AN INVESTIGATION OF PHYSICAL COMPLAINTS AND HEALTH CARE UTILIZATION AMONG VIETNAM VETERANS WITH POST-TRAUMATIC STRESS DISORDER: THE ROLE OF PSYCHOLOGICAL FACTORS

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CHAPTER I

INTRODUCTION

Within the past decade, studies investigating physical complaints among psychiatric populations have focused on individuals with post-traumatic stress disorder (PTSD). A relatively recent addition to the psychiatric nomenclature, PTSD is characterized by the emotional re-experiencing of a traumatic event, avoidance of trauma-related emotions and stimuli, and physiological hyper-reactivity. Prevalence studies of PTSD in combat-veterans indicate that nearly half of all sampled Vietnam veterans report one or more symptoms associated with post-traumatic stress, with 15% meeting criteria for PTSD at some time during their lifetime (Centers for Disease Control Vietnam Experience Study, 1988). Similarly, the National Vietnam Veterans Readjustment Study (NVVRS; Kulka et al., 1988) found that approximately 15% of all theater veterans met criteria for PTSD, with this number increasing to 36% for veterans who experienced high combat conditions. In addition, the prevalence rates of domestic and inner-city violence, sexual assault, and acts of terrorism have increased over recent decades, resulting in increased frequency and severity of civilian trauma and greater subsequent psychological distress. As a result, investigators have increasingly focused on the psychological concomitants associated with exposure to traumatic life experiences.

On average, it has been found that approximately one-quarter of individuals who are exposed to a traumatic or extremely stressful event will develop symptoms that meet diagnostic criteria for PTSD (Green, 1994). Furthermore, PTSD is often associated with other psychiatric diagnoses, most commonly major depression and substance abuse (Keane & Wolfe, 1990). Longitudinal research on PTSD suggests, if untreateddisorder

often has a chronic and persistent course (Green et al, 1990; Rothbaum, Foa, Riggs, Murdock, & Walsh, 1992; Rothbaum & Foa, 1993; Op den Velde et al., 1993). Up to half of the individuals with PTSD may continue to meet diagnostic criteria a decade after onset without treatment.

Studies focusing on risk factors associated with the development of PTSD report that the primary factor empirically associated with onset of the disorder is degree and severity of exposure to the traumatic event (Foy, Sipprelle, Ruger, & Carroll, 1987; Fairbank, Schlenger, Caddell, & Woods, 1994; March, 1993; Goldberg, True, Eisen, & Henderson, 1990). Other risk factors associated with the onset of PTSD include socioeconomic status while growing up, presence of psychiatric symptoms prior to exposure, and reported childhood abuse (Green, Grace, Lindy, Gleser, & Leonard, 1990a).

Considerable progress has been made in delineating the psychological parameters associated with PTSD. However, relatively few studies have investigated the physical concomitants of the disorder. Solomon and Mukulincer (1987) found increased self-report of physical symptoms among Lebanon War soldiers with acute or chronic psychological sequale of the trauma. A two year follow-up revealed changes in levels of psychological distress correlated with changes in reporting of physical symptoms. In addition, Shalev, Bleich, and Ursano (1990) investigated physical symptoms reported by Israeli combat veterans, both with and without PTSD. Israeli veterans with PTSD reported more physical health complaints relative to their non-PTSD counterparts; even though self-report measures differed, health reports upon physical examination did not.

