angry feelings and concerns over loss of impulse control were of major concern to the veteran.

In attempting to support the validity of the DSM-III diagnostic criteria, Pearce and associates (1985) also found the symptoms of anger to be a primary concern to veterans. Ninety Vietnam-era veterans were divided into three groups: war-related trauma (e.g. shot at, seeing a friend hit by a grenade), non-war related trauma (e.g. car accident, mugging, large fire) or no trauma. Subjects, however, were not divided into PTSD versus non-PTSD groups. One of the instruments used was a 51 item questionnaire entitled the Problem Checklist. It lists problems characteristic of the diagnostic criteria for PTSD. The 51 items of the questionnaire were factor

analyzed. One of the nine factors differentiated was termed Anger/Depression. The results revealed significant differences between groups, with the war-trauma group experiencing significantly more anger/depression than the other two groups. The authors concluded that the:

> "group of veterans who experienced a war related traumatic event reported currently experiencing more problems than the group who experienced non-war related traumatic events on subscales that assessed mainly affective problems." (p.13)

Theories of Etiology

Several authors have tried to theorize as to why Vietnam veterans may be experiencing so much anger and hostility as compared to the population in general or as compared to veterans of other wars. Brende (1983) discussed the role of "pathological killer-victim identifications" as one possible cause. According to Brende, the veteran came to identify with the aggressor and the victim. This identity developed through his training and experiences in Vietnam. Aggressiveness and developing a killer personality was idealized in the service (Brende & Benedict, 1980). This identity was intimately tied with the concept of "being a man". The vulnerable combat soldier was very likely to be consumed by the killer identity. Humane feelings were systematically stamped out of the individual during boot

camp, so that by the time they were sent to Vietnam, they were trained to be unfeeling killers. Shatan (1974) reported that:

> "when the induction phase of counterguerrilla training succeeds, the soldier patterns himself after his persecutors (his officers)[who encouraged emotional anesthesia by humiliation and maltreatment in basic combat training] and undergoes a psychological regression during which his character is restructured into a combat personality.."(p.9-10)

Soldiers who did not identify with the aggressor persona had to desensitize themselves to the killing in order to survive. It is only later, when they were able to let themselves recall events, that their angry, hostile, and guilt feelings surfaced.

Horowitz and Solomon (1975) believed that this exposure to, and personal acts of violence caused problems in present day reality situations. Combat veterans, as opposed to those with other disorders, know their past history of violence and therefore realize that they are capable of such violence. This, according to the authors, is different from those who merely have fantasized about committing, or witnessing, a violent act. The "obsessional" patient realizes the difference between reality and fantasy and usually has the ability to prevent

acting out such fantasies. Horowitz and Solomon believed that this was not so with many of the combat veterans. Howowitz and Solomon stated that:

> "Some Vietnam veterans may have the damaging knowledge that they have acted violently in the past and this leads to a blurred distinction between what is current fantasy, past reality, or current and future possibility. In other words, there has been a shortening of the conceptual distance between impulse and act, fantasy and reality so that conditioned inhibitions to destructive behavior have been reduced and are difficult to reimpose." (p.73)

A strong victim identification also developed in many veterans (Brende, 1983). Brende used this concept to account for the physical symptoms and suicidal ideations of many veterans. Brende cited Freud (1917) and Menninger (1946) who believed that a blending of the aggressor/victim identities could occur within the same individual. Brende (1983) and Shatan (1974) believed this was what happened to the Vietnam veteran.

Lewis (1975) theorized that veterans were easily stirred to anger with themselves and others in situations which were reminiscent of the extremely vulnerable situations that they experienced in combat. Lipkin et al. (1982) theorized that due to the relative youth of the

veteran, the extreme conditions of combat resulted in the veteran becoming less flexible, anxiety ridden, and overwhelmed by angry, hostile impulses. Levin and associates reported that many of these individuals may come to be overwhelmed by "self-punishing or aggressive urges" (Levin et al., 1975, p.912).

In a study which attempted to assess those who did not develop PTSD, Hendin and Haas (1984) sought to define the personal characteristics of veterans which served to insulate them from developing the disorder. They conducted an analysis of 10 veterans whom they believed to be dealing with civilian life without evidence of PTSD symptoms. The studies results were provided through five session clinical evaluations (interview assessments). The authors found that the 10 veterans displayed one or more of the following combat adaptations: (1) Ability to function calmly under pressure, (2) Belief in understanding and judgment, (3) Acceptance of fear in self and others, (4) Lack of excessive violence, and (5) absence of guilt. The authors theorized that this cluster of traits were uniquely suitable to preserving sanity in an unstructured, unstable, and unpredictable environment.

Depression and Its Relationship to Hostility and PTSD

Many researchers have investigated the relationship between hostility and depression (Aarons, 1969; Freidman, 1970; Weisman et al., 1971). Before researchers attempted

to scientifically study this relationship, Freud (1917) and Abraham (1924) theorized about it. Freud basically believed that due to the loss of a significant person, the hostile part of the persons feelings of ambivalence towards that person manifests itself in hatred, sadism, self-reproachment, and self-vilification. Abraham theorized that depression was the result of repressed violent and sadistic impulses.

Becker and Lesiak (1977) researched the relationships among hostility, personal control, and depression in 58 clinic outpatients. The subjects completed the Rotter Internal-External Control scale, the Beck Depression Inventory, and the Buss-Durkee Hostility Inventory. Becker and Lesiak found that unlike the previous findings of Aarons (1969) and Weisman and Ricks (196Ø), depressed subjects did not exhibit self-directed aggression. The depressed group reported expressing covert hostility to a greater degree than the non-depressed group. The authors concluded that the less direct types of hostility are used more readily by those who are depressed. A major problem with this study is that subjects, prior to inclusion, were not diagnosed as being clinically depressed.

Schless and associates (1974) attempted to clarify how depressed patients expressed their hostility, whether the hostility was directed internally or externally, and

the relationship between hostility and depression. The researchers administered to 27 inpatients diagnosed as depressed the Symptom Check List, the Beck Depression Inventory (BDI), the Buss-Durkee Hostility Inventory (BDHI), the MMPI, and the Osgood Semantic Differential Test. A factor analysis was performed on the data and the following four patterns emerged: a) anxious, guilt ridden, inward turning of hostility wth resentment; b) verbal hostility with negativism; c) anxious, suspicious, resentful, control of hostile feelings; and d) assaultive, verbally abusive outward expression of hostility.

In one group of depressed subjects which expressed inward hostility, there was a significant correlation between the degree to which hostility was turned inward and the severity of depression. The group of depressed patients that expressed outward hostility was associated with possessing hystrionic features and resentment. The hostility detected in the depressed group was one of resentment towards an object identified as the cause of the depression. These results demonstrated to Schless et al. (1974) that severely depressed patients may exhibit both inwardly and outwardly directed hostility. These authors felt that their results contradicted classic psychoanalytic theories in this area and instead theorized that hostility is a secondary defense to depression.

A more recent study by Fava et al. (1982) reported

that the relationship between loss, hostility, and depression was complicated. In patients who had not reported a loss, there was found to be a significant positive correlation between hostility, depression, and paranoid symptoms. A significant positive correlation between those same variables was not found for those who had reported a loss.

The incidence of depression has long been known to correlate with combat exposure (Nace et al., 1978; Robins, 1974; Sonnenberg et al., 1985; Strange & Brown, 1970). Sonnenberg, Blank, and Talbott (1985) consider depression and hostility to be integral parts of PTSD even though DSM-III recognized depression only as an associated feature.

Nace et al. (1977) interviewed 202 veterans 8 to 12 months after their return stateside. This subject population was drawn from a sample of over 10,000 soldiers admitted to the two drug treatment centers in Vietnam. Of these 202 subjects, approximately one third were identified by the researchers as clinically depressed. In this study, however, the authors only found a trend between depression and combat exposure. Extent, intensity, and type of combat experience was not assessed. The important issue of loss and bereavement was also not addressed in this study.

Helzer, Robins, and Davis (1976) interviewed a random

sample of 467 enlisted men returning to this country from Vietnam in 1971. In addition to the interviews, the enlistment records of ninety-nine per cent of the subjects were obtained. The semi-structured interview was composed of a wide range of topics including personal and family history, preservice adjustment, use of illicit drugs, psychiatric symtomatology, and combat experiences.

The authors found that significantly more veterans who saw combat, or who lost friends in combat, were experiencing a depressive episode than those men who did not. They also found that 80 per cent of those suffering from a depressive disorder began experiencing the depression before, or shortly upon, their return to the States. This finding, according to the authors, "suggests that depression typically began prior to experiencing difficulties in post-Vietnam readjustment and so increases our suspicions that the combat experience itself was often responsible" (p.182). Helzer et al. also pointed out that their study was conducted 8 to 12 months after the return of the veterans from Vietnam and thus implied that depression may be a pervasive aspect of PTSD.

Helzer, Robins, Wish, and Hesselbrock (1979) conducted a three year follow up study to the Helzer et al. study noted above (Helzer et al., 1976). In this study they were able to compare the veteran group, who were not subjects in the original study, with a matched

control group. The control group were men who were eligible to serve but did not do so for a variety of reasons. The index group in this study were veterans who served in Vietnam after 1969 and who lived in well populated states. The veterans in this, as in the previous Helzer et al. study, were not diagnosed with combat fatique or any variation of that disorder.

In order to assess the relationship between combat and depression the authors defined combat as:

> "positive responses to two or more of the three following interview items regarding combat experiences : 1) Did you go on combat patrols or have other very dangerous duty? 2) Were you ever under enemy fire? 3) Were you ever surrounded by the enemy?"(p.527)

Helzer et al. found that of the nonwounded combat veterans 14% reported depressive symptoms at some time during the follow up period. In comparing all combat veterans to noncombatants, an 18% to 10% difference was found. This was significant at $p < .02$. They also found a significant relationship between the number of combat events experienced and the proportion of veterans reporting depressive syndromes. However, they also found that certain preservice factors also played a part in later depression.

Rosenheck (1985) reported on what he described as

Malignant Post-Vietnam Stress Syndrome (Malignant PVSS). Malignant PVSS has four general features. The features are 1) dramatic violent behavior, 2) social isolation, 3) intense self-loathing, and 4) reexperiencing of the war trauma in extreme physical manners. According to Rosenheck, Malignant PVSS was described as chronic PTSD compounded by ongoing life events that were both stressful and life-threatening. A majority of these individuals eventually seek treatment within the Veterans Administration system. Their treatment, the author contends, is "particularly stormy" (p.167) and endures for some time. The veteran often being transfered from hospital to hospital.

The dramatic violent behavior of the veteran is both dramatic and dangerous in nature. It is a behavior fostered by the violence experienced in combat. Many of these veterans violent behavior, according to the author, is associated with flashback experiences. In describing social isolation and intense self-loathing, the author described an individual who was extremely depressed, hopeless, and isolated. The author contended that all four of these signal features were seen together and escalated simultaneously. The author believed that these features were intimately linked and worked in a circular manner.

Individuals with Malignant PVSS also meet the

criteria for Major Depressive Disorder and Borderline Personality Disorder. Other disorders which were related to PVSS in this article were Schizophrenia, Antisocial Personality, Alcoholism, and Somatization Disorder.

Rosenheck identified several causes for the development of Malignant PVSS. He reported that the following are the crucial causes for this disorder: 1) a high degree of death immersion in Vietnam, 2) a family and social background in which affective experience was poorly contained and characterictically discharged, and 3) difficulties adjusting to civilian life.

Problems in Assessing Anger and Hostility

Biaggio and Maiuro (1985) stated that the major problem in this area was that systematic and comprehensive definitions of the terms have not been developed. Spielberger, Russell, and Crane (1983) stated that definitions of the construct of anger and hostility "are ambiguous and sometimes contradictory" (p.161).

Early research in this area used projective techniques (e.g. the Rorschach Inkblot Test and the Thematic Aperception Test), clinical interviews, and behavioral observations. Spielberger (1983) believed that the use of projectives in assessing anger was still relatively unreliable and of limited validity. As for behavioral observations, Biaggio and Maiuro reported that not all people responded to the same

stimuli in the same manner. They also reported that there were problems in interpreting physiological arousal. Emotions can be masked, feigned, or misinterpreted. Furthermore, angry or hostile feelings may not be acknowleded or may be interpreted as fear or repulsion. Biaggio and Maiuro reported that researchers have not been able to find a set of physiological indicators that consistently accompany a certain emotion. Biaggio and Maiuro agreed with Eysenck (1975) that verbal reports are the single most valid and accurate measure of emotional experiences.

Biaggio and Maiuro (1983) offered definitions of anger, hostility, and aggression which will be employed in this study. According to these authors, anger is defined as:

> "a strong emotion or experiential state that occurs in response to a real or imagined frustration, threat,or injustice and is accompanied by cognitions related to the desire to terminate the negative stimulus". (p.103)

It will also be recognized that anger can vary in intensity from a mild irritation to an intense rage (Spielberger, 1983). Hostility will be defined as "a psychological trait characterized by an enduring attitude of anger and/or resentment and a behavioral predisposition to act out aggression" (Biaggio & Maiuro, 1983, p.103).

Diagnostic and Research Difficulties

Even though this disorder is prevalent in Vietnam veterans and there is clear criteria presented in DSM-III-R, PTSD is still difficult to accurrately diagnose and research. Atkinson et al. (1982) clearly deliniates several problem areas, in part discussed by others, for psychologists trying to work with symptoms of PTSD. These problems could lead to misdiagnosis, overdiagnosis, or confounding of research endeavors.

Professional bias against the diagnosis. Atkinson et al. (1982) reported that a certain number of psychiatrists doubted the validity of PTSD and instead believed that current problems were caused by pre-enlistment difficulties. This belief in a pre-enlistment disposition to the disorder originated in early psychoanalytic concepts of trauma and neurosis. As psychoanalysis grew in popularity, its concepts began to be applied to soldiers returning from World War I. This belief in a predisposition continued through the end of World War II (Boulanger, 1985). As pointed out by Atkinson and associates, however, some psychologists still firmly believe in a predisposition to PTSD.

According to Figley (1978), the following factors were more significant than any pre-service characteristics: (1) the nature, quantity, and timing of the trauma, (2) combat cohesion and moral, (3) combat

effectiveness, (4) personality factors, (5) the short- and long-term post-trauma environment of the stressed individual, and (6) conveying expectancy of recovery to the affected soldier.

Frye (1982) found the following five factors, of which only the last one in any way resembles a "predisposition" character, that can adequately identify those who were more likely to develop PTSD:

(1) Negative perception of family helpfulness upon return to the United States and less talking to family members about Vietnam;

(2) Higher level of combat in Vietnam;

(3) An external locus of control (post-service);

(4) A more immediate discharge from active duty after the war; and

(5) A more positive attitude toward the Vietnam War before entering the service.

Many other researchers have reported that pre-enlistment characteristics did not play a role in the development of PTSD and should not be the focus of treatment (Boulanger, 1985; Hyer et al, 1986; Penk et al, 1981; Solkoff et al., 1986).

There has been, according to Atkinson et al., a professional resistence to DSM-III criteria. This problem does not seem to be directly related to DSM-III criteria, but to the requirement by the Department of

Veterans Benefits that all of the criteria be met before any compensation can be dispensed. This seems to be less of a present day problem because of increased familiarity with the diagostic criteria. Many professionals, however, still disagree with the criteria stated in DSM-III-R. On the other side of this problem, many examiners are moved to diagnose PTSD even though all the criteria are not met (Atkinson et al., 1982). This can lead to overdiagnosis. PTSD, according to Atkinson et al., has also been misdiagnosed as personality disorder, neurosis, or psychosis. The possibility that PTSD may become complicated by another disorder such as depression, anxiety, substance abuse disorders, or psychosis also exists.

Adverse interactional style in claimants and staff.

Vietnam veterans usually are extremely sensitive to government agency attitudes and feel that they are treated insensitively by staff members. Atkinson and associates reported that agency staff members should be sensitive to the needs of this population. They suggested that the following efforts be made to mimimize negative reactions: (1) asking national service organization representatives and social workers to tell claimants what to expect in the evaluation and procedural requirements, (2) training clerical and professional personnel, and (3) selecting more flexible staff to make contact with this group.

A related problem is what Atkinson et al. term the "silent" claimant. Because of the veterans sensitivity and deep feelings surrounding their war experience, it is difficult for them to reveal the depth of their combat experiences, or related difficulties, during the usually short hospital intake interviews (Atkinson et al., 1982).

Not only must the feelings and concerns of the veteran be addressed, but what also must be acknowledged and dealt with is the impact on the examiner caused by the relaying of this very disturbing material (Atkinson et al., 1982). Atkinson and associates suggested that the issues of the examiner should not go unnoticed. The issues they noted were guilt if they had not served in the war, overempathizing with the veteran, and not wanting to appear part of "the system" that alienated the veteran.

Lack of corroborative data. As in many retrospective studies of this kind, there is difficulty in acquiring pre-trauma and trauma-related data. This places an overreliance on the veterans self-report. There is a problem with credibility in this area. It has also proved difficult when trying to garner information from the family and friends of veterans. Attempting to elicit information from family members is usually very time consuming and unreliable when doing any subject history studies. As with any other group, this is true in the case of veterans and their families.

Exaggeration and falsification of data is also a concern (Atkinson et al., 1982). Many veterans and unenlisted personnel have been exposed to information regarding the Vietnam War. The symptoms of PTSD have been extensively reported in journals, books, and by the media. A novel entitled "A Rumor of War" by Phillip Caputo (1977) provides detailed accounts of the war. These factors may have led to a recent increase of factitious complaints being reported by mental health professionals (Sparr & Pankratz, 1983).

A case report by Lynn and Belza (1984) of a Vietnam veteran who was finally diagnosed as Chronic Factitious Disorder with Physical Symptoms may best illustrate this disorder. They reported the case of a 32 year old umemployed man who claimed to be a Vietnam veteran. He presented himself as a paraplegic confined to a wheelchair. He complained of nightmares and flashbacks. He reported that he had a head injury from being shot out of a tree by a sniper. While in the hospital, he underwent one surgical procedure consisting of irrigation and drainage of one of several abscesses of his buttocks.

During his stay at the hospital, many inconsistencies came to the attention of the staff regarding his experiences during and subsequent to his military service. When they received a copy of his discharge papers it became clear that he had never been in Vietnam.

Confronted with this new evidence, he admitted to fabricating his story. It was later discovered that due to other fabrications, he had been discharged from the Coast Guard after two months. They reported that he also admitted to having 21 previous hospitalizations at different VA Medical Centers across America.

This patient learned to mimic the symptoms of PTSD while at these different VA Medical Centers. Lynn and Belza report that his fabrications were perfect. He had at one time convinced a VA outreach program to hire him as a counselor. Even though a nationwide alert had been issued following his discharge from their hospital, the authors report that he had at least twice more been admitted to VA hospitals.

Idiosyncratic disorders. There have been cases of veterans who were not directly involved in combat, but who experienced torturing or provided medical care to wounded soldiers in relative personal safety. These stressors are not life threatening, but nevertheless may cause a delayed stress reaction. When assessing PTSD, Atkinson and associates believed that a wider understanding of what constitutes a traumatic event may be necessary to assist in diagnosis and treatment.

Intercurrent civilian stress. Many years have passed since U. S. involvement in Vietnam ended. Because of the delayed stress reaction observed in veterans (sometimes

several years passed before the veteran began complaining of symptoms), it is difficult to distinguish between stressful events caused by PTSD or events (e.g. divorce, drug addiction, suicide) that would have occurred irregardless of the combat experience (Atkinson et al., 1982).

Assessment of Posttraumatic Stress Disorder

Most attempts at assessing the disorder and its symptoms have used self-report questionaires, structured interviews, and more recently, physiological assessments such as EEG's, heart rates, and skin resistence. Rigley (1978) used the Vietnam Veterans Interpersonal Adjustment Questionnaire (VIA) which asks pre- and post-service history. Blum et al. (1984) developed their own needs-assessment questionnaire to measure the occurrence of PTSD, adjustment, and personal attitudes towards the Veterans Administration. Frye and Stockton (1982) designed a 24 item PTSD symptom checklist utilizing a 4-point Lickert scale. Pearce et al. (1985) used a 51 item questionnaire called the Problem Checklist which lists symptoms characteristics of PTSD. Van der Kolk et al. (1984) subjected their participants to a 3-5 hour stuctured interview followed by having them fill out the MMPI, the Cornell Medical Index, and the Rorschach.

In the same study by van der Kolk and associates, sleep EEG's on 2 patients were recorded. They found that

traumatic nightmares in PTSD subjects occurred late in the sleep cycle and that the contents of their reported dreams were different in content from longtime nightmare sufferers. PTSD subjects reported nightmares that were connected with events that occurred in Vietnam, while lifelong nightmare sufferers had various dreams of isolation, destruction, and death. Malloy, Fairbank, and Keane (1983) exposed subjects to mild visual and auditory cues of combat while behavioral, cognitive, and physiological measures were being recorded. This tripartite method correctly classified 100% of veterans diagnosed with having symptoms of PTSD from well adjusted veterans and veterans with active psychiatric disorders. This study did not, however, include subjects who may have been faking.

Even though these previous studies have been relatively successful in assessing PTSD, many of the assessment methods were developed using small homogenous populations. In many instances these studies were either pilot studies or have not been replicated using a larger population. In other cases, such as the EEG studies and physiological response studies, the procedures are long and costly. Spielberger and Butcher (1985) noted that there are problems with using physiological measures to assess affects experienced. They believed that the technology was not sophisticated enough to eliminate

possible subject, environment, and equipment/technique artifacts. Emotional and physiological reactions can be faked, exaggerated, or repressed. In addition, even though there may be a physiological reaction to a stimulus, it is difficult, if not impossible, to ascertain what emotion was being experienced without asking the subject directly. These problems make the application of these methods impractical and of questionable heuristic value.

Using the MMPI to Diagnose PTSD

It has only been in the past half decade that the MMPI has been consistently used for diagnosing PTSD. In fact, early research (Penk et al., 1981) was negative. In addition to administering the MMPI, Penk and associates compared 87 combat and 120 non-combat veterans on demographic, family, and military variables. The researchers concluded that the MMPI was not able to adequately differentiate between combat and non-combat groups. This finding was contrary to their initial hypothesis. They felt that the MMPI was not suitable for differential diagnosis when comparing two clinical inpatient groups. Penk et al. reasoned that any two maladjusted groups can appear equally disturbed on the MMPI. They hypothesized that the MMPI may not be sufficiently sensitive or specific enough to differentiate PTSD from other kinds of diagnostic classifications.

In 1983, Fairbank, Keane, and Malloy compared the MMPI protocals of three different groups of Vietnam veterans. There were 12 subjects in each group. The groups were: (1) veterans with a reliable diagnosis of PTSD, (2) well-adjusted veterans, and (3) veterans with psychological problems other than PTSD. They found that those in group 1 had an 8-2 profile with significantly higher elevations on all clinical scales (except on scale 5) as compared to group 2. They were also different on scales 1, 3, and 7 from the psychiatric group. As for the validity scales, the PTSD group had an elevated F ($\underline{M}$ = 75 T) as contrasted with the normal group ($\underline{M}$ = 53 T) and the psychiatric group ($\underline{M}$ = 69 T). The F of the PTSD group was significantly greater than group 2, but not group 3.

Keane, Malloy, and Fairbank (1984) sought to replicate and extend their earlier study using a larger subject population. They compared the responses of 100 veterans with a confirmed diagnosis of PTSD to a comparable group of 100 veterans with a disorder other than PTSD. Keane, Malloy, and Fairbank intended on developing cutoff scores and decision rules for making the diagnosis of PTSD using the MMPI. It was also their intention to empirically construct a subscale of items that could discriminate between those with and without PTSD.

The subjects were 200 male veterans who were referred

for diagnostic assessment. The 1ØØ PTSD subjects were assessed using a structural interview, which in addition to reviewing symptoms of PTSD, reviews military, social, and psychiatric history. In order to attain the 1ØØ PTSD group, over 3ØØ veterans were assessed. The 1ØØ subjects in the control group were diagnosed by psychiatrists and psychologists using DSM-III criteria. The control group consisted of 3Ø affective disorders, 29 anxiety disorders, 19 personality disorders, and 22 psychotic disordered.

The results of their analysis revealed that both groups had similar profiles. The groups peaked on scale 8 (Schizophrenia) and 2 (Depression). The authors stated that the PTSD group, however, produced markedly higher elevations on all clinical scales except scale 5 (Masculinity-Femininity). The PTSD group also scored significantly higher on scale F and lower on scale K.

This same group scored significantly higher ($\underline{M}$ = 37) than did the control subjects ($\underline{M}$ = 2Ø) on the 49 item PTSD subscale. This subscale was developed by submitting the MMPI responses of both groups to chi-square analysis to determine which items were differentially endorsed. This procedure resulted in the finding of 49 items that produced chi-squares with $\underline{p}$ values less than .ØØ1. A subsequent frequency analysis revealed that the optimal cutting score which separated the PTSD from the control group was 3Ø. Using this cutting score, the subscale was

able to correctly classify 82% of both samples. Using a higher cutoff score than the original 30 used in this sample would have resulted in a higher probability of patients displaying PTSD symptoms. According to the authors, scores above 40 would produce a 90% probability of this diagnosis. The authors suggested that higher cutoff scores on the PTSD subscale could be used in the future due to the increased costs and benefits of diagnosing PTSD.