Although studies confirm increased reporting of physical complaints in persons with PTSD (e.g., Solomon, Mukulineer, & Kotler, 1987; White, 1989; Shalev, Bleich, & Ursano, 1990; Litz, Keane, Fisher, Marx, & Monaco, 1992), the precise nature of this relationship remains unclear. Litz et al. (1992, p. 138) suggest four possible explanations for the increased reporting of physical complaints in persons with PTSD. They hypothesize that "increased health complaints by persons with PTSD may be (a) the result of a biological manifestation of the syndrome, (b) a prodromal sign of a medical disorder caused by or exacerbated by the PTSD syndrome, (c) a general symptom over-reporting bias, or (d) a combination of all three of these possible contributing factors." In a similar effort, McFarlane, Aatchison, Rafalowicz and Papay (1994, p. 715-716) hypothesize that increased reports of physical symptoms associated with PTSD may (a) "be an integral part of the constellation of symptoms that make up PTSD," (b) "may be directly caused by the stressor responsible for the development of PTSD," (c) "relate to comorbid diagnoses," and (d) "may be related to premorbid factors such as personality traits." Despite these theoretically based hypotheses, empirical investigations of the underlying mechanisms responsible for these relationships have not been undertaken.

The purpose of the current study was to investigate the importance of several factors possibly involved with the reporting of physical symptomatology often observed in persons with PTSD. The proposed study examined the subsequent effects of those factors on healthcare utilization. The current study proposed that cynical hostility may partially account for the reporting of physical symptomatology and subsequent health care utilization among persons with PTSD. Past research has established a link between cynical hostility and increased reports of physical symptoms in non-psychiatric

populations (Williams et al, 1980; Barefoot, Dahlstrom, & Williams, 1983; Dembroski, MacDougall, Costa, & Grandits, 1989). In addition, anger and hostility have been associated with reports of physical complaints and disease (Diamond, 1982). Since hostility and irritability are associated with PTSD (Kubany, Gino, Denny, & Torgoe, 1994), an investigation of the role of hostility in the reporting of physical complaints among individuals with this disorder seemed warranted.

The present study also investigated the role of emotional avoidance in the reporting of physical complaints and healthcare utilization in individuals with PTSD. Like cynical hostility, emotional avoidance is often found in individuals with PTSD (APA, 1994). Studies have previously suggested that emotional avoidance plays an intricate role in disease progression among persons with severe illnesses. For example, Epping-Jordan, Compas and Howell (1994) reported that avoidance, defined as "unsuccessful efforts to avoid particular thoughts and feelings," was the best psychological predictor of disease progression among a sample of individuals with cancer. Currently, no empirical research linking PTSD, physical complaints, and emotional avoidance exists. However, based on accumulating evidence linking emotional avoidance with physical and psychological health, it was hypothesized that emotional avoidance may also be related to increased reports of physical symptoms and subsequent health care utilization in persons with PTSD.

Lastly, it is not uncommon for clients to seek financial compensation for physical and/or psychological disabilities that have no physical basis. Though clinical examinations support the subjective reports of many of these individuals, for a significant sub-group medical assessments do not support an organic cause for their physical

symptomatology. Despite the likely impact of compensation seeking on health care utilization and treatment outcome of both veterans and non-veterans with PTSD, little research has empirically addressed the topic. Researchers who have written on compensation seeking behaviors among persons with PTSD have primarily reported descriptive data. For example, Bell, Kee, Loughrey, Roddy, and Curran, (1988) report that 23% of 643 individuals in Northern Ireland seeking compensation for "nervous shock" met criteria for PTSD. They report this subgroup, who met PTSD diagnostic criteria, tended be older in age, female, had more depressive symptoms, and experienced prolonged more severe disturbance.

It was hypothesized here that physical symptom reporting may serve a secondary gain function for some individuals with PTSD. More specifically, the current study examined whether individuals with PTSD, who were seeking financial compensation, reported more physical symptoms and use more non-psychiatric related health care services relative to those individuals with PTSD who are not currently seeking compensation.

The primary purpose of the proposed study was to investigate factors possibly associated with the reporting of physical complaints and subsequent health care utilization often observed in persons with PTSD. Specifically, the current study examined the role of cynical hostility, emotional avoidance, and secondary gain, in the form of financial compensation seeking, on self-report measures of physical symptoms. This study also looked at health care utilization patterns for these individuals during the previous twelve month period. The following pages will examine, in greater depth, the theoretical framework on which the proposed investigation was based. An exhaustive

critical evaluation of existing literature pertaining to physical complaints and PTSD is included.