In a more recent study, Burke and Mayer (1985) compared 30 Vietnam veterans with PTSD to 30 veterans without PTSD. All subjects were men in their middle thirties. Both groups were newly admitted psychiatric inpatients at the VA Medical Center in East Orange, New Jersey. Burke and Mayer's findings were similar to the Keane et al. study discussed above. They found that the mean profiles for the two groups were practically identical. Both groups had profiles consistent with a diagnosis of schizophrenia. As in the Keane et al. study, both the PTSD and the psychiatric patients scored highest on scales 8 and 2 of the MMPI. The PTSD group was described as angry, tense, anxious, worried, grossly confused, alienated, projecting blame, and significantly depressed.

On the negative side of this topic of consideration is the increased reporting of malingering as reported

above. The subjective nature of the criteria used and the widespread proliferation of information on the war lends itself to this increase. The major factors for this increase are the compensations and treatments made available by the government to those who can prove combat related PTSD. Another reason for this increase is the use of PTSD as a defense in seeking acquittals and reduced sentences (Walker, 1981) or as an insanity defense (Sparr & Atkinson, 1986). Walker estimated that 29,000 Vietnam veterans are in state or federal prisons, 37,500 on parole, 250,000 on probation, and 87,000 awaiting trial. A percentage of these may profess having PTSD in order to avoid incarceration.

The most effective means for detecting malingering with the MMPI appears to be the Ds scale (Anthony, 1971; Greene, 1980). Other effective scales are the F and F-K index. Most researchers report the most effective cutoff score using the F scale is an F > 90. This is especially true if L and K scores are less than 50. Greene and Graham reported that an F-K > 9 is indicative of malingering. Using a veteran population, Fairbank and associates reported that an F > 88 and PTSD > 40 was a sign of malingering. Even though their results were significant, the small subject population and lack of minority subjects serves to limit the generalizability of the results. The MMPI, used in conjunction with other psychometric

instruments and an extensive service history, should be proficient at detecting malingering. Despite there being an increase of those trying to "fake" PTSD, most of those seeking treatment are sincere and should be treated with compassion and integrity.

Hypotheses and Data Analysis

Hypothesis 1. The null hypothesis was assumed in regards to demographic characteristics. Past research has indicated that there are no significant differences on relevant pre-service variables (Emery, 1987; Figley 1978). Therefore, it was expected that there would be no significant differences between the PTSD subjects and the Comparison subjects on the information provided on the demographic information sheet.

Hypothesis 2. Past research has shown that veterans with PTSD symptoms score significantly higher on the MMPI clinical scales (Burke & Mayer, 1985; Fairbank, Keane, & Malloy, 1983; Keane, Malloy, & Fairbank, 1984) than veterans without PTSD symptoms. It has also been shown that veterans with PTSD symptoms score significantly higher on the PTSD subscale of the MMPI than veterans without PTSD symptoms. Hypothesis 2, therefore, was the following: that veterans with a PTSD diagnosis (both inpatient and outpatient) would score significantly higher than veterans with another diagnosis (both inpatient and outpatient) on the clinical scales of the MMPI. In

addition, those with PTSD (both inpatients and outpatients) would score significantly higher than those without PTSD (both inpatients and outpatients) on the PTSD subscale of the MMPI. A MANOVA and ANOVA was used to test for significance.

Hypothesis 3. Past research with veteran (Pearce et al., 1985; Shatan, 1978; Silver & Iacono, 1984; Strayer & Ellenhorn, 1975) and non-veteran populations (Becker & Lesiak, 1977; Fava et al., 1982; Schless et al., 1974) has indicated that individuals with symptoms similar to veterans with PTSD, report difficulty in controlling angry and hostile feelings. Hypothesis 3 was that veterans with a PTSD diagnosis (both inpatient and outpatient) would score significantly higher than veterans with a diagnosis other than PTSD (both inpatient and outpatient) on the Hostility (HOS), the Hostility Control (Hc), and the Overcontrolled hostility (O-H) scales of the MMPI, and on the 7 hostility scales of the BDHI. These three scales were analyzed as part of the Hypothesis 2 MANOVA. T-tests were used to test for significance of the BDHI subscales.

Hypothesis 4. According to DSM-III-R, depression is an associated feature of PTSD. Several studies have shown that the Vietnam veteran reports a significant degree of depression (Burke & Mayer, 1985; Fairbank, Keane, & Malloy, 1983; Wilson, Smith, & Johnson, 1985). Hypothesis 4 was the following: veterans with a diagnosis of

PTSD (both inpatient and outpatient) would report significantly more depression than veterans with other diagnoses (both inpatient and outpatient) on the Beck Depression Inventory. A T-test was used to test for significance.

Hypothesis 5. According to DSM-III-R, the effects of a traumatic event extend to all areas of a traumatized individuals life. Lipkin et al. (1982) and Pearce et al. (1985) have shown this to be especially true in the case of a war-related trauma. Hypothesis 5, then, was the following: veterans with a diagnosis of PTSD (both inpatient and outpatient) would report currently experiencing more problems than veterans with other diagnoses (both inpatient and outpatient) on subscales 1, 2, 4, 5, 6, 7, 8, and 9 of the Problem Checklist. T-tests were used to test for significance.

Hypothesis 6. Previous research with veterans has not attempted to differentiate between outpatient and inpatient populations. In general, outpatients are considered to be more functional than inpatients with symptoms being less severe. Hypothesis 6 predicted that the same would be true when comparing this veteran population on the above mentioned scales (MMPI, BDI, BDHI, and PC). Appropriate comparisons of the two populations, inpatients with a diagnosis of PTSD and outpatients with a diagnosis of PTSD, were conducted. It was hypothesized

that outpatients with a diagnosis of PTSD, would endorse significantly more items that identify specific targets for their angry and hostile feelings than the inpatient PTSD group. It was expected to find that inpatients would also endorse significantly more items that identify inwardly directed hostile thoughts and feelings. A MANOVA and ANOVA was conducted on the clinical and special scales of the MMPI. T-tests were conducted on the BDHI, BDI, and PC. A Phi-Coefficient and x^2 was then conducted on the items of the BDHI, the PC, and PTSD subscale.

In addition to the above hypotheses and statistics, a series of discriminant analyses were conducted on the data in order to determine which variable, or variables, could best be utilized to identify subjects with PTSD. A factor analysis was conducted on the BDHI and the PC data. It was hypothesized that the major factors found would support the DSM-III-R criteria.

Chapter III

METHOD

Subjects

The sample was drawn from a population of veterans served by several Veterans Administration Medical Centers. Subjects were all Vietnam-era veterans having served in one of the branches of the armed forces between 1964 and 1975. Participants were both inpatients and outpatients currently receiving psychiatric services. All subjects were volunteers who were asked by the staff, their therapist, or by the Principal or Co-Investigator, if they would like to participate in a study. They were informed that their participation would not affect their treatment in any way nor would their identities ever be revealed. They were also informed that their results would remain anonymous and that a subject code number would be the only identifier once they returned the forms.

There were a total of 120 veterans who participated in the study. Of that total 60 were veterans with a diagnosis of PTSD and 60 had been diagnosed with some other disorder. Of the 60 subjects in each group, 30 were currently inpatients and 30 were being seen on an outpatient basis. Subjects in the PTSD Vietnam-era

veteran's group were individuals, both inpatient and outpatient, who currently carried a PTSD diagnosis. Subjects in the PTSD group had all seen active combat in the military during the Vietnam War. Combat being defined in this study as firing a weapon at an enemy, seen or unseen, being fired upon, witnessing or perpetrating the death or injuring of another individual or some other related trauma of warfare.

Subjects in the non-PTSD Vietnam-era veteran's group were individuals, both inpatient and outpatient, who were recently assessed with a diagnosis other than PTSD. Veterans in the comparison group were Vietnam-era veterans stationed outside the area of combat. No comparison group subject ever fired a weapon on an enemy, seen or unseen, nor was fired upon, nor witnessed recently wounded or dead individuals or any other trauma of warfare. Individuals with a diagnosis of schizophrenia and/or organic brain disorder were ineligible for inclusion into the study. All diagnoses were made using DSM-III-R criteria.

Measures

All individuals who agreed to participate were given the Minnesota Multiphasic Personality Inventory, the Beck Depression Inventory (Beck et al., 1961), the Buss-Durkee Hostility Inventory (Buss & Durkee, 1957), and the Problem Checklist (Pearce et al., 1985). The Beck Depression Inventory, the Buss-Durkee Hostility

Inventory, and the Problem Checklist are reviewed below.

The Beck Depression Inventory is a 21-item self-report questionnaire which assesses the severity of depression. The 21 items are composed of four self-evaluative statements scored from Ø to 3, with the higher number indicating greater severity of depression. A score is arrived at by simply summing the scores. There are four general levels of depression used. They are the following: Ø-9 indicating a normal nondepression state, 1Ø-15 indicating a mild depression, 16-23 a moderate depression, and 24-63 a severe depression. Shaw, Vallis, and McCabe (1985) report the split-half reliability to range from .58 to .93. They also report item-total correlations of .22 to .86, with the average being .68. Shaw et al. (1985) report concurrent validity of the BDI with clinician's ratings of depth of depression in the range of .62 to .77.

The Buss-Durkee Hostility Inventory (Appendix A) is a 75-item true/false self-report questionnaire that attempts to assess various types of hostility. The developers of this inventory believed that other hostility inventories were of limited clinical utility due to their describing only global estimates of hostility. Buss and Durkee (1957) hypothesized that there are many forms of hostility and classified them into the following areas: (1) Assault, (2) Indirect Hostility, (3) Irritability, (4) Negatism,

(5) Resentment, (6) Suspicion, and (7) Verbal Hostility. A Guilt variable was added because of the authors interest in it in relation to the 7 hostility areas. An original scale of 105 items was administered to college students. Of these 105 items, only those that met frequency and internal consistency were retained. Only 60 items remained from the original version. Items then were added and some reworded. Another administration of the scale was conducted. An item analysis was computed and the present 75-item scale was finalized.

The Problem Checklist (Pearce et al., 1985) is a 51 item self-report questionnaire which lists psychological problems characteristic of the diagnostic criteria of PTSD. The PC (Appendix B) was developed by having the subjects in the study check off the items on the questionnaire that applied to them. A component analysis was performed on the 51 items. The PC was divided into the following nine different factors: (1) anger/depression, (2) emotional numbness/withdrawal, (3) problems related to combat experiences, (4) anxiety/cognitive problems, (5) interpersonal difficulties, (6) schizoid tendencies, (7) job problems, (8) drug abuse/money management problems, and (9) criminal behavior. The scale is scored by summing the items checked under each factor. A conversation with the developers of the scale, who are at the Veterans

Administration Medical Center in Topeka, Kansas, revealed that current assessment of the reliability and validity of the scale is very promising.

In addition to the questionnaires, a short Demographic Form (Appendix C) was completed. The information requested on the demographic form was obtained from either the patient themselves, the patients' file, or from the assistance of the patients' primary therapist. The questions on the form ranged from pre-service psychiatric history to current marital status.

Procedure

Inpatients. Inpatients were assessed by the staff psychiatrist, psychologist, or social worker upon admission to a ward. The average length of inpatient stay at the Veterans Administrations utilized was approximately 4-6 weeks. Patients who met the above stated inclusion criteria were asked by the principal, co-prinicipal or research assistant if they would agree to volunteer for this study. They were informed that the study was an effort to understand the present difficulties that Vietnam veterans were facing. They were also told that their results would be anonymous, but that they could request results of the questionnaires if they so desired. If the patient agreed to participate, they first completed a standard consent form (Appendix D) and then were given the above mentioned questionnaires to complete. The average

time spent completing the forms was two and one-half to three hours. Patients were able to ask for assistance in completing the forms at all times.

Outpatients

Outpatients who met the above mentioned criteria were acquired in a manner equal to inpatients. After being given the name of a potential subject by the patients primary therapist, outpatients were contacted by telephone, letter, or in person. As with inpatients, they were briefly informed of the study and informed of their rights. If they agreed to participate, they completed the identical forms as the inpatients. These subjects were outpatients from several Veterans Administration outpatient clinics. Oupatients were clients who were in outpatient treatment for at least the previous 2 months. The length and consistency of therapy contact varied as well as the variety of psychotherapy intervention employed. Some veterans were in individual therapy, others in group therapy, several were in family therapy, with still others in some combination of the above.

Chapter IV

RESULTS

Hypothesis 1

The null hypothesis was assumed for the demographic information. An analysis of the demographic information revealed that there were few significant differences between the PTSD and non-PTSD groups. Table 1 presents the demographic information. As Table 1 indicates, there were no significant differences between PTSD and non-PTSD veterans on the majority of demographic variables.

Insert Table 1 about here

Six items showed significant differences between the PTSD and non-PTSD groups. The item "Age of Entry Into Service" ($t(118) = 2.55$, $p < .01$), with the PTSD group having begun their service at an earlier age ($M = 18.4$) than the comparison group ($M = 19.4$), had a significant difference.

Significantly more PTSD subjects (75%) were service connected than non-PTSD subjects ($x^2(1, N = 120) = 24.3$, $p < .001$). Non-PTSD subjects (50%) were diagnosed with a Mood Disorder significantly more than PTSD (6.7%) subjects

Table 1

Demographic Statistics for the PTSD and Non-PTSD Groups

Variable	PTSD S's N=60	Non-PTSD S's N=60
Diagnosis		
Alcoholism	28.3	28.3
Substance Abuse	8.3	5.0
Personality Disorder	25.0	36.7*
Mood Disorder	6.7	50.0*
Anxiety Disorder	1.7	1.7
Marital Status		
Single	5.0	26.7*
Married	46.7	30.0
Separated	8.3	8.3
Divorced	35.0	36.7
Widowed	0.0	3.0
Ethnic Origin		
Asian	0.0	0.0
Black	10.0	16.7
Hispanic	1.7	1.7
Native American	0.0	1.7
White	86.7	81.7
Other	0.0	0.0
Highest Grade Completed (Mean)	12.7	14.8
Age While In Service (Mean)	18.4	19.4*
Dates of Service (Mean)		
From	'65.6	'66.7
End	'70.6	'70.2
Honorable Discharge	100.0	100.0
Service Connected Disability	75.0	28.3*
Presently on Medication		
Yes	61.4	60.0
No	38.3	40.0

Table 1 (cont'd)

If yes, What type		
Major Tranquilizor	10.0	15.0
Minor Tranquilizor	15.0	10.0
Antidepressant	35.0	30.0
Antabuse	1.7	5.0
Past Medication Use		
Yes	53.3	48.3
No	46.7	51.7
If yes, What type		
Major Tranquilizor	11.7	15.0
Minor Tranquilizor	11.7	8.3
Antidepressant	30.0	25.0
Antabuse	0.0	0.0
Psych. Hosp. Previous To Service	0.0	5.1
Psych. Hosp. During Service	10.0	16.9
Psych. Hosp. After Service	60.0	51.7
Outpatient Treatment Previous to Service	5.0	10.2
Outpatient Treatment During Service	16.7	16.9
Outpatient Treatment After Service	66.7	78.0
Family History for Psychiatric Illness	11.9	32.2*
Criminal Record Before Service	0.0	3.4
Criminal Record After Service	45.8	15.3*
Pending Court Date	8.3	6.8

Note. Results are presented as percentages unless otherwise indicated. *$p < .05$

($x^2(1, N = 120) = 25.6, p < .001$). Non-PTSD subjects (32.2%) also reported more psychiatric histories in the families ($x^2(1, N = 118) = 5.97, p < .05$), than the PTSD group (11.9%). In response to the question "Criminal Record After the Service", more PTSD veterans (45.8%) responded in the affirmative than the non-PTSD group (15.3%) ($x^2(1, N = 118) = 11.6, p < .001$). Significantly more of the comparison group (26.7%) reported being single ($x^2(1, N = 120) = 13.1, p < .01$) than PTSD subjects (5.0%). Table 1 presents the material as percentages unless otherwise indicated. Some of the percentages in a category had a sum greater than 100% due to a "yes" response in more than one subcategory.

Hypothesis 2

Hypothesis 2 predicted that veterans with a diagnosis of PTSD (both inpatient and outpatient) would score significantly higher than veterans with other diagnoses (both inpatient and outpatient) on the clinical scales of the MMPI. In addition, it was predicted that those with a PTSD diagnosis (both inpatient and outpatient) would score significantly higher than veterans without PTSD (both inpatient and outpatient) on the PTSD subscale of the MMPI.

In order to test this hypothesis, a multivariate analysis of variance and univariate analysis of variance were computed. Results supported the hypotheses

with only two exceptions. Table 2 presents the T-score

Insert Table 2 about here

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means and standard deviations. Table 3 presents the results of the MANOVA and ANOVA. There were no significant

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Insert Table 3 about here

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differences found between the groups on scales 5 (Masculinity-Femininity) and 9 (Hypomania). Raw score means and standard deviations for the validity scales as well as the clinical scales and special scales can be found in Appendix E.

Hypothesis 3

Hypothesis 3 predicted that veterans with a PTSD diagnosis (both inpatient and outpatient) would score significantly higher than veterans with other diagnoses on the Hostility Control (Hc), the Manifest Hostility (HOS), and the Overcontrolled hostility (O-H) scales of the MMPI. The same was predicted for the 8 scales of the Buss-Durkee Hostility Inventory (BDHI).

Two different statistical analysis were conducted on the data in order to evaluate this hypothesis. The variables Hc, HOS, and O-H were analyzed as part of the multivariate analysis of variance executed for Hypothesis

Table 2

N, Means, and Standard Deviations of T-Scores on the MMPI Subscales for Group 1 (PTSD) vs. Group 2 (non-PTSD)

Variable		N	Group 1 vs. Group 2 Mean	Standard Dev.
L	Group 1	57	48.79	6.30
	Group 2	60	49.28	6.48
F	Group 1	57	88.14	19.97
	Group 2	60	71.18	16.69
K	Group 1	57	45.11	7.37
	Group 2	60	51.22	9.49
Hs	Group 1	57	80.84	16.51
	Group 2	60	69.48	17.29
D	Group 1	57	93.86	17.47
	Group 2	60	80.13	19.64
Hy	Group 1	57	74.53	9.92
	Group 2	60	69.98	11.76
Pd	Group 1	57	84.51	11.14
	Group 2	60	77.78	12.79
Mf	Group 1	57	64.65	9.77
	Group 2	60	68.17	12.16
Pa	Group 1	57	80.70	14.91
	Group 2	60	70.38	14.29
Pt	Group 1	57	86.70	15.46
	Group 2	60	77.85	16.20
Sc	Group 1	57	101.66	21,97
	Group 2	60	82.35	23.83
Ma	Group 1	57	70.32	11.25
	Group 2	60	64.93	13.12
Si	Group 1	57	68.44	10.93
	Group 2	60	60.45	13.68

Table 2 (cont'd)

PTSD	Group 1	57	60.39	14.01
	Group 2	60	46.98	13.61
HOS	Group 1	57	58.91	12.58
	Group 2	60	53.20	9.41
O-H	Group 1	57	49.39	12.06
	Group 2	60	53.20	9.41

Table 3

Multivariate and Univariate Analysis of Variance of the Raw Scores of the MMPI Scales Comparing Combat vs. non-Combat Groups

Univariate Analysis of Variance

Variable	Hyp. SS	Error SS	Hyp. MS	Error MS	F	F Sig.
L	2.65	557.83	2.65	4.85	0.55	.462
F	1792.83	8806.86	1792.83	76.58	23.41	.001
K	271.91	2158.85	271.91	18.77	14.48	.001
HS	637.06	5227.86	637.06	45.46	14.01	.001
D	842.15	6554.63	842.15	56.99	14.77	.001
Hy	249.86	3961.06	249.86	34.44	7.25	.008
Pd	245.09	3108.88	245.09	27.03	9.07	.003
Mf	93.33	3751.90	93.33	32.63	2.86	.093
Pa	400.55	2801.93	400.55	24.36	16.44	.001
Pt	644.02	7613.12	644.02	66.20	9.73	.002
Sc	3220.00	17305.81	3220.00	150.49	21.40	.001
Ma	64.16	4232.91	64.16	36.81	1.74	.189
Si	1456.82	16141.81	1456.82	140.36	10.38	.002
PTSD	3871.08	12515.23	3871.08	108.83	35.57	.001
HOS	539.82	5584.49	539.82	48.56	11.12	.001
O-H	0.02	2095.97	0.02	18.23	0.00	.999
HC	685.84	4081.41	685.84	35.50	19.32	.001

MANOVA Test Name	Value	Exact F	Hyp. F	Err. DF	Sig.
Wilks	0.670	2.868	17.00	99.00	.001

2. The eight scales of the Buss-Durkee Hostility Inventory were analyzed using t-tests. The results of the analyses supported Hypothesis 3. Table 3 indicates that there was a significant difference on the variables HOS and Hc with the index group scoring significantly higher than the comparison group. There was no significant difference found between groups on the variable O-H.

Due to its relatively infrequent use, a reliability analysis was first conducted on the BDHI. It was found that several items were negatively correlated with other subscale items. In order to make the scales as reliable and valid as possible, those items that were negatively correlated with the other items within a scale were eliminated. The following are the items that were eliminated from further statistical analyses: 1, 10, 17, 21, 27, 28, 39, 67, 71, and 72. The questionnaire with the remaining 65 items will be referred to as the modified-BDHI for the rest of the text.

The t-test results of the modified-BDHI are presented in Table 4. There was a significant difference in the expected direction on scales Assault, Irritability,

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Insert Table 4 about here

Resentment, Suspicion, Verbal Hostility, and Guilt of the modified-BDHI.

Table 4

Means, Standard Deviations, T Values, and 1-tail Probabilities Comparing Group 1 (non-PTSD) vs. Group 2 (PTSD) on the modified-BDHI

			T-tests	
Variable	Mean	St. Dev.	T Value	1-tail prob.
Assault				
Group 1	3.77	1.98	-5.79	Ø.ØØ1
Group 2	5.8Ø	1.87		
Indirect Hostility				
Group 1	4.8Ø	1.66	Ø.12	Ø.454
Group 2	5.65	1.53		
Irritability				
Group 1	5.22	2.35	-5.62	Ø.ØØ1
Group 2	7.35	1.76		
Negativism				
Group 1	1.88	1.42	-1.Ø8	Ø.145
Group 2	2.17	1.45		
Resentment				
Group 1	3.68	2.3Ø	-2.Ø6	Ø.Ø21
Group 2	4.48	1.94		
Suspicion				
Group 1	3.72	2.62	-4.49	Ø.ØØ1
Group 2	5.65	2.Ø6		
Verbal Hostility				
Group 1	6.27	2.88	-3.Ø9	Ø.ØØ1
Group 2	7.8Ø	2.54		
Guilt				
Group 1	5.Ø3	2.48	-1.98	Ø.Ø25
Group 2	5.92	2.41		

Note. Group 1: N = 6Ø; Group 2: N = 6Ø.

Hypothesis 4

It was predicted by this hypothesis that those veterans with a diagnosis of PTSD (both inpatient and outpatient) would report significantly more depression than veterans with other diagnoses (both inpatient and outpatient) on the Beck Depression Inventory. A *t*-test was conducted in order to test this hypothesis.

Results of the *t*-test are shown in Table 5. As the table indicates, the mean score of the PTSD group (M = 33.07) was significantly higher than the mean score of the Comparison group (M = 19.63), ($t(118) = -5.09$, $p < .001$). Hypothesis 4 was thus supported by the results.

Insert Table 5 about here

Hypothesis 5

It was expected to find that due to the generalized after-affects of combat, combat veterans would experience significantly more life difficulties as measured by the Problem Checklist. Therefore, Hypothesis 5 predicted that combat veterans would report significantly more problems on subscales 1, 2, 4, 5, 6, 7, 8, and 9 of the Problem Checklist. *T*-tests were conducted on these variables to test for significance.

As predicted, the combat group reported significantly more problems than the non-combat comparison group as

Table 5

N, Means, Standard Deviations, T Values, and 1-tail Probabilities for the Beck Depression Inventory

	Group 1 (non-PTSD) vs. Group 2 (PTSD)				
Variable	N	Mean	St. Dev.	T Value	1-tail Prob.
Beck					
Group 1	60	19.63	14.58	-5.09	0.001
Group 2	60	33.07	14.31		

measured by the Problem Checklist. Subscales 5 (Interpersonal Problems) and 8 (Drug Abuse/Money Management Problems) were the two lone exceptions. Table 6 presents the means, standard deviations, T Values and 1-tail probabilities of the eight subscales for the two groups.

Insert Table 6 about here

In order to ascertain the most effective means for differentiating between the PTSD and non-PTSD groups, a stepwise discriminant analysis was conducted. Scales that were found to have significant differences between the PTSD and the Comparison groups were employed. The following scales were initially utilized: 1) Hypochondriasis (Hs), 2) Depression (D), 3) Paranoia (Pa), 4) Schizophrenia (Sc), 5) PTSD, 6) Manifest Hostility (HOS), 7) Hostility control (Hc), 8) Beck Depression Inventory (BDI) 9) Assault, 10) Irritability, 11) Suspicion, 12) Verbal Hostility, 13) Anger/Depression, 14) Emotional Numbness/Withdrawal, and 15) Schizoid Tendencies. Of these variables, scales 9, 5, 7, 1, 10, 3, 2, and 6 accounted for most of the discriminatory ability of the analysis. According to the stepwise method further analysis was completed with these eight variables.