CHAPTER II

REVIEW OF THE LITERATURE

Post-Traumatic Stress Disorder

Originally described as "shell shock," and thought to result from neurological damage caused by exploding military shells, symptoms currently classified as PTSD were officially introduced to psychiatric nomenclature in 1980. PTSD involves a response of intense fear or helplessness precipitated by actual or threatened exposure to death, serious injury, or threat to physical integrity of one's self or others. Originally, the stressful life events precipitating PTSD were thought to be war-related. However, in recent decades the spectrum of traumatic events associated with the onset of this disorder has expanded to include sexual assault, physical abuse, torture, natural disasters, transportation accidents, and diagnoses with life-threatening disease (APA, 1994). Approximately one-quarter of individuals who are exposed to a traumatic or an extremely stressful event will develop symptoms that meet diagnostic criteria for PTSD (Green, 1994).

The diagnosis of PTSD consists of the endorsement of both psychological and physiological symptoms. The psychological symptoms associated with PTSD include re-experiencing the stressful event and persistently avoiding trauma-related stimuli, such as thoughts and feelings associated with the event. Re-experiencing can be manifested in distressing recollections of the event, recurrent trauma-related dreams, and dissociative episodes during which the person feels as if the event were reoccurring. The avoidant strategies often observed in individuals with this disorder include an inability to recall important aspects of the event, feelings of detachment, efforts to avoid experiencing

emotions, and efforts to avoid stimuli which elicit recollections of the individual's traumatic experience. Physiological symptoms observed in individuals with PTSD include hypervigilance, exaggerated startle response and increased physiological reactivity to internal and external cues related to the traumatic event (APA, 1994).

From emotional avoidance to exaggerated startle responding, individuals with PTSD experience a broad range of symptoms that often lead to disruptive social, physical, and vocational difficulties. Though considerable progress has been made in delineating the parameters associated with PTSD, relatively few studies have investigated the relationship between these symptoms and other health related behaviors.

Health Care Utilization and Post-Traumatic Stress Disorder

In the United States, health care consumes nearly 12 percent of the national income and this percentage is rising (Hodge, 1991). The increasing cost for health care services, in conjunction with political disputes, has lead to more stringent insurance policies and a reduction in patient's service options. This unstable financial and political atmosphere surrounding the health care industry has lead to greater attention paid to the future of health care services, including an increased focus on health care utilization patterns.

Subsequent attention has led to data showing, among other things, that a significant portion of people seek medical treatment in the absence of verifiable physical disease (e.g., Monson & Smith, 1983; Lipowski, 1987; Organista & Miranda, 1991). This finding augments the many empirical investigations that have found persons with somatic complaints utilize health care services more than their "healthy" counterparts (e.g., Smith,

Monson, & Ray, 1986). In 1965, Kellner conducted a meta-analysis of studies which estimated the number of patients who sought help from their family physicians because of psychological difficulties. Results of this investigation found that in most studies, the prevalence rate for patients with physical complaints for which no physical cause was detected ranged from 10 to 30%. Gomez and Dally (1977) found only 15% of a sample of individuals seeking treatment for recurrent or persistent abdominal pain had identifiable medical conditions that could explain their physical symptoms; the remaining majority of patients met criteria for various psychological disorders, the most common being depression. More recently, a sub-group of individuals with panic disorder have been found to report elevated levels of chronic pain (Kuch, Cox, Woszczyna, Swinson, & Shulman, 1991). When compared to individuals with panic disorder who report no physical complaints, these individuals scored significantly higher on measures of psychopathology. Other research has indicated that the most common concurrence of somatization is with affective and anxiety disorders, and to a lesser extent the somatoform disorders (Mchorney & Mor, 1988).