Table 6

Means, Standard Deviations, T Values, and 1-tail Probabilities Comparing Group 1 (non-PTSD) vs. Group 2 (PTSD) on the Problem Checklist

	T-tests			
Variable	Mean	St. Dev.	T Value	1-tail prob.
Anger/Depression				
Group 1	5.32	3.61	-5.28	Ø.ØØ1
Group 2	8.45	2.84		
Emotional Numbness				
Group 1	3.8Ø	2.37	-5.ØØ	Ø.ØØ1
Group 2	5.65	1.61		
Anxiety/Cog Prob.				
Group 1	4.4Ø	2.23	-2.36	Ø.Ø1Ø
Group 2	5.3Ø	1.93		
Interpers. Diff.				
Group 1	2.78	1.56	-1.24	Ø.1Ø9
Group 2	3.13	1.52		
Schizoid Tendencies				
Group 1	1.65	1.29	-3.92	Ø.ØØ1
Group 2	2.52	1.13		
Job Problems				
Group 1	1.28	1.14	-1.76	Ø.Ø4Ø
Group 2	1.65	1.18		
Drug Abuse/ Money Problems				
Group 1	1.48	1.32	-1.Ø1	Ø.158
Group 2	1.73	1.4Ø		
Criminal Behavior				
Group 1	Ø.5Ø	Ø.85	-2.9Ø	Ø.ØØ2
Group 2	1.ØØ	1.Ø3		

Note. Group 1: N = 6Ø; Group 2: N = 6Ø.

Table 7 presents the results of the discriminant analysis. As the table indicates, the variables employed

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Insert Table 7 about here

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had relatively high Wilks' Lambda, high F's and levels of significance less than $p < .01$.

Table 8 presents the classification results. As the table indicates, the eight scales correctly classified 76.07% of the cases. It also shows that 82.5% of the

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Insert Table 8 about here

Combat group were correctly classified using these scales. However, only 70% of the Noncombat group were correctly classified.

It was next decided that further discriminant analyses would be conducted on the scales which directly addressed the PTSD symptomology focused on in this study. Scales PTSD, BDI, Anger/Depression, and Hc were thus analyzed. The scale, Wilks' Lambda, F, and significance levels are presented in Table 9.

Insert Table 9 about here

Table 7

Variable, Wilks' Lambda, F, and Significance Level

Discriminant Analysis				
Variable	Wilks' Lambda	F	Significance	Coefficient
Assault	Ø.762	35.92	Ø.ØØ1	Ø.79
PTSD	Ø.764	35.57	Ø.ØØ1	Ø.77
Anger/De.	Ø.798	29.1Ø	Ø.ØØ1	Ø.64
Irritability	Ø.795	29.6Ø	Ø.ØØ1	Ø.6Ø
BDI	Ø.816	25.89	Ø.ØØ1	Ø.58
Sc	Ø.843	21.4Ø	Ø.ØØ1	Ø.58
Hc	Ø.856	19.32	Ø.ØØ1	Ø.57
D	Ø.886	14.78	Ø.ØØ1	Ø.56
Emo. Numbness	Ø.828	23.92	Ø.ØØ1	Ø.55
HOS	Ø.912	11.12	Ø.ØØ1	Ø.54
Suspicion	Ø.858	18.98	Ø.ØØ1	Ø.52
Hs	Ø.891	14.Ø1	Ø.ØØ1	Ø.48
Verbal Host.	Ø.922	9.66	Ø.ØØ2	Ø.44
Pa	Ø.875	16.44	Ø.ØØ1	Ø.42
Schizoid Tend.	Ø.868	11.52	Ø.ØØ1	Ø.41

Table 8

Actual Group, Number of Cases, Predicted Group Membership and Percent of "Grouped" Cases Correctly Classified for the Eight Scales

Classification Results			
Actual Group	No. of Cases	Predicted Group Membership	
		Noncombat	Combat
Noncombat	60	42 70.0%	18 30.0%
Combat	57	10 17.5%	47 82.5%

Percent of "Grouped" Cases Correctly Classified: 76.07%

Table 9

Variable, Wilks' Lambda, F, and Significance Level for Scales PTSD, BDI, Anger/Depression, and Hc

	Discriminant Analysis			
Variable	Wilks' Lambda	F	Significance	Coefficient
PTSD	Ø.764	35.57	Ø.ØØ1	Ø.9Ø
Anger/De.	Ø.798	29.1Ø	Ø.ØØ1	Ø.81
BDI	Ø.816	25.89	Ø.ØØ1	Ø.77
Hc	Ø.856	19.32	Ø.ØØ1	Ø.66

Using these four variables to discriminate between groups, a slightly smaller percentage (74.36%) of subjects were correctly classified. Table 10 presents the

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Insert Table 10 about here

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classification results. In addition, a slightly smaller percentage of Combat cases were correctly classified.

Individual discriminant analyses were performed on the scales PTSD, BDI, Anger/Depression, and Hc. Using the MMPI subscale PTSD, 70.94% of the cases were correctly classified. The classification results are presented in Table 11 as well as the Wilks' Lambda, F, and significance levels.

Insert Table 11 about here

The Beck Depression Inventory was then analyzed. As Table 12 presents, by using the BDI alone less cases

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Insert Table 12 about here

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were correctly classified. Only 68.3% of the Combat group and 66.7% of the Noncombat group were correctly classified using the BDI.

Table 13 presents the discriminant analysis of

Table 10

Actual Group, Number of Cases, Predicted Group Membership, and Percent of "Grouped" Cases Correctly Classified Employing the Scales PTSD, BDI, Anger/Depression, and Hc

Classification Results			
Actual Group	No. of Cases	Predicted Group Membership	
		Noncombat	Combat
Noncombat	60	41 68.3%	19 31.7%
Combat	57	11 19.3%	46 80.7%

Percent of "Grouped" Cases Correctly Classified: 74.36%

Table 11

Actual Group, Number of Cases, Predicted Group Membership, Percent of "Grouped" Cases Correctly Classified, and Statistics Employing the MMPI Subscale PTSD

Classification Results			
Actual Group	No. of Cases	Predicted Group Membership	
		Noncombat	Combat
Noncombat	60	39 65.0%	21 35.0%
Combat	57	13 22.8%	44 77.2%

Percent of "Grouped" Cases Correctly Classified: 70.94%

Wilks' Lambda	F	Significance
0.764	35.57	0.001

Table 12

Actual Group, Number of Cases, Predicted Group Membership, Percent of "Grouped" Cases Correctly Classified, and Statistics Employing the Beck Depression Inventory

Classification Results			
Actual Group	No. of Cases	Predicted Group Membership	
		Noncombat	Combat
Noncombat	60	40 66.7%	20 33.3%
Combat	60	19 31.7%	41 68.3%

Percent of "Grouped" Cases Correctly Classified: 67.50%

Wilks' Lambda	F	Significance
0.820	25.93	0.001

the Anger/Depression Scale of the Problem Checklist. As the table indicates, 70.83% of the cases were correctly

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Insert Table 13 about here

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classified. A high percentage of Combat cases (76.7%) were correctly classified.

The final discriminant analysis performed was on the Hc subscale of the MMPI. The results were similar to previously reported results in this study. The percent of the total cases correctly classified was 66.67%. Table 14 presents the results of the analysis.

Insert Table 14 about here

A factor analysis was conducted on the BDHI and the PC. It was hypothesized that the major factors found would be similar to the original factors and would assist in the description of the population studied. A total of 22 factors were found for the BDHI. Most of the variance was accounted for by the first four factors. These four factors of the BDHI are presented in Appendix F. As for the PC, a total of 10 factors were found. As with the BDHI, most of the variance was accounted for by the first four factors. The four factors generated are presented in Appendix G.

Table 13

Actual Group, Number of Cases, Predicted Group Membership, Percent of "Grouped" Cases Correctly Classified, and Statistics Employing the Anger/Depression Scale of the Problem Checklist

Classification Results

Actual Group	No. of Cases	Predicted Group Membership	
		Noncombat	Combat
Noncombat	60	39 65.0%	21 35.0%
Combat	60	14 23.3%	46 76.7%

Percent of "Grouped" Cases Correctly Classified: 70.83%

Wilks' Lambda	F	Significance
0.809	27.90	0.001

Table 14

Actual Group, Number of Cases, Predicted Group Membership, Percent of "Grouped" Cases Correctly Classified, and Statistics Employing the Hc Subscale of the MMPI

Classification Results

Actual Group	No. of Cases	Predicted Group Membership	
		Noncombat	Combat
Noncombat	60	36 60.0%	24 40.0%
Combat	60	16 26.7%	44 73.3%

Percent of "Grouped" Cases Correctly Classified: 66.67%

Wilks' Lambda	F	Significance
0.915	10.90	0.001

Hypothesis 6

Hypothesis 6 predicted that outpatients with a diagnosis of PTSD would present as less pathological on the questionnaires than inpatients with a diagnosis of PTSD. Thus the outpatient population was predicted to score in the less pathological direction on the scales mentioned in the previous four hypotheses. It was also hypothesized that outpatients with a diagnosis of PTSD would endorse significantly more items that identify specific targets for their angry and hostile feelings than inpatients with a diagnosis of PTSD. It was further predicted that inpatients with a diagnosis of PTSD would endorse significantly more items that identified inwardly directed hostile thoughts and feelings.

A MANOVA and ANOVA were conducted on the MMPI data. The T-score means and standard deviations are presented in

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Insert Table 15 about here

Table 15. The results of the univariate and multivariate analysis of variance that was executed in order to analyze the clinical scales of the MMPI, and the MMPI subscales PTSD, O-H, HOS, and the Hc are presented in Table 16. The results of the MANOVA showed a significance level of only $p < .137$. The only significant differences between groups were found on scale 7 (Psychasthenia) and Ø

Table 15

N, Means, and Standard Deviations of T-Scores on the Subscales of the MMPI for Group 1 (Inpatient) vs. Group 2 (Outpatient)

		Group 1 vs. Group 2		
Variable		N	Mean	Standard Dev.
L	Group 1	30	49.66	7.22
	Group 2	27	47.81	5.03
F	Group 1	30	89.23	17.88
	Group 2	27	86.93	22.34
K	Group 1	30	43.90	6.39
	Group 2	27	46.44	8.24
Hs	Group 1	30	79.07	13.71
	Group 2	27	82.81	19.34
D	Group 1	30	97.77	12.52
	Group 2	27	89.52	21.10
Hy	Group 1	30	73.80	9.33
	Group 2	27	75.33	10.66
Pd	Group 1	30	85.47	10.38
	Group 2	27	83.44	12.04
Mf	Group 1	30	65.77	9.35
	Group 2	27	63.41	10.26
Pa	Group 1	30	81.90	13.65
	Group 2	27	79.37	16.36
Pt	Group 1	30	90.73	11.53
	Group 2	27	82.22	18.08
Sc	Group 1	30	105.77	16.97
	Group 2	27	97.11	26.02
Ma	Group 1	30	70.10	11.12
	Group 2	27	70.55	11.60

Table 15 (cont'd)

Si	Group 1	30	71.73	8.27
	Group 2	27	64.78	12.43
PTSD	Group 1	30	64.97	6.54
	Group 2	27	55.29	17.99
HOS	Group 1	30	61.50	8.40
	Group 2	27	56.04	15.68
O-H	Group 1	30	51.50	10.49
	Group 2	27	47.04	13.41
Hc	Group 1	30	18.97	3.93
	Group 2	30	15.63	8.39

Table 16

Univariate and Multivariate Analysis of Variance of Raw Scores of the MMPI Comparing Inpatient PTSD vs. Outpatient PTSD Groups

Univariate Analysis of Variance

Variable	Hyp. SS	Error SS	Hyp. MS	Error MS	F	F Sig.
L	3.99	194.99	3.99	3.55	1.12	.294
F	20.46	5247.46	20.46	95.41	0.21	.645
K	25.40	839.26	25.40	15.26	1.66	.202
Hs	28.30	2320.97	28.30	42.20	0.67	.416
D	151.99	2705.00	151.99	49.18	3.09	.084
Hy	8.84	1698.03	8.84	30.87	0.29	.595
Pd	9.52	1230.37	9.52	22.37	0.43	.517
Mf	20.59	1403.13	20.59	25.51	0.81	.373
Pa	6.96	1366.97	6.96	24.85	0.28	.599
Pt	242.34	2981.80	242.34	54.21	4.47	.039
Sc	303.12	7065.44	303.12	128.46	2.36	.130
Ma	0.61	1136.65	0.61	20.66	0.03	.864
Si	808.84	5468.03	808.84	99.42	8.14	.006
PTSD	318.38	5217.87	318.38	94.87	3.36	.072
HOS	12.68	4112.83	12.68	74.78	0.17	.682
OH	9.26	1531.72	9.26	27.85	0.33	.566
HC	36.21	1675.26	36.21	30.46	1.19	.280

MANOVA Test Name	Value	Exact F	Hyp. DF	Err. DF	Sig.
Wilks	0.601	1.524	17.00	39.00	.137

(Social Introversion). Raw score means and standard deviations of the scales utilized are presented in Appendix H.

Insert Table 16 about here

Results of the modified-BDHI are presented in Table 17. The significant differences between the inpatient and outpatient PTSD groups were less than expected. Only subscales Irritability ($p < .083$) and Suspicion ($p < .075$) were close to significance.

Insert Table 17 about here

There were no significant differences between groups on the BDI ($t(58) = 0.79$, $p < 0.22$). Several significant differences between groups on the Problem Checklist were found. Table 18 presents the results of these analyses.

Insert Table 18 about here

The table indicates that six of the nine scales analyzed were significant beyond the $p < .05$ level.

In order to analyze whether or not the inpatient PTSD group endorsed items that indicated inwardly directed hostile thoughts and feelings and a more generalized

anger, a phi coefficient and x^2 was conducted on all the items of the BDHI, the items on the Problem Checklist, and the items on the PTSD subscale. Table 19 presents the

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Insert Table 19 about here

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item number, phi coefficient, and x^2 results of the significant results found. There were 186 items analyzed. Of the 186 items analyzed, only 12 items reached a significance level of $p < .05$.

Table 17

N, Means, Standard Deviations, T Values, and 1-tail Probabilities Comparing Group 1 (Inpatient) vs. Group 2 (Outpatient) on the Subscales of the modified-BDHI

			T - tests		
Variable	N	Mean	St. Dev.	T Value	1-tail Prob.
Assault					
Group 1	30	5.86	1.87	0.27	0.348
Group 2	30	5.73	1.89		
Indirect Hostility					
Group 1	30	4.60	1.50	-0.89	0.190
Group 2	30	4.93	1.41		
Irritability					
Group 1	30	7.66	1.24	1.40	0.083
Group 2	30	7.03	2.14		
Negativism					
Group 1	30	2.10	1.35	-0.35	0.343
Group 2	30	2.23	1.57		
Resentment					
Group 1	30	4.53	1.59	0.20	0.422
Group 2	30	4.43	2.27		
Suspicion					
Group 1	30	6.03	1.67	1.46	0.075
Group 2	30	5.27	2.35		
Verbal Hostility					
Group 1	30	7.80	2.43	0.00	1.000
Group 2	30	7.80	2.70		
Guilt					
Group 1	30	6.03	2.31	0.37	0.355
Group 2	30	5.80	2.54		

Table 18

Means, Standard Deviations, T Values and 1-tail Probabilities Comparing Group 1 (Inpatient) vs. Group 2 (Outpatient) on the BDI and PC Subscales

		Inpatient Vs. Outpatient			
Variable	N	Mean	St. Dev.	T Value	1-tail Prob.
BDI					
Group 1	30	34.53	12.68	0.79	0.216
Group 2	30	31.60	15.86		
Anger/Depression					
Group 1	30	9.12	1.93	2.00	0.025
Group 2	30	7.73	3.41		
Emotional Numbness					
Group 1	30	6.10	0.92	2.23	0.015
Group 2	30	5.20	2.01		
Anxiety/Cognitive Problems					
Group 1	30	6.10	1.40	2.15	0.018
Group 2	30	5.13	2.03		
Interpersonal Difficulties					
Group 1	30	3.63	1.33	2.67	0.005
Group 2	30	2.63	1.56		
Schizoid Tendencies					
Group 1	30	2.77	0.97	1.75	0.043
Group 2	30	2.27	1.23		
Job Problems					
Group 1	30	1.73	1.23	0.56	0.578
Group 2	30	1.57	1.07		
Drug Abuse/Money Problems					
Group 1	30	2.03	1.52	1.68	0.048
Group 2	30	1.43	1.22		
Criminal Behavior					
Group 1	30	1.13	1.01	1.01	0.159
Group 2	30	0.87	1.04		

Table 19

Scale, Item, Phi Coefficient, X^2, and Significance Level of the Items That Reached Significance on the modified-BDHI, the Problem Checklist, and the PTSD Subscale

	Inpatient Vs. Outpatient			
Scale	Item	Phi Coefficient	X^2	Significance
BDHI				
	18	Ø.268	4.32	.Ø4
	26	Ø.268	4.32	.Ø4
	58	Ø.258	4.Ø2	.Ø4
	66	Ø.294	5.19	.Ø2
PC				
	1	Ø.283	4.81	.Ø3
	1Ø	Ø.294	5.19	.Ø2
	48	Ø.352	7.17	.Ø1
PTSD				
	22	Ø.343	6.7Ø	.Ø1
	152	Ø.337	6.49	.Ø1
	241	Ø.3Ø1	5.18	.Ø2
	336	Ø.275	4.31	.Ø4
	338	Ø.264	3.96	.Ø5

Chapter V

DISCUSSION

Overview

The results of the study supported, with few exceptions, the hypotheses presented. Those Vietnam combat veterans with Posttraumaic Stress remain very troubled individuals. In addition, there are clear distinctions between those seeking treatment for Posttraumatic Stress Disorder symptoms and those with other psychological difficulties.

Information gathered from this study revealed that the PTSD group and the comparison group were very similar on demographic characteristics. There were few significant differences found between them. Most of the subjects were Caucasion and had at least a high school education. The next most populous ethnic group was Black, with 10.0% of combat and 16.7% of the non-combat respondents falling into this category. The percentage of minority groups in this study was lower than the national average (Boyle et al., 1987). This could be due to the geographic areas in which subjects were drawn or that many minority groups do not seek treatment (Allen, 1986; Escobar et al., 1983).

On average, both groups began their military careers around 1965-66 and ended them between 1970 and 1971. Many of the veterans were currently married (PTSD, 46.7%; non-PTSD, 30.0%). However, significantly more non-PTSD veterans were currently single (PTSD, 5.0%; non-PTSD, 26.7%). A high percentage of both groups also reported being divorced (PTSD, 35.0%, non-PTSD, 36.7%). All veterans in the study had honorable discharges.

Almost two-thirds of all participants were currently on medication, with antidepressants being the most frequently prescibed. Alcoholism and/or Personality Disorder was frequently an additional diagnosis. Mood Disorder for the non-PTSD group accounted for fifty percent of diagnoses given. Significantly more non-PTSD subjects were diagnosed with a Mood Disorder than the PTSD group. This is most likely a reflection of some variant of a Mood Disorder diagnosis frequently given to those admitted to inpatient psychiatric hospitals.

A finding of the study which may be important in determining which veterans would later develop PTSD symptoms was the item concerned with age of entry into military service. As mentioned in the introduction, the average age of beginning service for Vietnam combat veterans was 19.6 years. The PTSD veterans in this study reported a mean age of 18.4 at the start of service. Theorists have discussed the fact that the average age for

Vietnam veterans was younger than veterans of other wars that America has fought (Wilson, 1978; Brende, 1983). These theorists believed that one of the main factors in the development of PTSD was the fact that the Vietnam veteran was much younger than his World War II and Korean War counterpart. The results of this study, although not directly addressing this factor as well as some others such as frequency and intensity of combat and loss of a close friend (Card, 1987; Fox, 1974; Friedman et al., 1986; Solkoff et al., 1986), adds credence to the theory that age was a critical factor in the development of PTSD.

Subjects in both groups responded similarly when giving past psychiatric histories. Few subjects reported psychiatric hospitalizations during the service. Many reported that the current hospitalization or outpatient treatment was not their first contact with a mental health agency. Sixty percent of the PTSD group reported previous hospitalizations while 51.7% of the comparison group had at least one hospitalization. As for outpatient treatment, two-thirds of the index group reported previous outpatient contact while the comparison group reported a rate of 78%.

Only five percent of the combat group reported outpatient psychiatric treatment prior to enlistment. None of the combat group reported an inpatient psychiatric history or a criminal record prior to the

service. The figures for the comparison group on these items were 10.2%, 5.1%, and 3.4%, respectively. There were no significant differences found between the two groups on these items. These findings, as well as most of the other responses reported on the Demographic Form, supported previous studies which have shown that the pre-service histories of those who develop PTSD are not any different from the general veteran population (Boulanger, 1985; Emery, 1987; Figley, 1978; Foy & Card, 1987; Foy et al., 1984).

Almost half of the combat veterans responded in the affirmative to the question "Criminal Record After Service" while none reported a criminal record before the service. The comparison group reported significantly less problems with the law after the service and few difficulties before. Walker (1981) reported a high incidence of legal difficulties experienced by Vietnam veterans. This incidence may be higher than any other select group. A study by Boyle (1987) also found the incidence of criminal court contact by Vietnam veterans to be high. The responses to the questions concerning criminal contact, therefore, in this study are consistent with past research and government statistics. This consistency with previous studies would appear to validate the voracity of the volunteers.

Significantly more of the comparison group admitted

to a family history for psychiatric illness than did the PTSD group (32.2% to 11.9% respectively). This could be accurate or it could be seen as another way of combat veterans minimizing pre-service variables and focusing on service experiences as being the root of their current distress. Charts were reviewed to check reliability of patient reports and they were found to be consistent with self-reports.

There is always potential for some form of secondary gain when dealing with any psychiatric population. In this case, the fact that 75% of the combat group had some form of service connected disability may have been an uncontrolled factor affecting the results. It is possible that some veterans in the study exaggerated their symptoms in a false belief that appearing emotionally unstable on the questionnaires would maintain their disability compensation. As several researchers have cautioned (Fairbank, 1985; Fleming, 1985; Sparr and Pankratz, 1983), therapists and researchers must be aware that malingering is a possibility. It is possible that some subjects were overstating their symptoms for some unknown secondary gain. However, their self-reports were consistent with their psychiatric histories and the data overall reflects, quite consistently, past research in this area. It was assumed in this study, therefore, that the data gathered was as reliable and valid and the

subject selection was as random as could be expected.

It is apparent from these results that those who are suffering from the symptoms of PTSD have a relatively high frequency of mental health agency and criminal court contact. In addition to seeking services at different VAMC's, many of the veterans reported having had contact with private agencies as well as community mental health centers over the past fifteen years.

Assessment of Hostility and Anger

The major focus of this study, that issues of hostility and anger remain a major difficulty for combat veterans, was supported by the data. Those veterans with a diagnosis of PTSD reported significantly more problems with many different types of hostility and anger than the non-PTSD group. On the modified-BDHI, PTSD subjects reported significantly higher mean scores on the following scales: 1) Assault, 2) Irritability, 3) Resentment, 4) Suspicion, 5) Verbal Hostility, and 6) Guilt. They also had significantly higher HOS and Hc scores.

According to Buss and Durkee (1957), the PTSD group could be described as experiencing themselves as violent towards others at times, quick tempered and easily provoked, with a "feeling of anger at the world over real or imagined fantasied mistreatment" (Buss & Durkee, 1957, p. 343). Suspicion and mistrust as to others' motives was also found to be a significant problem amongst this sample

of Vietnam veterans. Results also indicated that Vietnam veterans perceived themselves as argumentative and verbally aggressive both in style and content of speech.

As to the factor of Guilt, which Buss and Durkee related to hostility, the PTSD group again scored significantly higher than the comparison group. Theorists have related guilt feelings to symptoms of PTSD for many years (Green, 1985; Levin et al., 1975; Shatan, 1974). Significantly high scores on the Guilt scale for the PTSD group also supported the MMPI profile results. Those Vietnam combat veterans who are in treatment, therefore, could be described as continuing to experience much survivor guilt.

The slightly elevated HOS and Hc scales further supported the hypotheses presented. Those who score high on the Manifest Hostility Scale (HOS) are described as harboring intense hostile and aggressive impulses (Graham, 1982). They are also seen as resentful, argumentative, with many interpersonal difficulties. The Hc scale is more an indicator of indirect hostility expressed without the full awareness of the individual (Schultz, 1954). These results further showed that combat veterans are experiencing difficulty with angry and hostile feelings.

The MMPI Profile

The MMPI results were consistent with past research. Fairbank, Keane, and Malloy (1983) reported an 8-2 profile

for their PTSD group. This profile was also found to be characteristic of the PTSD group in this study. Scale 5 was not different between groups for their study and neither was it for the present one. Similar results were found by Keane et al. (1984) and Burke and Mayer (1985).

For the present study, the MMPI profiles of the PTSD group indicated severe depression, anxiety, and hypervigilance. This group could be characterized as withdrawn, guilt-ridden, and self-accusatory (Lachar, 1981). They also could be described as irritable and resentful with a fear of loss of control (Graham, 1982). In addition, suspiciousness has been attributed to those who have 8-2-7 profiles.

The profile of the comparison group was similar to that of the PTSD group. This group could thus be described as experiencing similar symptoms as the PTSD group. The difference being that on 8 of 10 clinical subscales, the PTSD group scored higher. The index group scored significantly higher on eleven of the fourteen subscales evaluated. This finding was also similar to past research with the MMPI (Burke & Mayer, 1985; Fairbank et al., 1983; Keane et al., 1984). Therefore, the comparison group could be described in generally the same terms as the PTSD group, but as not experiencing the same intensity of psychological distress.

It is important when reviewing any MMPI protocal to review the validity scales. The mean F scale T-score was 88 for the PTSD group. This was two T scale points lower than Graham's (1982) suggested cutoff. The mean F-K index was 10.6. This difference is acceptable by some (Fairbank et al., 1983, Gendreau et al., 1973) and not by others (Graham, 1982; Green, 1980). When dealing with a trauma group, such as combat veterans, the F-K index difference as found in this study is in the acceptable range and indeed appears to be the norm (Burke & Mayer, 1985; Fairbank et al, 1983; Malloy et al, 1983).

Cross Validation

The other instruments used in this study cross validated the MMPI findings and painted a more complete picture of the Vietnam combat veteran. The Beck Depression Inventory results clearly indicated severe depression (Beck et al., 1961) in the PTSD group ($\underline{M}$=33). Past research has used the Beck with positive results (Fairbank et al, 1983; Helzer et al, 1976; Hyer et al., 1986). It would appear from present results that the BDI was an accurate gauge of current depressive states of the Vietnam combat veteran.

Results of this study showed that the comparison group, with fifty percent diagnosed with some type of Mood Disorder, had a mean BDI score of 19.63. This mean fell into the "moderate depression" range (Beck et al., 1961).

In contrast, the PTSD group had a mean BDI score of 33.07 which falls into the "severe depression" range (Beck et al., 1961). The BDI indicated that a Vietnam veteran suffering from the trauma of combat would be expected to be experiencing extreme degrees of depression. The topic of suicide must also be kept in mind when dealing with any individual scoring in the severe depression range. The elevated BDI scores indicated that Vietnam veterans with a diagnosis of PTSD may need to be questioned about suicidal ideation or intent.

Other studies have indicated similar results. Nace et al. (1978) assessed Vietnam veterans with the Beck Depression Inventory. Although exact figures were not mentioned, they reported that most of the depressed veterans scored within the moderate and severe range on the BDI. Mueser and Butler (1987) did not utilize the BDI, but assessed the PTSD groups depression in relation to other symptoms. The authors reported a high incidence of depression among their study group. Sonnenberg, Blank, and Talbott (1985) also addressed the importance of depression when dealing with combat-related trauma.

Over a decade ago Helzer, Robins, and Davis (1976) reported the incidence of depressive disorders to be significantly more common to those veterans who experienced combat. In that study, the incidence of depression correlated highly with the loss of a friend in

combat. The authors stated that they were unable to predict how long the symptoms of depression would last. It appears that the experience of depressive symptoms has lasted longer than anyone would have imagined. The results of this study clearly demonstrated that those veterans who have a current diagnosis of combat related PTSD are experiencing extreme degrees of depression. The relegation of depression to an associated feature in DSM-III-R, therefore, has to be questioned.

The current study utilized the Problem Checklist. The Problem Checklist was developed in part to validate the criteria stipulated in DSM-III (Schauer et al., 1985). The results they reported were similar to the findings of the current study. However, means on the subscales for this study were slightly higher than those reported by Schauer et al. (1985).

In this study, veterans suffering from PTSD reported experiencing anger and depression with isolative behavior. An emotional withdrawing from others was indicative of these individuals. Anxiousness, an inability to concentrate, and a significant lack of trust were reported as major concerns. The PTSD subjects also reported current problems with substance abuse and past criminal behavior. These results, therefore, support Schauer et al. (1985) and, in general, the DSM-III-R description of PTSD symptomatology.

It appears from the results of this research that the best manner for discriminating between veterans with a diagnosis of PTSD and veterans with other clinical diagnoses was by using the eight subscale method. Of the fifteen subscales initially employed, the following accounted for the most discriminatory ability: 1) Assault, 2) PTSD, 3) Hc, 4) Hs, 5) Irritability, 6) Pa, 7) D, and 8) HOS. These eight subscales produced a moderate degree of separation (Wilks' lambda of Ø.652). These eight subscales appear to cover a wide range of PTSD symptoms. By that method, 82.5% of the PTSD cases were correctly classified. An overall percentage of 76.Ø7% of cases were correctly classified.

Discriminating between groups using the variables PTSD, BDI, Hc, and Anger/Depression, also produced relatively reliable results. Using these four scales an 8Ø.7% correct classification rate was found for PTSD subjects and an overall rate of 74.36%. The differences between classification rates were small, but it would appear that by using the eight subscale method a larger percentage of individuals could be more accurately classified. Therefore, it may benefit a clinician to use the eight subscales utilized in this study when attempting to assess an individual presenting with PTSD symptoms.

As for using the PTSD subscale to differentiate

between groups, the results of this study were similar to those reported by Hyer et al. (1986) and Keane et al. (1985). Hyer et al. reported a correct classification rate for all groups assessed to be 69% and for the PTSD group a true positive rate of 73%. The present study found an overall correct classification rate of 70.94% and a PTSD group rate of 77.2%. Both of these results are lower than Keane et al.'s overall correct classification rate of 82%. One possible reason for this difference was the Keane et al. study was the only one which included a comparison group consisting of subjects with a schizophrenic diagnosis.

According to the present study, the standard clinical MMPI subscales and the subscales PTSD, HOS, and Hc would appear to be valid assessment tools for identifying patients who are suspected of experiencing Posttraumatic Stress Disorder symptoms. In addition, clinicians should be aware of the elevated profiles and high F-K Indexes of combat veterans.

The factors generated by the factor analysis proved to be of questionable utility. The factor analysis of the BDHI (Appendix I) stipulated 22 factors. This is almost three times the number of original factors. Only the first four factors appeared to be of any utility. The main difficulty with generalizability of results with this analysis was the fact that there were less than two

observations per case. This would seem to make the factor analysis confusing and meaningless (Thorndike, 1982, p. 286). It appeared more useful, therefore, to use the original eight scales as presented by Buss and Durkee. That is what was done in this study in order to describe the subject population.

Almost the same can be said to be true with the Problem Checklist factor analysis (Appendix I). In that case, there was more than a two to one ratio of observations to cases. A total of ten factors were generated, but as in the BDHI analysis only the first four were considered useful. Many of the new factors were similar to the originals. Both had factors related to worry or anxiety, war related problems, anger management problems, drug and criminal problems, interpersonal difficulties, and employment difficulties. The new factors that were somewhat different were those related to self-perceptions or self-image and family problems. These two factors may assist, to a small degree, in stating that those with PTSD symptoms appear to have a poor self-image and that they believe there are family problems which need to be addressed in treatment.

Inpatient and Outpatient PTSD Groups

Some of the hypothesized differences between inpatient and outpatient PTSD groups were substantiated. It was hypothesized that the outpatient PTSD subjects

would score less pathological on personality measures than the inpatient PTSD subjects. This was proven to be the case. On almost all of the subscales analyzed, the outpatient PTSD population scored in the less pathological direction when compared to the inpatient PTSD population.

On the MMPI, the only significant differences were on scales 7 (Psychasthenia) and 0 (Social Introversion) with the inpatient group scoring in the more pathological direction. These results would indicate that outpatients admitted to experiencing less anxiety, tenseness, and social withdrawal than the inpatient counterpart. Scores were elevated for both groups on these scales but the inpatient group had significantly higher scores on both scales mentioned above.

There were no significant differences found between groups on the PTSD, the O-H, the HOS, and the Hc MMPI scales. The PTSD scale was the closest to reaching significance. The outpatient PTSD groups overall mean score ($\underline{M}$ = 29.3) was slightly less than the cutoff score of 30 prescribed by Keane (1984). Outpatients, therefore, may have borderline low PTSD scores. This would appear to be an important factor to be cognizant of if one is evaluating an individual in an outpatient situation. Other indicators of the disorder, such as a high HOS, Hc, or an elevated MMPI profile, would have to be assessed if the PTSD score of an individual did not reach the

suggested 30 point cutoff score.

Although their BDI scores were less than the inpatient group, feelings of depression continued to be a concern for outpatient subjects. Symptoms of depression and concerns about suicide may need to be evaluated by any clinician working with either inpatient or outpatient combat veterans.

Most of the significant differences between the inpatient and outpatient PTSD groups were found on the Problem Checklist. According to the scale that addresses anger and depression, the inpatient group reported significantly more difficulties managing angry or depressive feelings. The statements related to depression addressed an overwhelming feeling of depression and sadness, and a feeling of hopelessness and gloom.

In addition, the outpatient population in this study reported significantly less anxiety, less interpersonal difficulties and less isolative behavior, less drug abuse and financial problems, with a better ability to concentrate. A major concern for the outpatient group, as well as the inpatient group, appears to be job related difficulties. It would appear from this study that assisting the combat veteran in areas related to employment is a necessary ingredient for a successful therapeutic treatment plan.

The hypothesis that outpatients would indicate more

specific targets of their angry thoughts and that inpatients would indicate inwardly directed hostile thoughts and feelings was not supported by the data. An analysis of 186 items were analyzed in order to test this hypothesis. Of these items only 12 reached significance. This number is only about three items more than would be expected by chance. Both groups reported having difficulty modulating the expression of their angry feelings. Outpatients did not identify specific targets of anger any more than inpatients. Both inpatients and outpatients reported difficulty with the external expression of anger such as picking items up and breaking them or slamming doors when angered. Inpatients were no more likely to express difficulties with inwardly directed hostile thoughts and feelings than outpatients.

The items "Most nights I go to sleep without thoughts or idea bothering me" and "I dream frequently about things that are best kept to myself" of the MMPI were endorsed in the pathological direction more frequently by inpatients than outpatients. This would indicate that inpatients may be experiencing more nightmares or intrusive thoughts than outpatients.

Limitations of the Study

A major limitation of the generalizability of results for this study was the population employed. This study utilized subjects that had some form of Veterans

Administration contact. Results, therefore, may not be indicative of the Vietnam veteran population en masse. There are many veterans who seek out private or community mental health agencies through their own work related insurance coverage. Others, due to their mistrust and disappointment towards the VA system (Atkinson, 1982), may contact any non-government affiliated mental health source.

This study was directed solely towards increasing the understanding of the Vietnam combat veteran and thus may be limited to combat-related trauma similar to that experienced by Vietnam veterans. Other populations that may have similar experiences are Israeli soldiers in occupied territory (Solomon et al., 1987) and policeman in high crime rate areas (Martin, McKean, & Veltkamp, 1986).

All measures utilized in the present study were of the self-report nature. It was difficult to substantiate much of the demographic information provided. A check of the patients History and Physical and Social Assessment was done whenever possible. Any further investigative analysis, other than the verification of the patients official discharge sheet (DD214), was not undertaken.

Therefore, as mentioned previously the combat veteran could have been overstating his current problems or underreporting pre-service difficultes in order to blame the war for much of his current emotional distress. Other

possible reasons for this behavior could be to retain his service connected disability, or to deny early or current traumatic events as being the cause of his emotional difficulties.

Facts which highly contradict these possibilities are that the results are very similar to other studies of this nature. Vietnam veterans consistently score higher on many different psychological measures. It would be very difficult to believe that hundreds, if not thousands, of veterans have been lying about their turmoil for the past twenty years.

Another factor which must be kept in mind was that all subjects were volunteers with absolutely no compensation given other than the results of their tests being reviewed with them by their primary therapist. Subjects were informed that they could receive results of their tests if they so desired. Only a handful of veterans requested results be provided. In any event, the fact that they were volunteers must be kept in mind when evaluating the results.

One reason for the overall few significant results in the comparison of inpatient versus outpatient combat veterans could have been the different time periods of therapy contact that the outpatients had in treatment. Therapy contact ranged from several months to several years. Another difference in the outpatient group that

could not be avoided was the consistency of therapeutic attendance. Again, this factor had a range that might have affected the outcome. Finally, the outpatient population was involved in a variety of therapeutic experiences. Some were in individual therapy, some in group therapy, others in couples counseling and others were in some combination of the above. This discrepancy was impossible to overcome given the time and scope of the research project.

Summary and Conclusion

Overall, the data supported the hypotheses presented. Results of this study indicated that Vietnam veterans in treatment are continuing to experience severe symptoms of Posttraumatic Stress Disorder. Criteria as presented in DSM-III-R are supported by these findings. The inclusion of symptoms of hostility and anger as essential features of PTSD in DSM-III-R was an improvement over DSM-III. Results of this study give statistical support to that inclusion which was previously unsubstantiated by any in-depth research endeavor.

The one shortcoming of DSM-III-R could be in the area of depression. Depressive symptoms as reported in this study appear to be a major concern for those suffering from combat-related PTSD. Issues of loss of a part of one's youth, loss of a friend, or loss of part of one's body or of some body function (for those who have been

wounded or lost a limb) must be addressed in treatment. Guilt and its relation to depressive symptoms continue to be reported by Vietnam veterans.

The use of the MMPI as a diagnostic tool in the assessment of PTSD was also supported by this study. The MMPI profile of the Vietnam vet across studies has been remarkably consistent. An 8-2-7 profile, with an F-K Index reaching the upper limits of acceptance, is indicative of the Vietnam veteran. Indeed, extremely elevated scores have been the norm rather than the exception when using the MMPI with this population.

The hostility scales of the MMPI employed in this study and the Buss-Durkee Hostility Inventory were extremely useful in describing the characteristics of those suffering from PTSD. The Vietnam combat veteran continues to have difficulty modulating and managing angry and hostile impulses. Their anger ranges from verbal hostility and resentment to physical aggression. Involvment with the criminal justice system was also shown to be a significant problem. Joblessness and interpersonal difficulties were also a concern of the veteran.

The similarity of demographic data between groups must be seen as indicating that the etiology of combat-related Posttraumatic Stess Disorder was the trauma of combat. This is not to deny that pre-service

personality characteristics and histories would not affect the symptom presentation. Many of the veterans of this study had secondary diagnoses and/or Axis II diagnoses. The relationship between combat related PTSD, pre-service histories, and secondary diagnoses may need to be addressed in future research. Another area for future research could be how present stressors relate to PTSD symptoms or to evoked combat memories. Card (1987) presented the example of how difficulties at work caused by PTSD exacerbated PTSD symptoms. Work related stressors may evoke memories of failure or guilt related to combat. Another example could be separation from a significant other in the present may precipitate feelings of loss initially experienced as the loss of a friend in Vietnam. Issues related to past combat experiences and how they continue as life themes in the present could be an area for future research.

The overall picture of the Vietnam veteran and his current psychological state is much clearer. This study has substantiated the difficulty combat veterans continue to have with anger, hostility, depression, and guilt. Future research in the area of combat-related Posttraumatic Stress Disorder should address the effects of different forms of therapy, or combinations of therapies, on the reduction of PTSD symptoms.

The effects of the trauma of war cannot be denied any longer. The disorder has been shown to effect veterans from all socioeconomic backgrounds. It would appear from this study, that those veterans suffering from severe symptoms of PTSD are in great need of psychotherapy, resocialization, and retraining in order to become part of the American dream.

APPENDICES

Appendix A

Buss-Durkee Hostility Inventory

This inventory consists of numbered statements. Read each statement and decide whether it is true as applied to you or false as applied to you. If the statement is true as applied to you, then circle the T. If the statement is false as applied to you, then circle the F. Remember to give your own opinion of yourself. Do not leave any blank spaces if you can avoid it. Be sure that your answer agrees with the number of the statement.

1. I seldom strike back, even if someone hits me first. T F
2. I sometimes spread gossip about people I don't like. T F
3. Unless somebody asks me in a nice way, I won't do what they want. T F
4. I lose my temper easily but get over it quickly. T F
5. I don't seem to get what's coming to me. T F
6. I know that people tend to talk about me behind my back. T F
7. When I disapprove of my friends' behavior, I let them know it. T F
8. The few times I have cheated, I have suffered unbearable feelings of remorse. T F
9. Once in a while I cannot control my urge to harm others. T F
10. I never get mad enough to throw things. T F
11. When someone makes a rule I don't like I am tempted to break it. T F
12. Sometimes people bother me just by being around. T F
13. Other people always seem to get the breaks. T F
14. I tend to be on my guard with people who are somewhat more friendly than I expected. T F
15. I often find myself disagreeing with people. T F
16. I sometimes have bad thoughts which make me feel ashamed of myself. T F
17. I can think of no good reason for ever hitting anyone. T F
18. When I am angry, I sometimes sulk. T F
19. When someone is bossy, I do the opposite of what he asks. T F

20. I am irritated a great deal more than people are aware of. T F

21. I don't know any people that I downright hate. T F

22. There are a number of people who seem to dislike me very much. T F

23. I can't help getting into arguments when people disagree with me. T F

24. People who shirk on the job must feel very guilty. T F

25. If somebody hits me first, I let him have it. T F

26. When I am mad, I sometimes slam doors. T F

27. I am always patient with others. T F

28. Occasionally when I am mad at someone I will give him the "silent treatment." T F

29. When I look back on what's happened to me, I can't help feeling mildly resentful. T F

30. There are a number of people who seem to be jealous of me. T F

31. I demand that people respect my rights. T F

32. It depresses me that I did not do more for my parents. T F

33. Whoever insults me or my family is asking for a fight. T F

34. I never play practical jokes. T F

35. It makes my blood boil to have somebody make fun of me. T F

36. When people are bossy, I take my time just to show them. T F

37. Almost every week I see someone I dislike. T F

38. I sometimes have the feeling that others are laughing at me. T F

39. Even when my anger is aroused, I don't use "strong language." T F

40. I am concerned about being forgiven for my sins. T F

41. People who continually pester you are asking for a punch in the nose. T F

42. I sometimes pout when I don't get my own way. T F

43. If somebody annoys me, I am apt to tell him what I think of him. T F

44. I often feel like a powder keg ready to explode. T F

45. Although I don't show it, I am sometimes eaten up with jealousy. T F

46. My motto is "Never trust strangers." T F

47. When people yell at me, I yell back. T F

48. I do many things that make me feel remorseful afterward. T F

49. When I really lose my temper, I am capable of slapping someone. T F

50. Since the age of ten, I have never had a temper tantrum. T F

51. When I get mad, I say nasty things. T F

52. I sometimes carry a chip on my shoulder. T F

53. If I let people see the way I feel, I'd be considered a hard person to get along with. T F

54. I commonly wonder what hidden reason another person may have for doing something nice for me. T F

55. I could not put someone in his place, even if he needed it. T F

56. Failure gives me a feeling of remorse. T F

57. I get into fights about as often as the next person. T F

58. I can remember being so angry that I picked up the nearest thing and broke it. T F

59. I often make threats I don't really mean to carry out. T F

60. I can't help being a little rude to people I don't like. T F

61. At times I feel I get a raw real out of life. T F

62. I used to think that most people told the truth but now I know otherwise. T F

63. I generally cover up my poor opinion of others. T F

64. When I do wrong, my conscience punishes me severely. T F

65. If I have to resort to physical violence to defend my rights, I will. T F

66. If someone doesn't treat me right, I don't let it annoy me. T F

67. I have no enemies who really wish to harm me. T F

68. When arguing, I tend to raise my voice.	T	F
69. I often feel that I have not lived the right kind of life.	T	F
70. I have known people who pushed me so far that we came to blows.	T	F
71. I don't let a lot of unimportant things irritate me.	T	F
72. I seldom feel that people are trying to anger or insult me.	T	F
73. Lately, I have been kind of grouchy.	T	F
74. I would rather concede a point than get into an argument about it.	T	F
75. I sometimes show my anger by banging on the table.	T	F

Appendix B

Problem Checklist

Please read each statement and decide if it is currently a problem for you. If it currently is a problem for you, circle the T. If it currently is not a problem for you, circle the F. Do not leave any blank spaces.

1. Controlling your temper.	T	F
2. Improving relationships with your family.	T	F
3. Reacting to stress as you did when you were in combat.	T	F
4. Learning to worry less.	T	F
5. Getting along with people.	T	F
6. Getting rid of strange thoughts.	T	F
7. Finding or holding a job.	T	F
8. Overcoming your dependence on alcohol.	T	F
9. Learning how to control your behavior to avoid future trouble with the police.	T	F
10. Getting rid of angry feelings.	T	F
11. Feeling numb and unemotional about everything.	T	F
12. Feelings of guilt that you survived in combat while some of your buddies did not.	T	F
13. Learning to worry less.	T	F
14. Maintaining a better personal appearance.	T	F
15. Getting rid of imaginary voices or visions.	T	F
16. Getting into school or job training.	T	F
17. Overcoming your dependence on drugs.	T	F
18. Learning how to avoid behavior that hurts others physically.	T	F
19. Feelings of depression, sadness, crying.	T	F
20. Being unable to express feelings as you once did.	T	F
21. Being easily startled and over-alert to noises.	T	F
22. Feeling more cheerful and optimistic.	T	F
23. Using your leisure time better.	T	F

24. Overcoming problems with sexual functioning. T F

25. Applying for financial assistance or welfare. T F

26. Learning how to manage your money. T F

27. Avoiding behavior that violates the property rights of others, for example, burglary or forging checks. T F

28. Feelings of anger or controlling your temper. T F

29. Loss of interest in work and social activities. T F

30. Avoiding things that bring back combat memories. T F

31. Feeling better physically. T F

32. Learning how to make and keep friends. T F

33. Being unable to sleep well. T F

34. Avoiding the company of alcohol or drug abusing friends. T F

35. Fantasies of getting revenge and destroying others. T F

36. Not being able to be close to others (wife, parents), or having no close friends or buddies. T F

37. Thoughts, dreams, nightmares and pictures of combat. T F

38. Feeling more self-confident. T F

39. Increasing your self-respect. T F

40. Being cynical and distrustful of the government or people in authority (police, boss, physicians, etc.) T F

41. Being emotionally distant from your parents, spouse, children or others close to you. T F

42. Being overly concerned about justice for yourself and other veterans of the war. T F

43. Feelings of anxiety or controlling your shakes. T F

44. Feeling alone and separated from other people. T F

45. Fear of losing others who are close and important. T F

46. Being unable to talk about your war experiences. T F

47. Not being able to remember like you used to do. T F

48. Having mostly negative thoughts or feelings about yourself and your future. T F

49. Working with people in authority (bosses, parents, medical staff, etc.) T F

50. Fears that you will hurt someone in a fit of rage. T F

51. Suicidal wishes, thoughts, and feelings. T F

Appendix C

Demographic Form

Subject Code Number:_____ Dx Code:_____
IP OP CO NC

Marital Status: Single Married Separated Divorced Widowed

Ethnic Origin: Asian Black Hispanic Native American
White Other

Highest Grade Completed: _____

Age While in Service: _____

Dates of Service: From 19___ To 19___

If Vietnam Combat Veteran, total number of months in Vietnam: _____

Type of Discharge: _____

Service Connected Disability: yes no

Presently on medication: yes no

If yes, what type: _____

Past medication use: yes no

If yes, what type: _____

Psychiatric Hospitalization Previous to Enlistment: yes no

Psychiatric Hospitalization During Enlistment: yes no

Psychiatric Hospitalization After Enlistment: yes no

Outpatient Treatment Previous to Enlistment: yes no

Outpatient Treatment During Enlistment: yes no

Outpatient Treatment After Enlistment: yes no

Family History for Psychiatric Illness: yes no

Criminal Record Prior to Service: yes no

Criminal Record After Service: yes no

Pending Court Date: yes no

Appendix D

Consent Form

PART I-AGREEMENT TO PARTICIPATE IN RESEARCH BY OR UNDER THE DIRECTION OF THE VETERANS ADMINISTRATION

DATE

1. I, _____ (Type or print subject's name), voluntarily consent to participate as a subject in the investigation entitled _____ (Title of study).

2. I have signed one or more information sheets with this title to show that I have read the description including the purpose and nature of the investigation, the procedures to be used, the risks, inconveniences, side effects and benefits to be expected, as well as other courses of action open to me and my right to withdraw from the investigation at any time. Each of these items has been explained to me by the investigator in the presence of a witness. The investigator has answered my questions concerning the investigation and I believe I understand what is intended.

3. I understand that no guarantees or assurances have been given me since the results and risks of an investigation are not always known beforehand. I have been told that this investigation has been carefully planned, that the plan has been reviewed by knowledgeable people, and that every reasonable precaution will be taken to protect my well-being.

4. In the event I sustain physical injury as a result of participation in this investigation, if I am eligible for medical care as a veteran, all necessary and appropriate care will be provided. If I am not eligible for medical care as a veteran, humanitarian emergency care will nevertheless be provided.