Approximately 40 to 60% of all patients who seek treatment from primary care physicians present with physical complaints for which no biomedical disease can be detected (Barsky, 1981; Van der Gaag & Van de Ven, 1978). In addition, investigations of health care utilization patterns have revealed that somatization, stressful life events, and psychiatric distress are all predictors of increased utilization of health care services (Follette & Cummings, 1967; Barsky, Wychak, & Klerman, 1987; Escobar et al., 1987; Pilisuk, Boylan, & Acredolo, 1987; Shapiro et al., 1984). However, the mechanism through which these relationships exist remains unknown.

Studies have examined the relationship between PTSD and health care utilization patterns. Kulka et al. (1988) reported that male veterans with PTSD used outpatient medical services for physical concerns more than their non-PTSD veteran counterparts. Similar results were also found by Brown, Recupero, and Stout (1995) who reported individuals with PTSD utilized a greater number of substance abuse related hospitalizations than addicts without a PTSD diagnosis. Rosenheck and Fontana (1995) found Vietnam veterans with PTSD were 9.6 times more likely to use VA mental health services and 3.3 times more likely to use non-VA services than Vietnam veterans who did not develop PTSD.

Other studies, examining individuals who have suffered civilian trauma, found victimized individuals utilized physician care twice as often as non-victimized persons (Koss, Koss, & Woodruff , 1991). In addition, those who experienced trauma accrued healthcare costs 2.5 times greater than their non-victimized counterparts. For these individuals, severity of their traumatic victimization served as the most powerful predictor of physician visits and healthcare costs. Based on empirical findings and clinical presentation, there appears to be a relationship between increased health care utilization and PTSD, though the factors responsible for this association are unclear

Post-Traumatic Stress Disorder and Physical Complaints

Studies have found increased reports of physical complaints among individuals with PTSD (e.g., Litz, Keane, Fisher, Marx, & Monaco, 1992; Shalev, Bleich, & Ursano, 1990; Solomon, Mukulineer, & Kotler, 1987; White, 1989). Shalev, Bleich, and Ursano (1990), in an effort to clarify the relationship between exposure to trauma, PTSD, and

physical health, compared 50 Israeli veterans of the Lebanese war who met diagnostic criteria for PTSD with 48 non-PTSD age-matched combat-veterans. They found that combat-veterans with PTSD reported more physical complaints than their non-PTSD veteran counterparts. However, when physical complaints were assessed by physical exam, medical questionnaire, and cardiac test, no physiological differences where found between the groups. Upon further evaluation, individuals with PTSD showed a deficiency in cardiac tolerance relative to non-PTSD individuals. Though this finding suggests that the reporting of somatic complaints is associated with sympathetic hyperactivity, such an assumption has yet to be tested.

In another study, Solomon and Mukulincer (1987) hypothesized that exposure to combat increases the risk for post-war somatic symptoms. The authors investigated the relationship between combat stress reaction (CSR), a labile polymorphic manifestation affecting cognition, affect, and behavior during battle, PTSD, and increased post-war reports of somatic symptoms. The study followed Israeli veterans one-year after their combat experience. Specifically, three groups were followed: soldiers who were diagnosed with CSR, soldiers who participated in the same frontline combat units as the CSR group but had shown no symptoms, and non-combat controls. Though the groups did not differ on the number of illnesses, hospitalizations, and emotional problems prior to exposure to war, a positive correlation was found between individuals who were experiencing combat-related psychological distress (CSR/PTSD) and the increased reporting of physical complaints. The non-combat controls and the non-PTSD combat-control group were not statistically different in terms of their reporting of physical complaints. Also correlated with PTSD was cigarette use, new medication, and alcohol

consumption. Unfortunately, the authors did not report on the relationship between these additional correlates and somatic complaints, nor did they discuss the prevalence of war-related injuries. In a 2-year follow up, Solomon, Mukulincer, and Kotler (1987) found that changes in levels of psychological distress were correlated with changes in reporting of physical symptoms.