5. I realize I have not released this institution from liability for negligence. Compensation may or may not be payable, in the event of physical injury arising from such research, under applicable federal laws.

6. I understand that all information obtained about me during the course of this study will be made available only to doctors who are taking care of me and to qualified investigators and their assistants where their access to this information is appropriate and authorized. They will be bound by the same requirements to maintain my privacy and anonymity as apply to all medical personnel within the Veterans Administration.

7. I further understand that, where required by law, the appropriate federal officer or agency will have free access to information obtained in this study should it become necessary. Generally, I may expect the same respect for my privacy and anonymity from these agencies as is afforded by the Veterans Administration and its employees. The provisions of the Privacy Act apply to all agencies.

8. In the event that research in which I participate involves certain new drugs, information concerning my response to the drug(s) will be supplied to the sponsoring pharmaceutical house(s) that made the drug(s) available. This information will be given to them in such a way that I cannot be identified.

I _____
NAME OF VOLUNTEER

HAVE READ THIS CONSENT FORM. ALL MY QUESTIONS HAVE BEEN ANSWERED, AND I FREELY AND VOLUNTARILY CHOOSE TO PARTICIPATE. I UNDERSTAND THAT MY RIGHTS AND PRIVACY WILL BE MAINTAINED. I AGREE TO PARTICIPATE AS A VOLUNTEER IN THIS PROGRAM.

9. Nevertheless, I wish to limit my participation in the investigation as follows:

VA FACILITY	SUBJECT'S SIGNATURE
WITNESS'S NAME AND ADDRESS (Print or type)	WITNESS'S SIGNATURE
INVESTIGATOR'S NAME (Print or type)	INVESTIGATOR'S SIGNATURE

☐ Signed information sheets attached. ☐ Signed information sheets available at:

SUBJECT'S IDENTIFICATION (I.D. plate or give name - last, first, middle) | SUBJECT'S I.D. NO. | #ARD

AGREEMENT TO PARTICIPATE IN RESEARCH BY OR UNDER THE DIRECTION OF THE VETERANS ADMINISTRATION

VA FORM 10-1086 SEP 1979

SUPERSEDES VA FORM 10-1086 JUN 1975, WHICH WILL NOT BE USED.

Appendix E

N, Means, and Standard Deviations of Raw MMPI Subscale Scores for Group 1 (PTSD) vs. Group 2 (Non-PTSD)

Variable		N	Group 1 vs. Group 2 Mean	Standard Dev.
L	Group 1	57	3.65	1.89
	Group 2	60	3.95	2.47
F	Group 1	57	20.30	9.70
	Group 2	60	12.47	7.75
K	Group 1	57	9.67	3.93
	Group 2	60	12.72	4.68
Hs	Group 1	57	23.37	6.47
	Group 2	60	18.70	6.99
D	Group 1	57	35.02	7.14
	Group 2	60	29.65	7.92
Hy	Group 1	57	30.14	5.52
	Group 2	60	27.22	6.18
Pd	Group 1	57	33.58	4.71
	Group 2	60	30.68	5.63
Mf	Group 1	57	27.93	5.04
	Group 2	60	29.72	6.28
Pa	Group 1	57	18.70	4.95
	Group 2	60	15.00	4.92
Pt	Group 1	57	40.88	7.59
	Group 2	60	36.18	8.63
Sc	Group 1	57	49.25	11.47
	Group 2	60	38.75	12.98
Ma	Group 1	57	24.63	4.51
	Group 2	60	23.15	7.24
Si	Group 1	57	42.19	10.59
	Group 2	60	35.13	12.93

PTSD	Group 1	57	31.82	9.94
	Group 2	60	20.32	10.88
HOS	Group 1	57	15.61	15.61
	Group 2	60	11.32	4.97
O-H	Group 1	57	12.98	5.25
	Group 2	60	12.98	3.07
Hc	Group 1	60	17.30	6.71
	Group 2	60	13.37	6.34

Appendix F

N, Means, and Standard Deviations of Raw MMPI Subscale Scores for Group 1 (Inpatient) vs. Group 2 (Outpatient)

		Group 1 vs. Group 2		
Variable		N	Mean	Standard Dev.
L	Group 1	30	3.90	2.16
	Group 2	27	3.37	1.52
F	Group 1	30	20.87	8.61
	Group 2	27	19.67	10.92
K	Group 1	30	9.03	3.38
	Group 2	27	10.37	4.42
Hs	Group 1	30	22.70	5.39
	Group 2	27	24.11	7.54
D	Group 1	30	36.57	5.21
	Group 2	27	33.30	8.59
Hy	Group 1	30	29.77	5.30
	Group 2	27	30.56	5.83
Pd	Group 1	30	33.97	4.39
	Group 2	27	33.15	5.08
Mf	Group 1	30	28.50	4.83
	Group 2	27	28.30	5.28
Pa	Group 1	30	19.03	4.69
	Group 2	27	18.33	5.30
Pt	Group 1	30	42.83	5.71
	Group 2	27	38.70	8.85
Sc	Group 1	30	51.43	8.88
	Group 2	27	46.81	13.56
Ma	Group 1	30	24.53	4.46
	Group 2	27	24.74	4.64
Si	Group 1	30	45.77	7.96
	Group 2	27	38.22	11.82

PTSD	Group 1	30	34.07	6.23
	Group 2	27	29.33	12.55
HOS	Group 1	30	15.17	4.16
	Group 2	27	16.11	11.78
O-H	Group 1	30	12.60	2.99
	Group 2	27	13.41	7.00
Hc	Group 1	30	18.97	3.93
	Group 2	30	15.63	8.39

Appendix G

Factors of the Buss-Durkee Hostility Inventory

Factor	Item
(1) General Hostility	
	4. I lose my temper easily but get over it quickly.
	5. I don't seem to get what's coming to me.
	6. I know that people tend to talk about me behind my back.
	9. Once in a while I cannot control my urge to harm others.
	11. When someone makes a rule I don't like I am tempted to break it.
	12. Sometimes people bother me just by being around.
	13. Other people always seem to get the breaks.
	14. I tend to be on my guard with people who are somewhat more friendly than I expected.
	15. I often find myself disagreeing with people.
	19. When someone is bossy, I do the opposite of what he asks.
	20. I am irritated a great deal more than people are aware of.
	23. I can't help getting into arguments when people disagree with me.
	25. If somebody hits me first, I let them have it.
	26. When I am mad, I sometimes slam doors.
	29. When I look back on what's happened to me, I can't help feeling mildly resentful.
	30. There are a number of people who seem to be jealous of me.
	31. I demand that people respect my rights.
	33. Whoever insults me or my family is asking for a fight.
	35. It makes my blood boil to have somebody make fun of me.
	36. When people are bossy, I take my time just to show them.
	37. Almost every week I see someone I dislike.
	38. I sometimes spread gossip about people I don't like.
	41. People who continuously pester you are asking for a punch in the nose.
	44. I often feel like a powder keg ready to explode.
	46. My motto is "Never trust strangers".
	48. I do many things that make me feel remorseful afterward.
	49. When I really lose my temper, I am capable of slapping someone.
	51. When I get mad, I say nasty things.
	52. I sometimes carry a chip on my shoulder.
	53. If I let people see the way I feel, I'd be considered a hard person to get along with.

54. I commonly wonder what hidden reason another person may have for doing something nice for me.
58. I can remember being so angry that I picked up the nearest thing and broke it.
59. I often make threats that I don't really mean to carry out.
60. I can't help being a little rude to people I don't like.
61. At times I feel I get a raw deal out of life.
62. I used to think that most people told the truth but now I know otherwise.
65. If I have to resort to physical violence to defend my rights, I will.
68. When arguing, I tend to raise my voice.
69. I often feel that I have not lived the right kind of life.
70. I have known people who pushed me so far that we came to blows.
73. Lately, I have been kind of grouchy.
75. I sometimes show my anger by banging on the table.

(2) Verbal Hostility

1. I seldom strike back, even if someone hits me first.
2. I sometimes spread gossip about people I don't like.
8. The few times I have cheated, I have suffered unbearable feelings of remorse.
10. I never get mad enough to throw things.
17. I can think of no good reason for ever hitting anyone.
18. When I am angry, I sometimes sulk.
21. I don't know any people that I downright hate.
24. People who shirk on the job must feel very guilty.
27. I am always patient with others.
28. Occassionally when I am mad at someone I will give him the "silent treatment".
32. It depresses me that I didn't do more for my parents.
39. Even when my anger is aroused, I don't use "strong language".
40. I am concerned about being forgiven for my sins.
42. I sometimes pout when I don't get my way.
45. Although I don't show it, I am sometimes eaten up with jealousy.
55. I could not put someone in his place, even if he needed it.
56. Failure gives me a feeling of remorse.
63. I generally cover up my poor opinion of others.
64. When I do wrong, my conscience punishes me severely.
74. I would rather concede a point than get into an argument.

(3) Passive/Aggressive
7. When I disapprove of my friends' behavior, I let them know it.
43. If somebody annoys me, I am apt to tell him what I think of him.
57. When people yell at me, I yell back.
66. If someone doesn't treat me right, I don't let it annoy me.
67. I have no enemies who really wish to harm me.
71. I don't let a lot of unimportant things irritate me.
72. I seldom feel that people are trying to anger or insult me.

(4) Indirect/Negative
3. Unless somebody asks me in a nice way, I won't do what they want.
34. I never play practical jokes.
50. Since the age of ten, I have never had a temper tantrum.

Appendix H

Factors of the Problem Checklist

Factor	Item
(1) General Problems	
	1. Controlling your anger.
	2. Improving your relations with your family.
	5. Getting along with people.
	6. Getting rid of strange thoughts.
	10. Getting rid of angry feelings.
	11. Feeling numb and unemotional about everything.
	14. Maintaining a better personal appearance.
	15. Getting rid of imaginary voices or visions.
	19. Feelings of depression, sadness, or crying.
	20. Being unable to express feelings as you once did.
	21. Being easily startled and overalert to noises.
	24. Overcoming problems with sexual functioning.
	25. Applying for financial assistance or welfare.
	27. Avoiding behavior that violates the property rights of other, for example, burglary or forging checks.
	28. Feelings of anger or controlling your temper.
	29. Loss of interest in work and social activities.
	30. Avoiding things that bring back memories of the war.
	31. Feeling better physically.
	32. Learning to make and keep friends.
	33. Being unable to sleep well.
	34. Avoiding the company of alcohol or drug abusing friends.
	35. Fantasies of getting revenge and destroying others.
	36. Not being able to be close to others (wife, parents) or having no close friends or buddies.
	37. Thoughts, dreams, nightmares and pictures of combat.
	40. Being cynical and distrustful of the government or people in authority (polic, boss, physicians, etc.)
	41. Being emotionally distant from your parents, spouse, children or others close to you.
	42. Being overly concerned for justice for youself and other veterans of the war.
	43. Feelings of anxiety or controlling your shakes.
	44. Feeling alone and separated form other people.
	45. Fear of losing others who are close and important.
	46. Being unable to talk about your war experiences.
	48. Having mostly negative thoughts or feelings about yourself and your future.
	49. Working with people in authority (bosses, parents, medical staff, etc.)
	50. Fears that you will hurt someone in a fit of rage.
	51. Suicidal wishes, thoughts, and feelings.
(2) Job/Self Image	
	7. Finding or holding a job.
	23. Using your leisure time better.
	26. Learning how to manage your money.

38. Feeling more self-confident.
39. Increasing your self-respect.

(3) Worry/Guilt

3. Reacting to stress as you did when you were in combat.
4. Learning to worry less.
12. Feelings of guilt that you survived in combat while one of your buddies did not.
13. Learning to worry less.
22. Feeling more cheerful and optimistic.

(4) Drug Problems/Criminal Activity

8. Overcoming your dependence on alcohol.
9. Learning how to control your behavior to avoid future trouble with the law.
16. Getting into school or job training.
17. Overcoming your dependence on drugs.
18. Learning how to avoid behaviours that hurt others physically.

Appendix I

Factor Analysis Statistics for the PC and the BDHI

ANALYSIS NUMBER 1 LISTWISE DELETION OF CASES WITH MISSING VALUES

EXTRACTION 1 FOR ANALYSIS 1, PRINCIPAL-COMPONENTS ANALYSIS (PC)

INITIAL STATISTICS:

VARIABLE	COMMUNALITY	FACTOR	EIGENVALUE	PCT OF VAR	CUM PCT
PC1	1.00000	1	19.09994	37.5	37.5
PC2	1.00000	2	3.49910	6.9	44.3
PC3	1.00000	3	2.36649	4.6	49.0
PC4	1.00000	4	2.04045	4.0	53.0
PC5	1.00000	5	1.86836	3.7	56.6
PC6	1.00000	6	1.56979	3.1	59.7
PC7	1.00000	7	1.36041	2.7	62.4
PC8	1.00000	8	1.27536	2.5	64.9
PC9	1.00000	9	1.19096	2.3	67.2
PC10	1.00000	10	1.01583	2.0	69.2
PC11	1.00000	11	.97544	1.9	71.1
PC12	1.00000	12	.85193	1.7	72.8
PC13	1.00000	13	.82219	1.6	74.4
PC14	1.00000	14	.81332	1.6	76.0
PC15	1.00000	15	.76512	1.5	77.5
PC16	1.00000	16	.75790	1.5	79.0
PC17	1.00000	17	.71816	1.4	80.4
PC18	1.00000	18	.70177	1.4	81.8
PC19	1.00000	19	.64806	1.3	83.0
PC20	1.00000	20	.63615	1.2	84.3
PC21	1.00000	21	.61014	1.2	85.5
PC22	1.00000	22	.55266	1.1	86.5
PC23	1.00000	23	.51527	1.0	87.6
PC24	1.00000	24	.50216	1.0	88.5
PC25	1.00000	25	.44948	.9	89.4
PC26	1.00000	26	.43649	.9	90.3
PC27	1.00000	27	.41342	.8	91.1
PC28	1.00000	28	.38709	.8	91.8
PC29	1.00000	29	.36329	.7	92.6
PC30	1.00000	30	.35179	.7	93.3
PC31	1.00000	31	.33575	.7	93.9
PC32	1.00000	32	.31388	.6	94.5
PC33	1.00000	33	.27539	.5	95.1
PC34	1.00000	34	.26623	.5	95.6
PC35	1.00000	35	.25662	.5	96.1
PC36	1.00000	36	.21124	.4	96.5
PC37	1.00000	37	.20763	.4	96.9
PC38	1.00000	38	.20032	.4	97.3
PC39	1.00000	39	.18913	.4	97.7
PC40	1.00000	40	.17639	.3	98.0
PC41	1.00000	41	.16149	.3	98.3
PC42	1.00000	42	.14409	.3	98.6
PC43	1.00000	43	.13088	.3	98.9
PC44	1.00000	44	.12253	.2	99.1
PC45	1.00000	45	.10909	.2	99.3
PC46	1.00000	46	.07955	.2	99.5
PC47	1.00000	47	.06905	.1	99.6
PC48	1.00000	48	.06462	.1	99.7
PC49	1.00000	49	.05307	.1	99.9
PC50	1.00000	50	.03881	.1	99.9
PC51	1.00000	51	.03572	.1	100.0

PC EXTRACTED 10 FACTORS.

FACTOR MATRIX:

	FACTOR 1	FACTOR 2	FACTOR 3	FACTOR 4	FACTOR 5	FACTOR 6	FACTOR 7	FACTOR 8
PC48	.77580	.07953	-.21276	-.15891	.02997	-.10500	-.03728	.08929
PC29	.75036	.14379	-.17671	-.18570	-.04038	-.03980	-.18639	.09460
PC19	.74354	-.00757	.08350	-.08079	-.12999	-.23143	-.08634	.15033
PC36	.74311	-.02121	-.18895	-.04918	.07878	-.14050	-.13981	-.04477
PC32	.74149	.13463	-.06601	-.06012	-.02370	-.10149	.10456	-.11929
PC50	.73041	-.12250	-.28887	-.04599	-.17851	.00223	.26934	-.01510
PC44	.70488	.20390	-.23646	-.16167	.11206	-.05383	-.04905	.12452
PC31	.70373	.11304	.05992	-.23383	-.03398	.03543	.03963	.21613
PC41	.69853	-.01650	-.31350	-.10377	.10141	-.18460	-.22589	-.05355
PC28	.68633	-.11546	-.09321	.05061	-.24105	.30257	-.06719	-.36301
PC43	.68552	-.05993	.03975	-.12397	-.04639	.15979	.01065	.08147
PC33	.68014	.01704	-.14948	-.07892	.06222	.05342	-.21140	-.20156
PC6	.67360	-.01697	.18949	.06652	-.22371	.07330	-.15593	-.04555
PC30	.67194	-.58246	-.02032	-.00708	.17961	.10254	-.08405	-.01992
PC35	.66690	-.05192	-.30422	-.00657	-.21754	.03600	.07961	.12422
PC39	.65933	.37890	.13882	-.38193	.12584	.01538	-.02854	-.16558
PC47	.65381	.05257	-.17084	-.21678	.11059	-.07694	.10734	.32079
PC49	.65231	.09223	-.14404	-.01235	-.22287	-.02477	.05067	.10308
PC40	.65067	-.06100	-.33931	-.06221	-.13460	.06419	.19983	.13665
PC51	.64973	-.14575	-.21612	-.01048	-.24548	.12048	.08282	.04497
PC45	.64919	.13713	-.17448	-.19386	.26825	.15017	.10045	.01479
PC37	.64477	-.60476	.07795	-.07505	.26052	.05258	-.02004	-.01361
PC38	.63313	.36326	.14618	-.38622	.04607	.03320	-.07158	-.22752

	FACTOR 1	FACTOR 2	FACTOR 3	FACTOR 4	FACTOR 5	FACTOR 6	FACTOR 7	FACTOR 8
PC10	.63179	-.07284	.13025	.18092	-.30383	.17247	-.09723	-.28868
PC20	.63172	-.04236	.27364	.01974	.01966	.21057	.17775	.10864
PC46	.62964	-.52620	.07105	-.10761	.34084	.01946	.02147	.18047
PC1	.61741	-.15952	.18940	.14110	-.37746	.20835	-.13357	-.25622
PC5	.61571	.07100	.01564	.22382	-.12820	-.36513	.23526	-.11408
PC21	.61120	-.39564	.29671	.00521	.14885	-.19609	.07438	.06686
PC2	.60475	.07949	.05199	.02490	-.04652	-.40674	-.28001	-.12576
PC42	.60462	-.42018	-.16332	.09195	.23413	.18406	.11548	.10658
PC22	.57847	.04849	.44580	-.16037	-.17385	-.13426	.09856	.22542
PC7	.57210	.25820	.14621	.17286	-.10678	.10197	-.22228	.16449
PC18	.56717	-.06700	-.27442	.32838	-.20565	-.14047	.13709	-.01055
PC9	.56445	-.01685	-.20417	.37997	-.14539	-.24920	.20252	-.12545
PC23	.55918	.39073	.17496	-.01964	.07276	.14004	-.20571	.02557
PC11	.55644	-.04131	.14665	.05870	-.13512	-.33030	.28996	.21939
PC16	.51739	.26558	.14242	.34029	-.02532	.12508	-.33791	-.00025
PC15	.51473	-.21070	.21654	.28655	-.26080	-.03330	.16813	.07932
PC26	.51321	.40971	-.11817	.23247	.32971	.22590	-.05473	.05697
PC3	.50529	-.50004	.32849	-.03375	.12919	.12051	.01574	.16684
PC27	.50500	.17693	-.07339	.19979	.10626	.09214	.27007	-.13007
PC13	.50435	.32838	.46076	-.14850	.05808	-.08818	.38835	-.02084
PC4	.50065	.35505	.45285	-.10642	.11189	.05695	.35652	-.14625
PC24	.50046	.18603	.12740	-.21790	-.19688	.39415	.12344	-.07619
PC34	.48288	.29390	-.19375	.19819	.39249	-.23258	.03231	-.23591
PC25	.46886	.17147	-.27420	.29512	.32642	.28134	-.05334	.04845
PC12	.54936	-.57124	.24820	.01265	.18384	.07052	-.01522	.00420
PC17	.35965	.07006	.26695	.50648	.20949	.10364	-.08480	.30504
PC8	.32612	.25779	.19078	.45648	.33784	-.14705	.04323	-.13619
PC14	.32427	.31123	.04064	.23594	-.08080	.29998	.11038	.33387

	FACTOR 9	FACTOR 10
PC48	.13845	.00602
PC29	-.04084	-.00733
PC19	15042	-.00153
PC36	.12379	-.16878
PC32	-.22485	-.03039
PC50	.10683	-.01583
PC44	.10594	.05199
PC31	-.18461	-.03199
PC41	.09682	-.19423
PC28	.04683	-.27682
PC43	.11796	.17739
PC33	-.09457	.12862
PC6	.21434	.13709
PC30	.06632	-.03121

	FACTOR 9	FACTOR 10
PC35	.08245	.31660
PC39	-.10184	.14663
PC47	-.03431	-.06443
PC49	.05597	-.10874
PC40	.05265	-.12976
PC51	.23941	.07776
PC45	-.01270	-.02412
PC37	-.07461	-.04379
PC38	-.15179	.18094
PC10	.16837	-.14152
PC20	-.26604	-.18222
PC46	.01033	-.11023
PC1	.03086	-.18178
PC5	-.17752	-.08273
PC21	-.18294	-.01725
PC2	-.13240	.21155
PC42	.01777	.21366
PC22	.20519	-.08543
PC7	-.26612	-.08273
PC18	-.10111	.19186
PC9	-.10391	.07748
PC23	.12447	.09463
PC11	.00969	-.12344
PC16	-.30217	.14138
PC15	-.08407	.22331
PC26	-.08681	-.27035
PC3	-.01705	.00340
PC27	-.21378	-.08232
PC13	.14128	-.00970
PC4	.13433	.01217
PC24	-.02447	.12902
PC34	.21091	-.12978
PC25	-.13813	.21153
PC12	-.12088	.05741
PC17	.23813	.03254
PC8	.40191	.13947
PC14	-.10168	-.27432

FINAL STATISTICS:

VARIABLE	COMMUNALITY	*	FACTOR	EIGENVALUE	PCT OF VAR	CUM PCT
PC1	.76579	*	1	19.09994	37.5	37 5

VARIABLE	COMMUNALITY	*	FACTOR	EIGENVALUE	PCT OF VAR	CUM PCT
PC2	.69947	*	2	3.49910	6.9	44.3
PC3	.67400	*	3	2.36649	4.6	49.0
PC4	.77556	*	4	2.04045	4.0	53.0
PC5	.69096	*	5	1.86836	3.7	56.6
PC6	.64089	*	6	1.56979	3.1	59.7
PC7	.62115	*	7	1.36041	2.7	62.4
PC8	.75475	*	8	1.27536	2.5	64.9
PC9	.66174	*	9	1.19096	2.3	67.2
PC10	.71738	*	10	1.01583	2.0	69.2
PC11	.61119	*				
PC12	.74681	*				
PC13	.77901	*				
PC14	.56510	*				
PC15	.59896	*				
PC16	.71607	*				
PC17	.67468	*				
PC18	.64036	*				
PC19	.68954	*				
PC20	.66824	*				
PC21	.72253	*				
PC22	.71962	*				
PC23	.58867	*				
PC24	.58118	*				
PC25	.66623	*				
PC26	.74585	*				
PC27	.49375	*				
PC28	.86039	*				
PC29	.69806	*				
PC30	.84683	*				
PC31	.65208	*				
PC32	.66341	*				
PC33	.60898	*				
PC34	.72254	*				
PC35	.71746	*				
PC36	.68209	*				
PC37	.87188	*				
PC38	.81924	*				
PC39	.81960	*				
PC40	.64655	*				
PC41	.74262	*				
PC42	.73660	*				
PC43	.57030	*				
PC44	.66777	*				
PC45	.61383	*				
PC46	.85180	*				
PC47	.64432	*				
PC48	.71920	*				
PC49	.53335	*				

VARIABLE	COMMUNALITY	*	FACTOR	EIGENVALUE	PCT OF VAR	CUM PCT
PC50	.75036	*				
PC51	.63796	*				

VARIMAX ROTATION 1 FOR EXTRACTION 1 IN ANALYSIS 1 - KAISER NORMALIZATION.

VARIMAX FAILED TO CONVERGE IN 24 ITERATIONS. CONVERGENCE = .00002

ANALYSIS NUMBER 1 LISTWISE DELETION OF CASES WITH MISSING VALUES

CORRELATION MATRIX:

	PC1	PC2	PC3	PC4	PC5	PC6	PC7	PC8	PC9	PC10	PC11	PC12
PC1	1.00000											
PC2	.35907	1.00000										
PC3	.34946	.26571	1.00000									
PC4	.29674	.23712	.21243	1.00000								
PC5	.37022	.45621	.20383	.34470	1.00000							
PC6	.51022	.42569	.34018	.38432	.37509	1.00000						
PC7	.38722	.40063	.26031	.33936	.35752	.46603	1.00000					
PC8	.12850	.23497	.10365	.37879	.26228	.30061	.17817	1.00000				
PC9	.37448	.41163	.15146	.43279	.54309	.27753	.30346	.31610	1.00000			
PC10	.63807	.35793	.38144	.35018	.36425	.55542	.30740	.23497	.37761	1.00000		
PC11	.43802	.40422	.27241	.18083	.34696	.44481	.36890	.19591	.34857	.31229	1.00000	
PC12	.44013	.27255	.56835	.21790	.28984	.40287	.26701	.07846	.27486	.30922	.66611	1.00000
PC13	.25431	.29656	.22011	.79171	.33377	.34268	.32525	.32092	.19954	.26296	.28109	.19626
PC14	.25727	.08725	.09605	.20852	.22047	.17945	.36108	.18134	.20704	.24306	.15258	.04379
PC15	.42386	.27472	.38411	.25766	.45874	.43138	.23100	.15218	.40933	.37553	.38026	.39399
PC16	.36922	.41416	.19226	.24217	.31321	.38123	.56204	.29725	.33269	.41416	.35825	.19721
PC17	.20306	.14589	.27722	.29052	.20369	.29565	.31369	.40377	.18365	.24190	.22515	.25625
PC18	.37252	.40583	.21889	.13526	.44846	.34137	.30403	.17165	.56643	.37312	.29088	.28197
PC19	.41212	.55977	.42833	.37240	.48021	.54191	.45447	.22679	.34471	.55977	.45472	.37537
PC20	.36288	.39938	.40551	.40189	.54167	.36666	.37325	.14394	.30767	.33435	.40341	.38739
PC21	.38298	.43241	.58725	.31595	.45984	.35776	.28795	.20992	.33022	.40258	.33800	.62855
PC22	.42253	.38402	.37757	.36627	.29024	.43554	.34413	.19211	.26011	.38402	.47870	.30112
PC23	.32736	.34973	.10022	.40914	.30816	.42334	.36888	.28270	.22418	.31547	.11712	.16298
PC24	.36493	.19891	.26099	.36012	.27649	.34958	.35396	.10426	.18724	.35391	.12414	.15881
PC25	.16598	.21635	.07409	.22373	.23549	.23784	.35812	.29905	.26927	.21635	.11057	.21418
PC26	.21167	.22614	.12381	.33455	.28186	.22885	.42298	.30754	.25397	.28767	.24063	.09997
PC27	.30074	.28049	.10604	.31824	.33703	.29717	.29814	.23819	.40583	.23192	.20149	.19408
PC28	.70071	.27726	.28469	.28446	.36777	.51370	.36289	.09700	.37996	.68959	.26291	.37558
PC29	.42265	.49037	.27615	.31198	.42987	.42642	.49332	.18842	.35781	.39873	.41867	.28325
PC30	.45990	.32435	.66053	.10840	.27100	.42717	.22488	.12772	.33372	.44713	.39086	.67753
PC31	.33806	.36116	.32095	.38165	.32282	.43960	.37861	.10575	.26076	.42434	.41914	.32920
PC32	.35279	.47227	.28186	.36886	.61675	.43555	.45128	.16315	.47078	.47227	.35011	.28912
PC33	.38187	.45792	.30296	.26696	.37760	.44948	.36368	.18559	.31431	.42670	.33029	.28334
PC34	.12557	.33379	.09770	.25248	.36484	.22738	.23142	.51687	.37524	.27061	.23964	.09918
PC35	.38685	.41635	.24028	.20095	.31851	.48202	.28980	.09859	.46004	.41635	.36083	.35420
PC36	.45294	.51129	.24820	.29310	.47099	.43568	.37644	.20780	.37200	.41572	.42317	.36650
PC37	.43315	.31873	.62160	.16457	.28911	.36822	.20626	.08864	.31492	.34824	.38534	.79310
PC38	.34850	.45185	.16472	.50032	.28888	.41505	.38877	.18284	.25063	.32252	.29831	.25414
PC39	.30190	.42455	.19161	.53220	.31046	.39483	.37226	.18842	.25842	.32582	.31930	.22544
PC40	.18467	.23468	.29482	.21641	.33218	.37123	.31066	.04376	.27512	.35970	.34316	.30240

	PC1	PC2	PC3	PC4	PC5	PC6	PC7	PC8	PC9	PC10	PC11	PC12
PC41	.28918	.48419	.24777	.21185	.40619	.41505	.29957	.18284	.44828	.38719	.44490	.31093
PC42	.27372	.24797	.50391	.13196	.24826	.31107	.17694	.17286	.45424	.34057	.20805	.51688
PC43	.43206	.38965	.43432	.33006	.34772	.51128	.33331	.17328	.29514	.38965	.30398	.36587
PC44	.30591	.44980	.24098	.33110	.38217	.42545	.34482	.21910	.38975	.35219	.39015	.24716
PC45	.27537	.34308	.33964	.38262	.33064	.33956	.34507	.13081	.29141	.27875	.22359	.26364
PC46	.42668	.30577	.57583	.20835	.30848	.36958	.19424	.17105	.31626	.36677	.32704	.75137
PC47	.20928	.31862	.27617	.30270	.39248	.36620	.30748	.17452	.33263	.25568	.40304	.33855
PC48	.38046	.44347	.26770	.33802	.47460	.47461	.41955	.21261	.37898	.34775	.39632	.30261
PC49	.32141	.36139	.23314	.26237	.43223	.44677	.47595	.14000	.40513	.42146	.33858	.18639
PC50	.46442	.31419	.33890	.28232	.48823	.47080	.31833	.11436	.45943	.45953	.31652	.34762
PC51	.45250	.30669	.28034	.21128	.37222	.49745	.28467	.16842	.39439	.44968	.28328	.31267

	PC13	PC14	PC15	PC16	PC17	PC18	PC19	PC20	PC21	PC22	PC23	PC24
PC13	1.00000											
PC14	.19213	1.00000										
PC15	.20301	.21072	1.00000									
PC16	.26227	.21098	.27491	1.00000								
PC17	.23949	.22430	.30155	.34810	1.00000							
PC18	.16831	.15683	.35207	.30652	.29246	1.00000						
PC19	.40933	.24186	.35137	.31285	.24955	.41014	1.00000					
PC20	.43810	.18589	.40253	.28943	.27149	.40016	.53040	1.00000				
PC21	.31137	.05500	.42999	.28042	.21182	.27419	.45004	.54515	1.00000			
PC22	.49354	.18699	.35207	.26551	.31311	.13479	.59817	.48408	.38961	1.00000		
PC23	.38753	.28433	.25977	.42417	.32581	.15888	.32622	.32688	.19651	.47940	1.00000	
PC24	.36221	.20010	.22349	.30121	.11988	.19751	.28960	.26346	.16413	.35752	.36403	1.00000
PC25	.10561	.26117	.14473	.42907	.27940	.30837	.25441	.24979	.15273	.00381	.35492	.15195
PC26	.24935	.41422	.11779	.44553	.40648	.22779	.24542	.32266	.10860	.19802	.41328	.26812
PC27	.31273	.28664	.26685	.32427	.16905	.33963	.26702	.32011	.23573	.19861	.22774	.27846
PC28	.22630	.21058	.34142	.34696	.15345	.40699	.40914	.37790	.37786	.32513	.16844	.40491
PC29	.29782	.22458	.25854	.42088	.19636	.38541	.55343	.36731	.37755	.38541	.41706	.39246
PC30	.15567	.06793	.36323	.22898	.25098	.39907	.44897	.38196	.56881	.31985	.18153	.24403
PC31	.40522	.33790	.31726	.38813	.16055	.32305	.50168	.51870	.47388	.49629	.42165	.38636
PC32	.43292	.21562	.39314	.41660	.14423	.40645	.51074	.50027	.38010	.37668	.35090	.38101
PC33	.21733	.11516	.34152	.36209	.12813	.40290	.49362	.37049	.38573	.26188	.42204	.33414
PC34	.28585	.15730	.09110	.23565	.22836	.25783	.31554	.24111	.22300	.14573	.37895	.07727
PC35	.20158	.23101	.40640	.26821	.15322	.54692	.56583	.23755	.18831	.30945	.29527	.14465
PC36	.33104	.14100	.27085	.30554	.26700	.39327	.55630	.41990	.44979	.36843	.17947	.27761
PC37	.18195	.07620	.34630	.17206	.18447	.31990	.41993	.43160	.67712	.34846	.17952	.18950
PC38	.45898	.19678	.18407	.36180	.06354	.21983	.44961	.33853	.29959	.40759	.51217	.48197
PC39	.40418	.22458	.19301	.35898	.13401	.22615	.44700	.39897	.31947	.44911	.35662	.45984
PC40	.28206	.16717	.24632	.21651	.12260	.46863	.43912	.39445	.31719	.27704	.29442	.30344
PC41	.16760	.13715	.21624	.27059	.12478	.40759	.55417	.43251	.35664	.34560	.48139	.24469
PC42	.13199	.06262	.42053	.24575	.25044	.38738	.40372	.37025	.40307	.22804	.22427	.26428
PC43	.37645	.21182	.37495	.29084	.21922	.35420	.50717	.39210	.36007	.42245	.35065	.42744
PC44	.28875	.27602	.22890	.28452	.17024	.38337	.57166	.29894	.24404	.41486	.44116	.32083
PC45	.38381	.21727	.22389	.25203	.19292	.25941	.40449	.31977	.31059	.24865	.40216	.40322

	PC13	PC14	PC15	PC16	PC17	PC18	PC19	PC20	PC21	PC22	PC23	PC24
PC46	.17364	.01688	.28132	.11759	.17115	.23542	.39783	.39177	.60560	.32398	.19713	.21684
PC47	.33249	.26117	.19949	.28111	.10804	.30076	.49186	.41631	.34712	.33121	.34694	.31032
PC48	.35210	.18829	.28236	.31800	.31122	.43538	.67406	.41747	.36600	.40450	.40430	.35119
PC49	.27774	.19940	.11955	.32382	.18678	.37689	.48992	.38912	.29153	.39627	.40089	.36733
PC50	.31147	.17692	.38229	.20683	.17184	.53994	.50867	.40041	.42326	.27735	.22962	.33554
PC51	.22820	.22678	.36896	.21243	.13067	.39508	.49012	.27926	.29020	.36740	.25729	.36069

	PC25	PC26	PC27	PC28	PC29	PC30	PC31	PC32	PC33	PC34	PC35	PC36
PC25	1.00000											
PC26	.43692	1.00000										
PC27	.34487	.44441	1.00000									
PC28	.29905	.33642	.32936	1.00000								
PC29	.32179	.41349	.31692	.49732	1.00000							
PC30	.27154	.19003	.25147	.51185	.42449	1.00000						
PC31	.30886	.32211	.37683	.39234	.57835	.34814	1.00000					
PC32	.37962	.43978	.39597	.50968	.53335	.41360	.58094	1.00000				
PC33	.37796	.36953	.31412	.54701	.57772	.44430	.47669	.48324	1.00000			
PC34	.33828	.48316	.34959	.28956	.34455	.22571	.26969	.36812	.34049	1.00000		
PC35	.36058	.26946	.29645	.41524	.51078	.39280	.48451	.43700	.42505	.28956	1.00000	
PC36	.37823	.37994	.32737	.53669	.57085	.50348	.49431	.55396	.50035	.39902	.46115	1.00000
PC37	.27482	.15047	.27147	.47643	.38513	.84172	.43035	.39229	.40900	.20414	.38034	.49520
PC38	.25969	.36649	.32181	.39527	.57624	.24376	.53496	.54312	.47796	.34153	.39689	.37642
PC39	.26050	.41349	.36422	.34287	.55128	.27502	.57835	.56331	.48650	.40608	.39129	.41572
PC40	.33835	.28030	.31804	.56203	.51441	.40409	.48986	.39412	.41391	.32820	.57656	.48763
PC41	.31991	.42537	.32181	.51666	.60773	.50808	.44429	.51068	.56758	.43220	.45558	.74218
PC42	.41679	.26417	.27063	.39498	.34871	.67104	.37702	.37658	.46581	.22891	.48466	.41320
PC43	.34830	.21877	.33341	.46642	.53867	.52071	.45299	.43891	.46542	.22508	.44645	.50859
PC44	.40522	.47838	.34954	.34125	.57350	.38713	.54438	.56724	.45089	.42881	.55144	.59653
PC45	.38936	.46853	.32359	.41257	.50118	.37005	.43093	.52709	.52498	.38082	.40867	.54576
PC46	.20947	.20966	.31015	.45712	.33725	.82283	.35068	.43181	.42270	.30507	.31765	.47873
PC47	.28938	.36529	.28831	.32120	.62828	.41446	.57360	.47989	.40704	.30886	.46768	.48205
PC48	.34166	.37180	.30723	.48210	.72084	.49844	.50102	.60417	.56005	.39366	.52410	.64361
PC49	.23772	.31171	.34964	.46886	.54402	.38009	.47912	.47577	.36996	.33501	.44429	.45864
PC50	.27408	.30303	.35200	.56909	.54638	.54480	.47190	.56769	.43867	.34328	.66022	.53024
PC51	.19622	.21301	.29490	.49050	.50964	.52728	.41967	.46733	.39630	.16840	.56514	.53510

	PC37	PC38	PC39	PC40	PC41	PC42	PC43	PC44	PC45	PC46	PC47	PC48
PC37	1.00000											
PC38	.27107	1.00000										
PC39	.29891	.92262	1.00000									
PC40	.40398	.29083	.30135	1.00000								
PC41	.44049	.38128	.41880	.50016	1.00000							
PC42	.65236	.17425	.19841	.43872	.41052	1.00000						
PC43	.49096	.40703	.45036	.46988	.43595	.42056	1.00000					

	PC37	PC38	PC39	PC40	PC41	PC42	PC43	PC44	PC45	PC46	PC47	PC48
PC44	.34664	.50662	.57350	.51382	.56888	.33582	.50997	1.00000				
PC45	.31706	.43083	.50118	.48589	.49238	.45048	.42192	.61932	1.00000			
PC46	.83639	.31153	.34754	.31807	.45744	.58785	.40715	.37367	.40642	1.00000		
PC47	.41223	.40271	.41373	.53482	.46292	.41679	.46792	.53398	.47922	.38699	1.00000	
PC48	.42908	.52809	.56549	.52820	.61967	.45462	.46512	.58668	.60731	.45209	.57933	1.00000
PC49	.26752	.37068	.39778	.53796	.45688	.36943	.43605	.38456	.35254	.35510	.46145	.55573
PC50	.44680	.38451	.40483	.61547	.52358	.49299	.49161	.52545	.47956	.42438	.51094	.66689
PC51	.43953	.28934	.31470	.44897	.45350	.49368	.45590	.44119	.32660	.39812	.40277	.57505

	PC49	PC50	PC51
PC49	1.00000		
PC50	.55715	1.00000	
PC51	.50574	.61681	1.00000

EXTRACTION 1 FOR ANALYSIS 1, PRINCIPAL COMPONENTS ANALYSIS (PC)

PC EXTRACTED 10 FACTORS.

VARIMAX ROTATION 1 FOR EXTRACTION 1 IN ANALYSIS 1 KAISER NORMALIZATION.

VARIMAX FAILED TO CONVERGE IN 24 ITERATIONS. CONVERGENCE = .00002

ANALYSIS NUMBER 1 LISTWISE DELETION OF CASES WITH MISSING VALUES

EXTRACTION 1 FOR ANALYSIS 1, PRINCIPAL-COMPONENTS ANALYSIS (PC)

INITIAL STATISTICS:

VARIABLE	COMMUNALITY	FACTOR	EIGENVALUE	PCT OF VAR	CUM PCT
H1	1.00000	1	15.83770	21.1	21.1
H2	1.00000	2	5.48002	7.3	28.4
H3	1.00000	3	3.70010	4.9	33.4
H4	1.00000	4	2.99795	4.0	37.4
H5	1.00000	5	2.67763	3.6	40.9
H6	1.00000	6	2.27601	3.0	44.0
H7	1.00000	7	2.13092	2.8	46.8
H8	1.00000	8	1.99457	2.7	49.5
H9	1.00000	9	1.83237	2.4	51.9
H10	1.00000	10	1.70914	2.3	54.2
H11	1.00000	11	1.58617	2.1	56.3
H12	1.00000	12	1.53453	2.0	58.3
H13	1.00000	13	1.45688	1.9	60.3
H14	1.00000	14	1.41237	1.9	62.2
H15	1.00000	15	1.39616	1.9	64.0
H16	1.00000	16	1.35798	1.8	65.8
H17	1.00000	17	1.24886	1.7	67.5
H18	1.00000	18	1.21439	1.6	69.1
H19	1.00000	19	1.15101	1.5	70.7
H20	1.00000	20	1.10471	1.5	72.1
H21	1.00000	21	1.04813	1.4	73.5
H22	1.00000	22	1.01567	1.4	74.9
H23	1.00000	23	.94934	1.3	76.2
H24	1.00000	24	.93493	1.2	77.4
H25	1.00000	25	.87400	1.2	78.6
H26	1.00000	26	.85726	1.1	79.7
H27	1.00000	27	.78693	1.0	80.8
H28	1.00000	28	.75719	1.0	81.8
H29	1.00000	29	.75324	1.0	82.8
H30	1.00000	30	.70451	.9	83.7
H31	1.00000	31	.67147	.9	84.6
H32	1.00000	32	.65832	.9	85.5
H33	1.00000	33	.60856	.8	86.3
H34	1.00000	34	.58502	.8	87.1
H35	1.00000	35	.54744	.7	87.8

VARIABLE	COMMUNALITY	•	FACTOR	EIGENVALUE	PCT OF VAR	CUM PCT
H36	1.00000	•	36	.53989	.7	88.5
H37	1.00000	•	37	.50050	.7	89.2
H38	1.00000	•	38	.48485	.6	89.8
H39	1.00000	•	39	.47060	.6	90.5
H40	1.00000	•	40	.42390	.6	91.0
H41	1.00000	•	41	.40670	.5	91 6
H42	1.00000	•	42	.39711	.5	92.1
H43	1.00000	•	43	.38787	.5	92.6
H44	1.00000	•	44	.36670	.5	93.1
H45	1.00000	•	45	.34094	.5	93.6
H46	1.00000	•	46	.32529	.4	94.0
H47	1.00000	•	47	.32086	.4	94.4
H48	1.00000	•	48	.30468	.4	94.8
H49	1.00000	•	49	.29806	.4	95.2
H50	1.00000	•	50	.27520	.4	95.6
H51	1.00000	•	51	.26685	.4	95.9
H52	1.00000	•	52	.25225	.3	96.3
H53	1.00000	•	53	.23899	.3	96.6
H54	1.00000	•	54	.22847	.3	96.9
H55	1.00000	•	55	.21557	.3	97.2
H56	1.00000	•	56	.20964	.3	97.5
H57	1.00000	•	57	.20278	.3	97.7
H58	1.00000	•	58	.18269	.2	98.0
H59	1.00000	•	59	.17245	.2	98.2
H60	1.00000	•	60	.16536	.2	98.4
H61	1.00000	•	61	.14634	.2	98.6
H62	1.00000	•	62	.13078	.2	98.8
H63	1.00000	•	63	.12268	.2	99.0
H64	1.00000	•	64	.10670	.1	99.1
H65	1.00000	•	65	.10147	.1	99.3
H66	1.00000	•	66	.08532	.1	99.4
H67	1.00000	•	67	.07673	.1	99.5
H68	1.00000	•	68	.07022	.1	99.6
H69	1.00000	•	69	.06854	.1	99.7
H70	1.00000	•	70	.06393	.1	99.7
H71	1.00000	•	71	.05356	.1	99.8
H72	1.00000	•	72	.04601	.1	99.9
H73	1.00000	•	73	.04169	.1	99.9
H74	1.00000	•	74	.03456	.0	100.0
H75	1.00000	•	75	.02182	.0	100.0

PC EXTRACTED 22 FACTORS.

FACTOR MATRIX:

	FACTOR 1	FACTOR 2	FACTOR 3	FACTOR 4	FACTOR 5	FACTOR 6	FACTOR 7	FACTOR 8
H33	.67508	-.13757	.05884	.19951	-.18703	-.04985	.07876	.09511
H44	.67230	-.06973	-.24757	-.05800	.06936	.19884	.17455	.09385
H46	.66575	-.14863	.00898	.20438	.10648	.07877	-.14409	-.06473
H54	.65848	-.08640	.02281	.15983	.14631	.18624	-.16232	-.17187
H41	.65399	-.26817	.02612	.10502	-.08985	.03084	.07261	.03708
H15	.64385	-.17297	.03649	.10386	.16766	-.27432	.00950	.02931
H35	.63409	-.01655	-.20107	.15328	.10493	-.02010	-.01815	-.00797
H53	.63064	-.08340	-.16952	.10772	.06041	-.02940	.02230	-.05109
H25	.62919	-.28493	.21228	.03691	-.08918	-.12064	-.10482	.27645
H9	.62817	-.29207	.02108	.05773	.04072	-.05251	.21224	-.01785
H61	.62674	.04128	-.21861	-.09034	-.19446	.09678	-.17682	.15228
H20	.62101	.24154	-.03917	-.07823	.04936	.09383	-.25016	-.08082
H5	.61669	.01837	-.13294	-.06354	-.36449	-.04847	.09923	.21748
H14	.61624	-.24602	.04967	.09006	.24564	.20074	.04293	-.33489
H13	.60624	.06854	-.25096	.09162	-.37271	-.00483	.05543	.31663
H22	.60540	-.12537	-.25686	.33658	.24021	.03827	.11891	-.12422
H12	.60342	.10750	-.07779	-.12248	.19641	.14738	.04394	-.04033
H23	.60311	-.12650	.06778	.09159	.06163	-.46003	.02755	-.05902
H73	.59222	.00517	-.06990	-.01545	.10769	.15283	-.08447	.05902
H62	.56898	-.01087	-.03626	.17730	.06887	.30001	-.26264	-.13737
H51	.56568	-.13865	.12034	-.26580	.19060	.07199	-.20190	-.08175
H48	.55645	.18552	-.14399	-.28984	-.06379	-.24906	-.29580	-.02678
H38	.55543	.09640	-.33885	.05726	.01331	.04349	.07865	.03159
H6	.55182	.07717	-.18270	.36361	-.25597	.03639	.16022	-.09123
H16	.54872	.29754	-.16577	-.26127	-.24882	.20285	-.03479	-.29697
H49	.53863	-.21443	-.02746	-.21787	-.09307	.28548	.21354	.04150
H60	.53729	-.10729	.09846	-.15625	.18566	-.14341	-.39819	-.12699
H69	.53713	.29585	-.08414	-.10857	-.17312	-.07492	-.25259	.24728
H31	.51889	-.03964	.30451	.07329	-.22279	.15526	-.08932	-.38118
H19	.51787	.06032	.14955	.28114	.03671	-.23974	.18889	.14132
H37	.51589	-.06208	-.21922	.00595	.25192	-.13634	.26906	-.08075
H36	.50806	.01632	.27061	.29985	.05797	-.18868	.03030	-.02118
H70	.50470	-.17180	.22362	-.08489	.04709	.07656	.04301	.28418
H65	.50157	-.13230	.34590	.01108	-.28611	.19065	.12731	.08496
H47	.49323	.00976	.48023	.01781	-.06460	.11248	-.09022	.06806
H75	.48951	-.04296	.06947	-.19419	.02572	.20156	.01220	-.06698
H68	.47152	-.05775	.22978	-.18504	.13949	.08528	.06994	.14806
H52	.46577	-.07304	.02442	-.16774	.09297	-.15945	.11732	.28154
H3	.46493	-.04271	.14652	.39206	-.00778	-.15319	.08711	.10415
H11	.45870	.03157	-.00326	.12570	.04900	-.20273	.16283	.08942
H57	.45282	-.05211	.36354	-.00698	-.06581	-.08631	-.02743	.25181
H29	.43228	.20699	-.23396	-.16769	-.13195	.08534	-.24846	.25321
H58	.41827	-.05767	.12503	-.38906	.29004	.06448	.33582	.14620
H30	.40151	.15063	.10305	.21966	-.35088	.01173	.03653	-.07689