More recently, Litz, Keane, Fisher, Marx, and Monaco (1992) examined physical health problems reported by individuals with PTSD using a small sample of 37 Vietnam veterans. Using a 35-item medical questionnaire derived from the Cornell Medical Index (Brodman, Erdmann, Lorge, & Wolff, 1949) to measure physical complaints, they found that individuals with PTSD report more physical complaints than individuals without PTSD. More specifically, results showed that Vietnam veterans with PTSD reported increased complaints of tinnitus, rapid breathing, racing heart, sexual disinterest, butterflies in the stomach, and nausea. Similar to the results of previous studies, the two groups did not differ on physician diagnosed problems or disease states. In addition, physiological assessment recorded during exposure to a trauma-related and a trauma-unrelated audiovisual presentation distinguished the veterans with PTSD from the non-PTSD veterans on baseline (tonic) arousal, though no significant difference was found on the measure of cardiac reactivity. Again this finding remains unclear in that the relationship between baseline (tonic) arousal, PTSD, and physical complaints has not been fully investigated. Additionally, the small sample size here precludes any valid generalizations from the results.

Although research has confirmed the relationship between PTSD and physical complaints, precise mechanisms responsible for this relationship remain unclear.

Theories have been proposed which specifically address the increased reporting of physical complaints in persons with PTSD. Litz et al. (1992, p. 138) suggest that increased health complaints by persons with PTSD may be (a) "the result of a biological manifestation of the syndrome," (b) "a prodromal sign of medical disorder caused by or exacerbated by the PTSD syndrome," (c) "a general symptom over-reporting bias," or (d) "a combination of all three of these possible contributing factors." In addition, the authors suggest that future research address the contribution of additional symptomatology associated with PTSD. Similarly, McFarlane, Aatchison, Rafalowicz and Papay (1994, p. 715-716) hypothesize that increased reports of physical symptoms associated with PTSD may (a) "be an integral part of the constellation of symptoms that make up PTSD," (b) "may be directly caused by the stressor responsible for the development of PTSD," (c) "relate to comorbid diagnoses," and (d) may be related to premorbid factors such as personality traits.

In an attempt to theoretically describe the relationship between the PTSD and physical complaints, investigators' hypotheses have largely focused on physiologically based symptoms as possible underlying etiological factors. Such explanations, however, do not take into account the psychological factors which constitute a significant portion of PTSD symptoms. In contrast to other investigators, Lipowski (1987) has suggested that the etiology of physical complaints is multifactorial and can not be fully accounted for by one class of constituents (e.g., psychosocial, neurophysiological). Furthermore, it has been reported that stressful life events as well as psychological conflicts over personally unacceptable emotions can serve as precipitating factors associated somatic complaints (Quill, 1985; Kellner, 1986; Lipowski, 1986, 1987).

The Etiology of Physical Complaints

Because physical complaints are usually relatively accurate indicators of underlying medical problems, physicians have relied heavily on them as an important diagnostic tool. Despite the usefulness of communicating physical complaints, extensive physical examinations sometimes uncover no clear organic etiology of reported symptoms. Bain and Spaulding (1967) reported that approximately 30% of physical symptoms, which include abdominal pain, chest pain, dyspnea, headache, fatigue, cough, back pain, nervousness and dizziness, can not be accounted for by medical illness.

Several possible explanations may account for the lack of evaluative medical data supporting such physical complaints. First, the diagnostic procedures, which include the instruments and tests used, may not be adequately sensitive or appropriate to detect a precise physiological basis for the experienced symptoms. This deficit can be expected to diminish with the advent of advanced medical technology. Secondly, it has been suggested that physical complaints that have no clear medical cause may result from psychological distress (Lipowski, 1987). Within this class of possible explanations for the reporting of physical complaints several possible contributing psychological factors have been identified.