	FACTOR 1	FACTOR 2	FACTOR 3	FACTOR 4	FACTOR 5	FACTOR 6	FACTOR 7	FACTOR 8
H64	.34635	.34273	-.33822	-.27633	-.33890	.14642	.18006	-.22560
H42	.34176	.29390	.05212	-.30527	.07479	-.26711	.24801	-.33033
H74	.00282	.61023	.01054	.13825	.15158	.06915	-.26663	.13296
H39	-.07469	.59078	-.15876	.31826	.05852	.04231	.05129	.07217
H10	-.12766	.55473	.08965	.18016	-.14048	-.10915	-.20575	-.08577
H21	-.26042	.54617	.42711	.04507	-.06559	.05171	.03732	.08970
H17	-.03709	.54588	.10590	.28144	.20109	.12142	.11541	.19624
H55	.18415	.50799	-.35795	.14522	.26595	.10841	.05161	.17944
H27	-.12509	.49968	.03454	.05488	-.12500	.06073	.06687	-.32916
H1	-.04766	.49352	-.18814	.08513	.23453	.30382	-.02142	-.02574
H67	-.14172	.48933	.34459	-.00295	-.00803	.12503	.01876	.07739
H24	.19400	.43219	.11984	-.02157	-.24558	.03195	.02475	.03075
H32	.33278	.42078	-.19237	-.00941	-.06755	-.11714	.07938	.01494
H40	.23907	.39592	-.07454	.03275	-.18794	-.33100	-.13497	-.03349
H63	.17057	.39064	.02632	.04089	.27027	.14489	.07377	.14975
H56	.29821	.38882	.00793	-.24889	-.04797	-.05052	.14377	-.05580
H28	.17486	.34417	.22526	.00511	.25633	-.10222	.15134	-.21908
H71	-.27608	.22010	.56071	.12043	-.04385	.22209	.03982	.13745
H43	.41617	-.16266	.55131	-.00832	-.25425	-.03022	-.10679	-.19104
H72	.00811	.23496	.51208	-.27130	-.01247	.12756	-.14645	.22261
H7	.25119	.01309	.41621	-.03018	-.29292	.16399	.09313	-.16639
H66	-.11034	.24013	.35023	.29596	.25197	.02408	.34754	-.03373
H18	.28980	.42497	.04690	-.43456	.22481	-.05657	.18802	.01458
H34	.28293	.22188	-.17933	.43125	.21194	.21755	.08736	.14563
H50	.19962	.23917	.21656	.40034	-.15228	.13058	.07675	-.31728
H4	.33950	.12261	.22129	-.03149	.39445	-.13941	-.30434	-.06061
H26	.39250	.07380	.17214	-.29216	.32849	.44255	.07557	.14951
H45	.34957	.37422	-.02305	-.36194	-.13410	-.38620	.02518	-.06873
H8	.28955	.28986	-.15873	-.17586	-.27001	.09516	.51637	.09611
H2	.14159	.14195	.12201	-.18678	.18177	-.18987	.30353	-.10986
H59	.33592	.19207	.17877	-.07782	.18003	-.37554	-.06420	-.18216

	FACTOR 9	FACTOR 10	FACTOR 11	FACTOR 12	FACTOR 13	FACTOR 14	FACTOR 15	FACTOR 16
H33	.17515	-.21822	-.19307	-.19261	.05038	-.07250	.04900	-.17181
H44	.28122	.08372	.02677	.07476	-.09840	.15398	.06784	-.13952
H46	.09623	.01733	-.08401	-.17985	-.09880	.03647	-.05194	.12904
H54	-.07374	-.10781	-.02208	.04635	.22346	-.07807	-.08314	.19044
H41	.24127	.00043	-.00093	-.09950	.06147	.15428	-.12639	-.21097
H15	-.04266	.17366	-.03375	-.05549	-.15699	.01840	-.02940	-.07908

	FACTOR 9	FACTOR 10	FACTOR 11	FACTOR 12	FACTOR 13	FACTOR 14	FACTOR 15	FACTOR 16
H35	-.01848	-.15033	.11230	-.10364	-.04767	-.18730	.07781	-.11529
H53	-.08098	.25114	.16835	-.11088	.06797	-.00797	.12815	.17240
H25	.22141	.12891	-.16813	-.05290	-.16171	-.14749	.09498	.16300
H9	.12663	.03144	.00198	-.05902	.03511	.30518	.01565	-.11114
H61	-.13420	.16358	.20194	.04369	.05444	.08418	-.12942	.23277
H20	.10195	.23226	.00772	-.14666	-.08601	-.00239	-.10216	.07112
H5	-.24013	.12429	.00994	.15464	-.07102	.16096	-.14868	.01280
H14	.11579	.05601	-.02043	-.03713	-.03183	-.00789	.00979	.03742
H13	-.09575	.11292	.07966	-.00062	-.01544	.00631	-.21888	.09804
H22	-.09826	.00540	.24598	.05113	.04054	-.04571	.10154	-.02668
H12	.29953	-.16079	-.05208	.16596	.01144	-.04470	-.18573	-.00107
H23	-.08608	.14717	-.05048	.17271	.03306	-.07035	.10388	-.13169
H73	.12932	-.18660	.21152	-.16120	.19261	.31557	.16093	.03345
H62	.07979	-.07509	.00850	.20637	-.21348	.00272	-.08401	.06514
H51	-.12637	-.02082	.16832	-.00671	-.19764	.07086	.07369	-.04648
H48	.06844	-.14165	-.01227	-.01236	-.01287	-.13948	.04773	-.01168
H38	-.15097	-.06957	-.07938	.05485	.06275	-.06986	-.20924	-.27695
H6	-.06187	-.00947	.00114	-.01615	.00027	.08726	-.00729	-.00779
H16	.12208	-.13934	-.17329	.06152	.13719	.04841	-.07370	-.01417
H49	.02987	.28900	.01791	.10639	-.05947	.03396	.16616	-.01014
H60	.08286	-.14461	.17089	.16315	.04167	.05257	.12770	-.07156
H69	-.10583	-.14336	-.03507	-.27784	.22858	.00212	-.04713	.00649
H31	-.20689	.21441	-.10903	-.08558	-.02200	.05169	.05592	-.07794
H19	-.09657	.02144	-.16620	.23697	.14404	.17606	-.10013	-.03855
H37	-.02413	-.00920	.17327	-.10346	.22737	-.08311	.00220	-.19998
H36	.07588	-.02959	.03070	.35487	.04836	-.04580	.09102	.13663
H70	.08233	-.11152	-.33416	-.11548	.20222	-.18886	.10298	-.07165
H65	.16484	.07586	.08527	.04509	-.15197	-.09974	-.16799	.25623
H47	-.17139	-.27313	.13945	-.09377	-.03188	-.03957	.13968	-.03955
H75	-.38552	-.18704	-.18879	-.19719	.13830	-.02612	-.04616	.09811
H68	-.35034	-.03787	-.02877	-.25872	.13504	-.06304	.30588	.19110
H52	.18715	.00456	.31032	-.08286	-.02927	-.18663	-.13688	.35678
H3	-.15380	-.09600	-.21863	.16659	-.07347	-.05044	.07518	.12038
H11	.21323	.07037	-.23135	-.04335	-.17878	.33408	.09194	.22980
H57	-.09490	.04909	.19259	.05230	-.10587	.21807	.15548	-.15361
H29	.14165	.31441	-.02682	.01342	-.21630	.01492	.21770	.08742
H58	-.13026	.10501	-.08103	.12127	-.12676	-.06314	-.07274	-.16404
H30	-.23344	-.02401	.01528	.10285	-.02545	-.13538	.25358	.23708
H64	.06558	-.12686	-.05565	.04292	-.05862	-.01278	.24484	-.02266
H42	-.20211	.22225	.19294	-.22103	.12016	.08575	.08455	-.03375
H74	-.06810	.02150	-.31646	.04354	.06816	.01960	.12028	.06558
H39	.33553	.09896	-.05292	-.02705	.17091	-.17522	.03158	.08721
H10	.14826	-.05499	.38137	-.11628	-.05987	-.16892	-.04325	-.03200
H21	-.11434	-.01851	.04821	-.03531	-.17540	.00565	-.16452	.02896
H17	-.29373	-.13659	.14946	.00383	-.[illegible]3	.00578	-.14533	-.10237
H55	-.08277	-.14106	.00679	.19415	-.10517	.08166	.27927	-.08685
H27	-.11216	.47160	-.31116	-.00867	-.10435	.08110	.15375	.01925

	FACTOR 9	FACTOR 10	FACTOR 11	FACTOR 12	FACTOR 13	FACTOR 14	FACTOR 15	FACTOR 16
H1	-.14125	-.00232	.15112	.21940	.11381	.23568	-.14576	.14900
H67	.05987	-.10041	.00671	.03294	-.27942	21880	04178	-.21831
H24	.09039	-.18461	.06545	-.08735	-.13402	.20679	14014	-.25582
H32	-.03626	.19979	.17898	.12500	.23140	-.06183	.04316	-.20206
H40	.26345	.01918	-.15082	-.15960	.15707	-.00615	.08448	.09584
H63	.10598	.30277	.01169	.21177	.32033	-.07640	.05418	.18842
H56	.08724	-.19611	-.22329	-.06304	-.04663	.19312	.19890	.04217
H28	.09342	.07237	.10339	-.18150	-.24305	.26136	.06594	.00385
H71	.17675	.21825	.08677	-.12802	.20087	.03532	.19807	.00958
H43	-.03718	.07367	.11042	.15797	.06111	-.19740	.05358	-.05172
H72	.11902	.07417	-.01191	.16283	.38715	.04514	-.10784	-.00178
H7	.11202	-.15616	.21418	.26013	.00885	-.16177	-.06463	-.14305
H66	.16758	.10504	.14271	-.24188	.14672	.09630	-.07812	.03594
H18	.09935	.12133	-.03654	.02562	-.17698	-.15391	-.14276	.00329
H34	-.07215	-.09079	-.03460	-.18566	-.20075	-.26725	.03292	-.02562
H50	-.03468	-.10742	-.10023	-.15266	.05817	.27159	-.30800	-.03609
H4	-.01614	.04891	-.11388	-.19793	-.09451	.15459	.09223	.03792
H26	-.18757	-.00726	-.14103	.03446	-.03721	-.03676	-.14396	-.00375
H45	-.14822	-.01799	.00831	-.08816	-.00749	.20436	-.26827	.01182
H8	.00723	-.17746	.14904	-.02562	-.02240	-.06086	.24978	.07083
H2	.23607	-.31705	-.00400	.16111	-.06914	.20435	.12213	.37831
H59	-.09179	-.11167	-.14881	.33302	.08929	-.04761	-.03096	.13680

	FACTOR 17	FACTOR 18	FACTOR 19	FACTOR 20	FACTOR 21	FACTOR 22
H33	.02001	.10873	.00789	.01826	-.11836	.00153
H44	-.25215	.02719	-.02868	-.01025	.02293	.03552
H46	.10337	.06589	.10530	-.07215	.19104	.12308
H54	-.05270	.02198	.05584	.04801	-.07165	-.15119
H41	-.04197	.13065	.10323	.01923	-.15718	-.05493
H15	.00272	-.09969	.25235	.10936	.13276	.11260
H35	-.01066	.07763	-.30031	-.00970	.01410	-.02795
H53	.10219	-.08073	-.27292	.06171	.15876	.24990
H25	.00974	.07560	-.00994	.04418	.11935	-.02868
H9	-.14372	-.12412	-.10115	.02008	.00842	-.04062
H61	-.10815	.05326	.06638	-.17875	-.05540	.14739
H20	.03804	-.17777	.12967	.08177	-.05321	-.06621
H5	.22202	.01450	-.06711	-.08008	.05711	.00146
H14	-.00805	.06073	-.16368	-.01743	.00525	-.02541
H13	.19950	.02718	.11438	-.03713	-.01455	-.04503
H22	-.12715	-.13585	.01690	.02341	.09621	-.04485

	FACTOR 17	FACTOR 18	FACTOR 19	FACTOR 20	FACTOR 21	FACTOR 22
H12	.02979	-.04853	-.19925	-.08406	.02851	.17623
H23	.00680	-.14001	.12044	-.00010	-.12828	.14691
H73	.06166	-.04809	-.05536	-.14995	-.04803	.11410
H62	.16996	.12341	.05277	.16049	-.07082	-.01656
H51	-.07874	-.08413	.00776	.17638	-.02854	-.08744
H48	-.03515	.10637	.16125	-.02372	-.17485	.07326
H38	.25205	.08926	-.10815	.22232	-.02465	-.03834
H6	-.03748	-.31453	.18175	.17007	-.07180	.03648
H16	.02514	.03789	-.04423	-.15659	-.13055	.00220
H49	-.27270	.02550	-.15076	.11191	.08140	-.03682
H60	.07818	-.11330	.10977	.01500	.16579	.12931
H69	-.18979	.03514	.02229	-.21987	-.03604	.14142
H31	.04887	.05189	-.03304	.01041	-.15406	.02660
H19	-.22800	.01201	-.04073	-.18561	-.11395	.00626
H37	.25626	.03884	.09559	-.13058	-.14565	-.04155
H36	-.06478	-.27533	-.06279	-.08352	-.05267	-.09204
H70	.01208	-.05654	.05356	.20942	.10843	-.00405
H65	-.11424	.03633	.08584	-.07040	.04636	.08451
H47	-.02876	-.10048	.15694	-.01196	-.04276	.05577
H75	-.12358	.12974	.12049	.04178	-.19055	-.01781
H68	.09076	.02081	-.07889	.15346	.08693	.26019
H52	.12435	.05729	.01571	.03425	-.12936	-.07628
H3	-.26223	.10654	-.05983	-.17803	.12739	.23017
H11	.09560	.11408	-.01227	.23184	-.20437	.04012
H57	-.01215	.17777	-.24800	.06802	-.05959	-.09899
H29	-.08992	.07317	.02290	-.07232	-.02373	-.12233
H58	.06460	-.09811	.12793	-.20042	.02287	-.09693
H30	.15244	-.19238	-.07130	.14640	-.19090	-.31197
H64	-.08813	.21732	-.09243	.01101	.06039	.12868
H42	-.09537	.03050	-.04936	-.12137	-.05394	.01916
H74	.19758	-.10924	-.10496	.00389	.11712	.06817
H39	.01973	-.06377	.09430	-.26833	-.03040	.03897
H10	-.01692	.04057	-.27716	.12292	-.08283	.09305
H21	-.09748	-.07897	-.11222	.04702	-.13101	.19105
H17	-.20846	.16702	-.11350	.04265	.00405	-.00494
H55	.09551	.08096	.12171	.05542	.16659	-.07598
H27	.06380	.02370	.03999	-.12654	-.01578	.07257
H1	-.06493	.03153	.31611	.13096	.02856	.05718
H67	.08673	.17482	.22737	.04954	-.12996	.11458
H24	.06590	-.41531	-.01740	-.20430	-.00041	-.03170
H32	-.23149	.04245	.18997	.23006	.07785	-.04862
H40	-.09094	.06708	.00074	.14427	.33526	-.19973
H63	.14391	.04038	-.15636	.10480	-.15104	.09598
H56	-.17990	-.20734	.01849	.27507	-.05863	.29482
H28	-.26556	.01653	.11589	-.07923	.02649	-.14151
H71	.02629	-.01134	-.01968	.09586	.05758	-.19710

	FACTOR 17	FACTOR 18	FACTOR 19	FACTOR 20	FACTOR 21	FACTOR 22
H43	.20722	.13779	.08869	-.08912	.13112	.03140
H72	-.09372	-.09278	-.07293	.01594	-.06675	.08322
H7	.15328	.09882	.05733	-.10189	.21167	.01890
H66	.05300	.24954	.19381	.07284	.05904	.03262
H18	.14546	-.07137	-.13368	.02894	-.13394	.10883
H34	.00654	.00609	-.11022	-.17076	-.04306	.08171
H50	.02433	-.05122	-.08750	.04918	.18978	.19948
H4	.23321	.03718	.02708	-.23091	.00057	.06155
H26	-.07103	-.11370	-.05325	-.09301	.20661	-.24451
H45	.11805	-.08147	-.07986	.05137	.31151	-.07469
H8	.05890	.10841	.10673	-.03973	.18493	.07982
H2	.05892	-.10994	-.02238	.06478	-.03753	-.08647
H59	-.02978	.40000	-.06300	-.00876	.01384	-.13646

FINAL STATISTICS:

VARIABLE	COMMUNALITY	•	FACTOR	EIGENVALUE	PCT OF VAR	CUM PCT
		•				
H1	.76617	•	1	15.83770	21.1	21.1
H2	.67920	•	2	5.48002	7.3	28.4
H3	.75623	•	3	3.70010	4.9	33.4
H4	.66277	•	4	2.99795	4.0	37.4
H5	.80874	•	5	2.67763	3.6	40.9
H6	.75758	•	6	2.27601	3.0	44.0
H7	.67991	•	7	2.13092	2.8	46.8
H8	.77654	•	8	1.99457	2.7	49.5
H9	.70935	•	9	1.83237	2.4	51.9
H10	.77422	•	10	1.70914	2.3	54.2
H11	.73530	•	11	1.58617	2.1	56.3
H12	.72491	•	12	1.53453	2.0	58.3
H13	.82917	•	13	1.45688	1.9	60.3
H14	.71792	•	14	1.41237	1.9	62.2
H15	.74509	•	15	1.39616	1.9	64.0
H16	.81836	•	16	1.35798	1.8	65.8
H17	.77850	•	17	1.24886	1.7	67.5
H18	.72166	•	18	1.21439	1.6	69.1
H19	.74578	•	19	1.15101	1.5	70.7
H20	.70458	•	20	1.10471	1.5	72.1
H21	.72688	•	21	1.04813	1.4	73.5
H22	.78451	•	22	1.01567	1.4	74.9

VARIABLE	COMMUNALITY	*	FACTOR	EIGENVALUE	PCT OF VAR	CUM PCT
H23	.78021	*				
H24	.71890	*				
H25	.83654	*				
H26	.81803	*				
H27	.80278	*				
H28	.64742	*				
H29	.71968	*				
H30	.79917	*				
H31	.74700	*				
H32	.69148	*				
H33	.78965	*				
H34	.68100	*				
H35	.67847	*				
H36	.72892	*				
H37	.73536	*				
H38	.74609	*				
H39	.77636	*				
H40	.72966	*				
H41	.73969	*				
H42	.78353	*				
H43	.80441	*				
H44	.82201	*				
H45	.84254	*				
H46	.71204	*				
H47	.70041	*				
H48	.72526	*				
H49	.76851	*				
H50	.75953	*				
H51	.66266	*				
H52	.74074	*				
H53	.79664	*				
H54	.73468	*				
H55	.79337	*				
H56	.75318	*				
H57	.68491	*				
H58	.74948	*				
H59	.76609	*				
H60	.74897	*				
H61	.79621	*				
H62	.72870	*				
H63	.69053	*				
H64	.82104	*				
H65	.73561	*				
H66	.73476	*				
H67	.71272	*				
H68	.82416	*				
H69	.82751	*				
H70	.73049	*				

VARIABLE	COMMUNALITY	*	FACTOR	EIGENVALUE	PCT OF VAR	CUM PCT
H71	.76156	*				
H72	.72275	*				
H73	.73441	*				
H74	.71945	*				
H75	.70462	*				

VARIMAX ROTATION 1 FOR EXTRACTION 1 IN ANALYSIS 1 - KAISER NORMALIZATION.

VARIMAX FAILED TO CONVERGE IN 24 ITERATIONS. CONVERGENCE = .00515

ANALYSIS NUMBER 1 LISTWISE DELETION OF CASES WITH MISSING VALUES

CORRELATION MATRIX.

	H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	H11	H12
H1	1.00000											
H2	.02132	1.00000										
H3	-.06039	.09807	1.00000									
H4	-.02818	.09807	.11927	1.00000								
H5	-.02570	-.06099	.33589	.09253	1.00000							
H6	.05794	.05371	.29284	.02482	.44449	1.00000						
H7	-.06865	.08654	.13206	.04063	.19256	.12311	1.00000					
H8	.07664	.20925	.06874	-.11457	.31171	.27190	.20128	1.00000				
H9	-.16958	.12710	.28708	.15458	.40578	.35543	.10698	.12869	1.00000			
H10	.15646	.01447	-.08269	-.00331	.08381	.02004	.10511	.03470	.22292	1.00000		
H11	-.02504	.28362	.26164	.19853	.27286	.23999	.03872	.14864	.36445	.09091	1.00000	
H12	.05030	.17287	.19687	.23868	.26924	.22829	.19716	.18478	.36694	.02550	.27719	1.00000
H13	.07867	-.09189	.24991	-.01865	.71930	.44921	.05204	.34605	.28282	.06213	.28363	.23502
H14	-.09356	.11058	.26944	.19915	.21299	.23735	.13393	.04779	.43179	-.18330	.31260	.41734
H15	-.10035	.02062	.37413	.31090	.38017	.37318	.10007	.04299	.44394	-.21809	.38166	.32642
H16	.10175	.10168	.07729	.14354	.36306	.30316	.21396	.35391	.22093	.01393	.17722	.51372
H17	.27348	-.02967	.15229	.11715	-.00906	-.00444	.06583	-.01365	-.20973	.40503	.03055	.04360
H18	.08737	.19723	.07607	.20176	.12219	.01754	.04871	.22745	.05573	.10184	.17055	.34382
H19	.02504	.11593	.52722	.14857	.36797	.32763	.13044	.06589	.40983	.10817	.36112	.26810
H20	.11257	.10567	.12155	.33926	.27967	.35590	.08156	.11207	.25983	.06135	.28355	.36512
H21	.15427	.07961	-.04076	.02235	-.12028	.12049	.06930	.06589	-.32122	.40944	.05038	-.10941
H22	.09154	.07282	.36335	.11240	.31803	.47122	.06281	.15538	.47349	-.09368	.20087	.32594
H23	-.18611	.07904	.39988	.30294	.37891	.35182	.09392	.08631	.47640	.13252	.35252	.26309
H24	.05403	.10922	.05079	.08051	.17418	.19608	.12289	.20645	.04174	.23570	.04200	.09451
H25	-.42081	-.02210	.36945	.21168	.39238	.22008	.18547	.04137	.40983	-.20373	.31680	.30165
H26	.14987	.12415	.11556	.19280	.19646	.02188	.11943	.10476	.20282	-.22358	.01546	.36866
H27	.14257	-.06092	-.00739	.06356	-.02602	.04814	-.01604	.00172	-.23662	.19124	-.01097	-.09864
H28	.07539	.09637	.10590	.14625	-.05170	.11077	.07036	.13519	.08497	.19600	.02934	.08983
H29	.03905	.02076	.07834	.14930	.30050	.15339	.01833	.17057	.16190	.03059	.29569	.24012
H30	.02226	.09547	.22947	.00403	.37921	.45433	.24339	.13920	.10175	.11582	.23743	.09312
H31	-.09022	-.04139	.25665	.22371	.34536	.35032	.22765	.04639	.33531	.06165	.16163	.15361
H32	.22337	-.01577	.05796	.02635	.19671	.31331	.03880	.25795	.04439	.18086	.06449	.15831
H33	-.29696	.04294	.39204	.14844	.44245	.42379	.21832	.18780	.48100	-.09414	.40244	.36530
H34	.12280	-.08152	.28090	.12412	.12155	.28401	-.04658	.13553	.11007	.12595	.12766	.22265
H35	.06769	.06754	.33318	.20575	.33609	.35491	.11935	.18721	.34668	.07973	.23516	.39137
H36	.04599	.16737	.39965	.18650	.29374	.35460	.16521	.04880	.38480	.02113	.21902	.36328
H37	.00165	.10682	.15824	.15824	.26820	.27221	.07900	.16568	.32763	.09882	.23623	.31160
H38	.08462	.00856	.17384	-.05875	.44500	.42044	.01487	.18306	.29292	.04296	.17151	.40767
H39	.28396	.05321	.00000	.03852	-.08195	.12399	-.08210	.15713	.20282	.32079	-.01546	.09217
H40	.07189	.10201	.13542	.07231	.12028	.15037	-.00815	.14864	.05538	.26743	.20865	.10941

	H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	H11	H12
H41	-.14675	.03445	.29138	.13388	.41278	.36981	.20754	.05201	.59711	-.19477	.31126	.31614
H42	.07077	.16395	.05236	.17803	.13572	.08130	.00406	.25022	.22057	.12950	.10296	.13086
H43	-.22697	-.02210	.24323	.11701	.23980	.13045	.52177	.04137	.17722	.00465	.06357	.13387
H44	.04636	.00708	.21520	.24873	.30217	.36621	.12131	.10098	.48267	-.12837	.31008	.53422
H45	.04677	.21575	.00788	.22838	.38232	.13122	.11598	.23558	.16586	.12322	.18486	.23240
H46	-.06769	.06754	.39690	.33318	.33609	.41524	.15022	.06343	.41378	-.16147	.36300	.39137
H47	-.09208	.04762	.25888	.28861	.19718	.23549	.31875	.18315	.26089	-.04189	.11954	.20516
H48	.01637	.09727	.09516	.24740	.26429	.21045	.01770	.19667	.22447	.05571	.20848	.32280
H49	-.09100	-.03153	.21520	-.01956	.36704	.20745	.12131	.19870	.44736	.25532	.20915	.31132
H50	.13060	-.01172	.14671	.07485	.16621	.24719	.20422	.01047	.20180	.10125	.16159	.10169
H51	-.05839	.12539	.11919	.26402	.27109	.18626	.15904	-.03341	.40673	-.12260	.15225	.26031
H52	-.09209	.21529	.13849	.17275	.29133	.12436	.11066	.19136	.27664	-.02522	.25923	.29416
H53	-.02326	-.01370	.26503	.20012	.45090	.36666	.04821	.11978	.39872	.03822	.27889	.38969
H54	.03255	.08976	.28392	.25132	.24778	.41260	.12846	.07442	.32045	-.16936	.22922	.39836
H55	.40228	.09755	.11556	.11556	.17881	.16046	-.08210	.30678	.00000	.12637	.13911	.19457
H56	.13746	.15454	.10599	.00000	.04100	.25422	.07531	.19903	.07441	.15157	.15594	.33814
H57	-.13915	.06000	.23776	.20399	.30014	.12893	.18756	.14265	.34372	.00923	.28254	.17317
H58	-.02276	.18611	.09195	.19077	.24980	.06965	.13191	.20635	.26594	-.35260	.12859	.32875
H59	.04439	.22815	.27871	.27871	.16771	-.00586	.10801	.01203	.09784	.00782	.16154	.23052
H60	-.04405	.10356	.20730	.30118	.11726	.13332	.21222	-.05319	.26362	.02961	.16087	.36916
H61	.11841	-.02136	.24128	.13849	.55643	.38388	.11066	.19136	.31273	-.02522	.22485	.33971
H62	.18714	.01576	.22142	.18921	.33716	.27748	.16228	.04849	.27133	.00610	.25120	.37781
H63	.22366	-.02136	.00143	.10422	.05937	.09192	.07746	.05824	.02406	.10449	.12174	.20307
H64	.06593	.16482	.08830	-.04211	.24778	.22739	.16005	.58108	.11445	.07748	.13110	.26834
H65	-.11730	.10326	.33304	.04885	.29975	.31279	.36484	.17769	.33669	.04707	.18086	.31757
H66	.18964	.08565	-.01741	.09656	-.20974	-.07794	.04908	.06458	-.05335	.16380	.07781	.05261
H67	.29255	.07986	-.04849	.07087	-.05988	-.11583	.13878	.05652	-.21997	.27675	.04415	-.04264
H68	-.04621	.04763	.25444	.25444	.24793	.14181	.02977	.24060	.24267	-.15266	.18204	.18762
H69	.03422	-.03972	.22686	.19426	.34079	.24591	.07160	.17892	.18312	.07337	.15236	.26617
H70	-.15295	.04762	.22916	.16970	.22593	.29178	.14594	.12560	.38612	-.22945	.20900	.32371
H71	.03453	-.02000	-.14818	.03577	-.27969	-.18770	.14060	-.04169	-.13990	.25016	.09329	-.23501
H72	.09138	.10854	.00252	.03277	.01122	-.19859	.18955	-.06758	-.05310	.13107	-.07031	.06904
H73	.04322	.14333	.18451	.28009	.30322	.24834	.03498	.19958	.45851	.05963	.22025	.44502
H74	.29754	.04078	.08051	.22916	.03043	-.02908	-.10753	.00433	-.17740	.23570	.01218	.01548
H75	.02648	.03561	.23077	.20034	.22023	.19784	.11990	.12118	.26706	-.16768	.19487	.23529