Emotional Avoidance

It has been suggested that emotional avoidance leads to psychological and health difficulties (Hayes & Follette, 1992; Hayes, Wilson, Gifford, Follette, & Strosahl, 1996). Specifically, these theorists have described experiential avoidance, a more global phenomenon including emotional experiences, which is evidenced by an individuals'

unwillingness to remain in contact with particular private experiences (e.g., emotions, thoughts, memories). The control strategies used to avoid salient private experiences have been hypothesized to result in major life difficulties. For example, strategies aimed at avoiding emotions may result in social withdrawal, avoidance of situations in which emotions might occur, drinking, and drug abuse, all of which are common comorbid conditions of PTSD. Furthermore, individuals who engage in emotional avoidance may experience and/or report increased physical complaints (Roter & Ewart, 1992).

Emotional avoidance encompasses a discomfort with emotions and suggests a maladaptive coping style. With the hallmark symptoms of emotional avoidance involving an unwillingness to experience emotion, a symptom that is found within the diagnostic criteria of PTSD itself, this behavior appears a likely candidate for playing some associative role in the physical complaints of veterans. Furthermore, individuals who are emotionally avoidant may manifest psychological distress in more personally and socially acceptable physical symptoms (e.g., abdominal pain, chest pain, fatigue, dizziness). Although strong theoretical foundations have been proposed, empirical investigations of emotional avoidance and its consequences are few and no examination of the relationship between emotional avoidance and physical complaints has been done to date.

Secondary Gain

Other theorists have addressed the role of secondary gain in the reporting of physical complaints. Jones and Berglas (1978) proposed the "self-handicapping theory." This theory proposes that individuals report physical complaints in an attempt to protect

their self-esteem, particularly in relation to self-worth and competence. For example "an individual who gets a headache each time before a test may be using a self-handicapping strategy. The failure can be excused because the headache is seen as the cause of poor performance" (Organista & Miranda, 1991). Synder and Smith (1982) describe this process as externalizing failure to the physical symptoms. Jones and Berglas (1978) further state that self-handicapping behavior will vary from individual to individual and is subjectively linked to the person's sense of self-worth or competence.

Few studies have investigated the clinical relevance of this theory. Smith, Snyder and Hadelsman (1982) found that college students who experience elevated levels of test anxiety report more physical complaints. The authors suggested this increased level of somatic complaints protected the participants from the psychological consequences (i.e., impact on self-esteem) of poor test performance. In another study by Smith, Snyder, and Perkins (1983) college students who scored high on a measure of hypochodriasis reported more physical illness and physical complaints as a self-handicapping strategy in response to social-evaluative threat then did those scoring low in hypochondriasis. Because the aforementioned studies used college samples, the degree of psychopathology among those individuals was unlikely to be of a clinical level. In an effort to examine the self-handicapping theory among medical patients, Organista and Miranda (1991) studied 113 individuals seeking outpatient medical treatment. Specifically, the study examined psychosomatic symptoms in response to events that threatened the participants self-esteem. The results indicated that individuals who measured high on perfectionism reported increased psychosomatic complaints associated with threats of achievement of personal goals; this result was not found for persons who measured low on perfectionism.

The authors suggest this finding may indicate a relationship between relevant stressful life events and psychosomatic symptoms. Additionally, results did not reveal a significant relationship among dependent patients and their response to dependency threat events. Therefore, these findings suggest the self-handicapping theory may be more relevant for individuals who feel motivated to preserve a sense of autonomy and belief in their ability.

While the studies involving secondary gain among individuals who report elevated levels of physical complaints have focused on preserving self-esteem, the role of financial compensation in secondary gain behavior has largely been ignored. Clinically, it is not uncommon for clients to seek financial compensation for reported psychological and physical disabilities. Some veterans with PTSD either attempt to obtain financial compensation or increase the percentage of financial assistance they currently receive.

Though clinical examinations support many of these subjective reports of physical difficulties, for a significant sub-group medical assessments do not support any organic basis for their reported physical symptoms. Despite the tremendous economic cost for this increased reporting of physical complaints, studies examining variables associated with this behavior have not been done. Specifically, the relationship between financial compensation seeking and reporting of physical symptoms has not been examined.