	H13	H14	H15	H16	H17	H18	H19	H20	H21	H22	H23	H24
H13	1.00000											
H14	.18004	1.00000										
H15	.35693	.42862	1.00000									
H16	.34567	.30842	.12208	1.00000								
H17	-.01334	-.17539	-.00471	-.08636	1.00000							
H18	.17509	.13895	.09841	.27866	.08278	1.00000						
H19	.31506	.25149	.34783	.18830	.17158	.10817	1.00000					
H20	.36246	.31459	.37784	.42796	.02595	.26830	.19692	1.00000				
H21	.13396	-.24209	.28651	.07754	.52413	.14798	.01293	.02148	1.00000			

	H13	H14	H15	H16	H17	H18	H19	H20	H21	H22	H23	H24
H22	.33776	.50937	.50028	.15416	.01636	-.02507	.33408	29454	-.29527	1.00000		
H23	.31038	.32493	.60087	.17014	-.03610	13252	45787	32988	19044	.41086	1.00000	
H24	.18402	.00443	.05877	.27132	.16165	.21444	.10711	.18552	.25622	.01828	.06490	1.00000
H25	.41085	.37136	.55081	.12184	-.12457	.08428	.34793	.38910	-.19019	.25856	.42545	.05940
H26	.10232	.32708	.17810	.24339	.06025	.32079	.17775	.29859	-.01546	.16902	.03957	.05825
H27	-.09508	-.10835	-.09153	.12454	.10835	.16489	-.02462	.11745	.26010	.14211	-.05922	.14446
H28	-.07368	.15326	.15815	.08497	.25243	.36399	.05160	.22478	.21349	.11467	.07771	.08675
H29	.39798	.10835	.23417	.28643	.01057	.23801	.13138	.42274	.11774	.17749	.16856	.15731
H30	.32310	.15833	.19100	.27133	.02159	.08737	.21889	.24631	.00727	.25213	.24400	.23666
H31	.26795	.44408	.30570	.39313	-.07606	.02009	.20184	.37350	.00358	.23596	.35107	.06563
H32	.23695	.04004	.20551	.22197	.20724	.17820	.18924	.37784	.03066	.24804	.27608	.14841
H33	.41091	.38104	.38870	.35273	-.10887	.01729	.39175	.29821	-.24971	.35073	.42620	.16763
H34	.24021	.20086	.11241	.05504	.21955	.11145	.18690	.18917	.03329	.39140	.02819	.08718
H35	.33774	.46036	.34477	.29076	.07356	.12127	.27618	.35537	.26712	.51839	.37228	.07954
H36	.22459	.29939	.34585	.16033	.04083	.09798	.49408	.24974	-.05575	.34769	.48094	.17771
H37	.32212	.36919	.38604	.24855	-.08151	.18004	.28035	.24577	-.30080	.48893	.38849	.05120
H38	.46200	.29792	.30178	.34342	.05573	.18820	.23260	.34420	-.22924	.35821	.29929	.05598
H39	.04385	-.11190	-.13938	.12169	.24101	.11665	.01546	.07465	.24730	-.01537	.00000	.19659
H40	.22376	.03055	.12792	.24368	.11047	.13073	.13954	.28355	.01873	.04353	.09319	.19111
H41	.41687	.43642	.42428	.33173	-.15486	.03577	.38394	.33357	-.31126	.38011	.38023	.09378
H42	.09538	.21296	.21264	.27572	.03278	.38587	.24373	.26384	.02311	.18590	.25820	.17024
H43	.20131	-.30085	.23365	.15507	-.12457	.00465	.22131	.17071	-.03192	.10122	.32821	.08922
H44	.31338	.51960	.42249	.47090	-.06995	.12837	.22821	.49286	-.34372	.45597	.31868	.08822
H45	.29734	-.02112	.23430	.33173	.12670	.39351	.16274	.28997	.06794	.03456	.21843	.27241
H46	.33774	.56715	.47286	.29076	-.06882	.04087	.27618	.44357	.23516	.42308	.27409	.04943
H47	.21786	.21701	.27989	.17740	.08193	.04189	.23833	.28429	.08922	.21395	.30921	.19644
H48	.36903	.16330	.28464	.51306	.04083	.29009	.18862	.41834	.14738	.16550	.35582	.14893
H49	.28157	.40718	.25395	.29431	-.25730	.17068	.19457	.26074	-.24279	.35563	.24978	.02483
H50	.13804	.15790	.04574	.21441	.20339	-.01058	.19883	.18319	.16279	.12780	.00923	.18733
H51	.16059	.41535	.41612	.20337	.05124	.21398	.13833	.39554	-.15225	.36049	.29293	.09610
H52	.39413	.21694	.33867	.12028	-.02552	.28464	.11887	.33399	.15611	.24204	.25080	.04992
H53	.44025	.44478	.45450	.25062	-.04593	.12012	.24199	.43874	-.21378	.47682	.38339	-.01738
H54	.30079	.56584	.37250	.40057	.01700	.08708	.35949	.40204	-.19651	.52726	.30562	.00026
H55	.15348	-.06886	.05420	.16226	.37012	.16526	.09274	.12797	.01546	.25353	.00000	.16018
H56	.12736	.02368	.16335	.37206	.09474	.38339	.16303	.22496	.19847	.04933	.14518	.25377
H57	.21541	.22132	.30657	.08297	.15593	.11858	.32713	.15151	.05617	.16443	.28182	.14865
H58	.20546	.26007	.30570	.18500	-.03926	.35260	.23488	.28231	.06251	.20311	.28339	.06563
H59	.07051	.20068	.18054	.22828	.17992	.22664	.30444	.07716	-.06834	.09882	.31813	-.00585
H60	.14471	.34962	.39315	.23067	.10489	.14807	.15303	.33027	.22365	.35106	.47816	.14417
H61	.58917	.25522	.30423	.37287	-.02552	.11169	.29074	.42885	-.15611	.34455	.28600	.07961
H62	.37963	.48939	.29459	.33916	.01439	.15646	.20112	.46699	-.12196	.39024	.25228	.03729
H63	.06907	.06381	-.00574	.15636	.16590	.32787	.18762	.19170	.11887	.10536	.07480	.01484
H64	.26986	.12871	.01202	.57224	-.01943	.21050	.03243	.22152	-.03298	.13710	.03768	.21544
H65	.38840	.30959	.29637	.22446	-.15083	.09189	.28242	.25448	.03831	.13994	.18703	.03106
H66	-.12164	.01415	.03182	-.18671	.18395	.02797	.07464	.07669	.26520	.00316	.09269	.00150
H67	-.13234	-.18671	-.09298	.00000	.28673	.17509	-.04415	-.00929	.37493	-.31693	-.18010	.29683
H68	.18491	.27463	.30497	.12134	.02575	.15266	.16470	.21398	-.06646	.18576	.27125	.00998
H69	.44152	.11414	.22830	.43490	.17728	.17347	.33824	.39527	.02153	.19888	.19677	.28785

	H13	H14	H15	H16	H17	H18	H19	H20	H21	H22	H23	H24
H70	.24607	.31665	.36953	.14610	-.15058	.15443	.23833	.20198	-.14936	.18430	.27867	-.00023
H71	-.22976	-.17584	-.26090	-.21524	.07307	-.05674	-.09124	-.11175	.33932	-.27108	-.23621	.08789
H72	.07319	-.07662	.08920	.11682	.04282	.13616	.03998	.10400	.31310	-.21823	-.05439	.15202
H73	.31961	.39392	.26365	.34668	-.07356	.09983	.25913	.36125	-.25221	.38707	.17591	.24414
H74	.01481	-.12843	-.06076	.11479	.29451	.17693	.04747	.18552	.28604	-.07066	-.08780	.24140
H75	.21219	.29014	.24062	.34183	.05213	.12928	.17146	.28574	-.07276	.21142	.24228	.03979

	H25	H26	H27	H28	H29	H30	H31	H32	H33	H34	H35	H36
H25	1.00000											
H26	.20866	1.00000										
H27	-.20968	-.03476	1.00000									
H28	.05970	.13833	.15585	1.00000								
H29	.28086	.20853	.12037	.07167	1.00000							
H30	.12843	.03155	.14257	.03408	.18435	1.00000						
H31	.30757	.19361	.20773	.11935	.12662	.34822	1.00000					
H32	.10678	.06195	.12243	.15815	.26982	.15862	.07394	1.00000				
H33	.56281	.08949	-.19662	.11619	.19662	.29541	.33401	.14385	1.00000			
H34	.13028	.22271	.09755	.17394	.11464	.18702	.07087	.04938	.21172	1.00000		
H35	.39762	.20287	-.19194	.09909	.26380	.25851	.24215	.21668	.50192	.35225	1.00000	
H36	.32302	.09695	-.07813	.19625	.11247	.39050	.23994	.13161	.29698	.15253	.29992	1.00000
H37	.20932	.16553	-.10466	.08462	.06836	.10051	.15896	.12724	.34739	.20480	.41670	.18226
H38	.31342	.21846	.05706	.04890	.21933	.21139	.20615	.33068	.39066	.25839	.46362	.13858
H39	-.17002	-.05660	.33887	.20750	.13902	.00789	-.15328	.20907	-.01492	.27647	-.00780	.05220
H40	.15853	.06183	.16697	.11029	.18892	.13650	.06251	.28651	.18862	.06475	.10733	.14738
H41	.54826	.14658	-.24692	.01818	.24692	.11127	.34471	.10765	.65104	.10834	.38445	.26377
H42	-.03362	.10773	.22915	.29014	.12520	.10294	.29171	.30737	.07908	-.01462	.19517	.10341
H43	.39858	.13138	.03944	.10017	.10291	.25786	.47279	.01163	.31844	-.08991	.10999	.35357
H44	.41661	.22177	-.12041	.10109	.42301	.08070	.31666	.25395	.39121	.15657	.45799	.25810
H45	.13746	.18516	.07283	.17979	.17586	.14353	.11380	.29763	.07166	-.08007	.12921	.05031
H46	.49350	.20287	.12007	.13995	.29973	.16065	.37559	.12062	.50192	.22522	.41920	.26908
H47	.31587	.26940	-.19755	.13250	.06343	.27319	.41430	.07072	.38635	.18201	.22406	.39067
H48	.35357	.09695	-.04379	.15720	.35288	.20343	.23994	.31525	.29698	.09182	.33076	.23360
H49	.38297	.34498	-.04476	.01506	.34736	.21805	.28154	.15282	.29381	.05628	.28815	.22563
H50	.04746	.09680	.13305	.16360	-.13305	.20417	.29660	.04574	.19651	.15103	.09522	.22086
H51	.38533	.36359	.18411	.13584	.22495	.20113	.30681	.08856	.27253	.04542	.33586	.18315
H52	.32511	.16784	.26891	.12635	.23026	.15349	.03738	.06314	.28609	.10959	.26751	.24463
H53	.36570	.18691	-.05978	.01249	.20619	.20934	.30472	.19354	.31102	.21460	.52700	.31730
H54	.34641	.33537	-.17988	.06168	.21665	.29981	.38608	.24141	.42371	.16711	.41084	.36532
H55	-.13138	.17925	.16509	.10869	.26936	.12621	-.15328	.28651	.05966	.31487	.18726	.08949
H56	.08506	.18171	.12751	.21751	.15142	.06511	.10359	.16335	.21889	.09861	.11451	.08892
H57	.38133	.22327	.17359	.02057	.24975	.20656	.37626	.13688	.30806	.06087	.24308	.28028
H58	.30757	.51630	.05232	.16160	.12662	.01096	.13768	.04083	.17458	.03803	.20879	.17617
H59	.16154	.08068	.05588	.25420	.01397	.17122	.17511	.18054	.15589	.01235	.17564	.32376
H60	.34137	.19159	-.22499	.04515	.22499	.08410	.21708	.17299	.25369	.00390	.30504	.32185
H61	.29074	.20980	-.03704	-.00549	.46214	.22366	.25266	.30423	.28609	.17790	.30221	.17829
H62	.35620	.24453	-.06993	.04854	.25155	.22012	.36002	.10035	.35932	.23036	.36126	.32658

	H25	H26	H27	H28	H29	H30	H31	H32	H33	H34	H35	H36
H63	.05013	.12588	15619	12635	.11433	.04824	.07326	.30423	02073	.17790	05929	.11195
H64	.01935	.05590	.22462	.01986	.36374	.16608	.18123	.30696	.20278	.06961	.27875	-.04497
H65	.51049	.24361	.08114	.10366	.16127	.28280	.32643	.04642	.37226	.04515	.17900	.31552
H66	-.07781	-.04653	.15176	.21319	-.19461	-.08266	-.05802	-.00636	-.03218	.10257	-.10742	.03218
H67	-.09804	-.00731	.24148	.15596	-.03955	-.01299	.01797	.08698	-.08016	.06172	-.14583	-.06427
H68	24946	31981	-.06822	.06527	11154	.22906	.27449	-.00386	.29650	.05073	.28882	.18682
H69	28591	.22358	-.05301	.06377	.42073	.26789	.18294	.32662	.39688	.20124	.39268	.13966
H70	52462	.34220	-.19755	.01811	.09696	.18187	.22751	.07072	.47268	.12274	.25417	.21800
H71	.10354	.05256	.19248	08258	-.05417	.06592	.02461	-.04520	-.16918	-.07844	-.27221	-.00890
H72	07638	.21488	.03014	.03686	.00398	-.06350	.07234	.09326	-.03368	-.22267	-.11593	.12154
H73	.23357	.18726	-.23026	07457	.19433	.17370	.23325	.16758	.38473	.16382	.33100	.26291
H74	-.11954	.09465	.31210	08675	19084	08447	-.02776	.17829	-.03381	.20572	.01932	.06259
H75	.15925	.38756	-.03489	.07221	.13786	.24459	.32451	.11827	.36971	.13702	.25633	.10163

	H37	H38	H39	H40	H41	H42	H43	H44	H45	H46	H47	H48
H37	1.00000											
H38	.43033	1.00000										
H39	03153	.00705	1.00000									
H40	.07480	.05605	25503	1.00000								
H41	.42867	.33282	-.14658	.09006	1.00000							
H42	.33647	12837	.00769	19751	.13215	1.00000						
H43	17704	08251	-.20866	06357	.29546	.15548	1.00000					
H44	.25965	.34718	.01643	.17550	.47355	.10942	.08018	1.00000				
H45	13859	.30400	.03086	37446	05363	.44678	.10586	.10411	1.00000			
H46	.28631	.31790	.04692	.10733	.48018	.09970	.33370	.42402	.12921	1.00000		
H47	.07554	.10493	-.16018	.05989	.27836	.17618	.46498	.20233	.09973	.25417	1.00000	
H48	27573	30570	-.02237	33066	29426	28589	.20084	42043	29426	26908	.27555	1.00000
H49	.19102	.22447	-.22177	.04093	.40638	17642	.21475	57092	.07053	.22022	.20233	.12824
H50	.00123	.15721	12319	.19763	.15472	.07656	.15558	.08555	.19070	.16800	.21449	-.05739
H51	26366	.19018	36359	09696	36442	.23387	24004	41758	.18312	.37254	.36303	.35840
H52	.33014	.18153	00000	.12174	.33456	.15971	.15325	.21815	.16299	.23280	.24153	.31096
H53	.32763	.39681	-.04769	.11611	.35099	.27444	.17037	.41752	.25350	.49413	.16051	.25447
H54	31636	35367	01597	06568	43588	12809	31371	39570	.04408	54292	.38799	30220
H55	.18918	.31008	33962	.17775	03086	04617	-.24730	.18892	.12344	.10924	.02184	.16407
H56	.11568	.26501	07788	.22683	.13445	20467	.01418	.12807	.34673	.07872	.18031	.29413
H57	13186	.19124	22327	04544	31615	.17761	38133	.24179	.14709	.24308	.39117	.18222
H58	.36118	.23628	.19361	10271	.21276	.29171	.17540	.24842	.14679	.20879	.22751	.20806
H59	11407	.18697	02275	22367	10544	.22889	.25474	.10566	.32253	.14428	09366	.35374
H60	.29816	.19679	.15327	12948	.25853	.12502	.43554	.42537	.22719	.40012	.35119	.44301
H61	.29508	30691	00000	08716	.36887	.19394	.22199	.47188	.26593	.44103	.20914	.37730
H62	19607	37784	04731	05715	40478	03860	29158	46872	01451	.42650	.27471	.29541
H63	.18990	.21288	.29372	08736	.02574	.12549	-.01862	.14309	.02574	.02458	.04723	.04561
H64	.14956	.29402	.10381	.26192	.14203	.29091	.01935	.36094	.23998	.04761	.04904	.33376
H65	.01272	.08855	06960	.00267	.36109	.08516	.40358	.28217	.07649	.39488	.41380	.17796
H66	.05507	-.09413	.23263	.03970	.02854	.10119	.03652	-.20591	-.08561	.00802	.03441	-.22527
H67	.19693	.08394	.19002	.01422	.12103	.03577	-.00823	-.13203	.05827	-.14583	.16146	-.03539

	H37	H38	H39	H40	H41	H42	H43	H44	H45	H46	H47	H48
H68	.23775	.16425	-.22575	.02793	.17115	.27620	.28799	.13718	.17269	.32772	.41652	.18682
H69	.23963	29253	.13575	.38130	.24977	25183	05696	32270	38037	29361	.30017	51839
H70	.19721	.21370	-.08737	.14936	.36767	-.00198	.28604	.26572	06996	.37461	.29759	.27555
H71	-.21749	-.29260	.17270	.02973	-.13509	-.08370	.11174	-.27893	16579	.21011	04733	-.30568
H72	-.16613	-.15544	.08151	.02074	-.00909	04633	.19777	05053	.08180	-.14657	18633	00439
H73	.34933	.28682	.00780	.06046	.39721	.18668	.13769	.51007	.17388	.42780	.34049	.32459
H74	-.13130	.08317	.37861	.25075	.20393	.02178	-.11954	-.10196	.12355	.01932	.02786	.06259
H75	.25636	.31967	-.20123	-.04935	.27732	21074	15925	24767	18590	.25633	35136	.24893

	H49	H50	H51	H52	H53	H54	H55	H56	H57	H58	H59	H60
H49	1.00000											
H50	-.02937	1.00000										
H51	.37898	-.02964	1.00000									
H52	.25268	-.09458	.25802	1.00000								
H53	.38292	.13098	.31256	.32405	1.00000							
H54	.25665	.23524	.43567	.26488	.41150	1.00000						
H55	.02464	.03520	.07981	.00000	.03179	.06388	1.00000					
H56	.12807	.08878	.17081	.15394	.11664	.08789	12114	1.00000				
H57	.27779	.07649	.26980	.24980	.22875	.18402	-.01654	-.02275	1.00000			
H58	.35178	-.11726	.30681	.25266	.16879	.14709	.08874	.14059	.19947	1.00000		
H59	.07264	.05660	.23528	.16867	.11502	.29530	.12894	.16000	.20609	.14269	1.00000	
H60	.19183	-.00894	.43675	.23434	.33898	.35271	.11496	.14058	.26451	.18432	.24645	1.00000
H61	.39881	-.01631	.37635	.32815	.50081	.40695	12588	.15394	24980	.14502	.16867	.30252
H62	.26269	.16370	.35498	.19734	.32231	.50157	.18931	.07958	.20829	.09022	.17756	.39648
H63	.07002	.02283	.06081	.06687	.14730	.12282	.29372	.11546	.10268	.14502	.13493	.02983
H64	.29141	.08627	.13542	.05179	14240	.12137	26351	.34423	.00904	.07881	13481	.06081
H65	.39580	.15622	.26478	.35311	.29688	.30654	-.20011	.14364	.27932	.25203	.09793	.17228
H66	-.08439	.24230	-.17312	.01207	-.03266	-.04102	.04653	.00000	-.02889	.01823	.07481	-.17480
H67	-.16385	.10396	-.01116	-.15847	-.29863	-.25594	19002	.09385	05525	.01328	07051	-.12245
H68	.34192	-.01974	.39458	.28763	.36851	.29757	.05644	.16392	.26694	.27449	.12856	.27222
H69	.11413	.11234	.26490	.22049	.25004	.32920	.13575	.24169	.22427	.14880	.18617	.26352
H70	.32911	-.02320	.22615	.20914	.19118	.32637	-.01456	.21370	.29544	.28978	.15219	.26247
H71	-.08281	.13074	-.15646	-.12802	-.25093	-.17054	-.05256	-.08953	.09763	-.13591	-.11469	-.16774
H72	.01398	.00115	.06559	.08514	.08948	.01620	-.14078	.12913	.13585	.10402	.10127	08276
H73	.27230	.10492	.33342	.27908	.39333	.37341	.16385	.06441	.29552	.13317	.10664	36842
H74	-.22874	.15337	-.07500	-.14708	.01329	.03056	.37861	.18699	-.07472	-.05889	.14049	03027
H75	.31256	.12398	.27966	.16851	.21140	.41688	.02236	.18457	.15951	.26078	.18575	.24975

	H61	H62	H63	H64	H65	H66	H67	H68	H69	H70	H71	H72
H61	1.00000											
H62	.30259	1.00000										
H63	.06687	.02193	1.00000									
H64	.26488	.20113	.08731	1.00000								
H65	.39181	.29917	.00484	.12243	1.00000							

	H61	H62	H63	H64	H65	H66	H67	H68	H69	H70	H71	H72
H66	-.23625	-.07294	.13623	.15916	.02682	1.00000						
H67	-.15847	-.01757	.13409	.02242	.05139	.27482	1.00000					
H68	.24579	.16418	.12028	.13833	.22880	.01740	-.07014	1.00000				
H69	.50461	.13269	.07843	.26162	.20896	-.09024	-.02242	.25975	1.00000			
H70	.14438	.21383	.07961	.01823	.27951	-.07331	-.09236	.45282	.26936	1.00000		
H71	-.26160	-.19148	.13915	-.23409	.09348	.41350	.26466	.00374	.09427	.01835	1.00000	
H72	.05218	-.06040	.24991	-.07787	.05638	.13094	.21382	.10897	.15104	.18633	.38136	1.00000
H73	.45260	.34821	.17497	.20831	.24376	-.01764	-.01284	.38218	.40809	.31038	-.13145	.00868
H74	-.01754	.12860	.33868	.09218	.17039	.03441	.24042	.08258	.16460	.00023	.14584	.20920
H75	.36740	.25394	-.06354	.19609	.20449	-.07045	.04763	.44010	.41373	.35136	-.17400	.08098

	H73	H74	H75
H73	1.00000		
H74	.03337	1.00000	
H75	.25222	-.06855	1.00000

EXTRACTION 1 FOR ANALYSIS 1, PRINCIPAL-COMPONENTS ANALYSIS (PC)

PC EXTRACTED 22 FACTORS.

VARIMAX ROTATION 1 FOR EXTRACTION 1 IN ANALYSIS 1 - KAISER NORMALIZATION.

VARIMAX FAILED TO CONVERGE IN 24 ITERATIONS. CONVERGENCE = .00515

LIST OF REFERENCES

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