Cynical Hostility

For many years theorists have hypothesized about the role of anger and hostility in physical health. Cross sectional studies examining the relationship between hostility and physical health have revealed mixed results. Williams et al. (1980), using

multivariate analyses, found a significant association between cynical hostility and coronary artery disease (CAD). Similarly, Barefoot (1992) found hostility to be significantly related to severity of CAD among persons with angiography. In a random sample of 4,000 male veterans ranging in age from 31 to 46 years, Joesoef, Wetterhall, DeStefano, Stroup, and Fronek (1989) found a small but significant association between measures of hostility and the prevalence of peripheral artery disease. In contrast, several cross-sectional studies have failed to find a significant relationship between the construct of cynical hostility and health status. Dembroski, MacDougall, Williams, Haney, & Blumenthal (1985), examining a sample of 131 patients, reported no significant link between either the number of diseased coronary arteries or severity of the disease. In addition, Friedman and Booth-Kewley (1987) reported finding no difference in hostility between 50 medical patients and 50 control participants. Fontana et al., (1989) reported that although no significant difference existed between patients with coronary heart disease (CHD) and medical patients without a history of CHD, when hostility scores were dichotomized elevated levels of hostility were associated with CHD. Differences in the findings of the aforementioned studies may be a consequence of the lack of consensus of precisely how cynical hostility should be measured. For example, the instruments, or portions of instruments (e.g., the Cook-Medley or using sub-scales of that instrument) used to index cynical hostility vary.

For those studies that have found a relationship between cynical hostility and physical health, it has been proposed that this link may be accounted for by heightened cardiovascular and neuro-endocrine reactivity (Williams, Barefoot, & Shekelle, 1985). However, studies examining this proposed association have found inconclusive results

(Diamond et al., 1984; Glass, Lake, Contrada, Kehoe, & Erlanger, 1983; Anderson et al., 1986; Lundberg, Hedman, Melin, & Frankenhaeuser, 1989; McCann & Matthews, 1988). Other explanatory models regarding hostility and physical health have focused on poor hygiene, such as less physical exercise and less self-care (Leiker & Hailey, 1988). However, investigations of health-related behavior have been purely descriptive and focused on limited traditional behavioral risks, such as smoking and alcohol use (Smith, 1992). Though some studies have linked cynical hostility with physical health, other have failed to find this relationship. The effects of cynical hostility on physical complaint reporting, though theoretically probable, has largely been ignored.

Methodological Limitations

A difficulty associated with studies investigating physical complaints among individuals with PTSD has been the lack of consistency with the diagnostic methods and measures used. Methods of diagnosing individuals with PTSD have varied from a 13-item self-report measure which was designed for the investigation (Solomon & Mikulincer, 1987) to the widely used Structured Clinical Interview based on the DSM-III-R criteria (Litz et al., 1992), to the Diagnostic Interview Schedule based on DSM III criteria (McFarlane et al., 1994). Limitations of utilizing various diagnostic methods include possible differing diagnostic criteria and an inability to quantify and generalize severity measures of the disorder. Furthermore, differences may exist between self-report diagnostic methods and clinical interviews.

Methods of measuring physical complaints have also been inconsistent. One study used a self-report questionnaire which encompassed medical histories of the

participant and their close relatives (Solomon & Mikulincer, 1987). This questionnaire inquired about past hospitalizations (physical and/or psychiatric) and provided a list of illnesses, including cancer, heart disease, diabetes, hypertension, and mental disorders. Again, participants were instructed to indicate whether or not they or any of their close relatives had experienced these conditions. The authors did not elude to the relevance of the health status of family members on the participants report of physical complaints and its applicability is questionable. This study is unique in that a comparison of pre-combat medical histories was conducted and no significant differences were found. However, a notable limitation of this comparison is that it only considers complications for which individuals sought treatment. It does not account for medical or psychiatric difficulties that were unreported to physicians. While the authors' comparison provides potentially important information, it is limited and should not be regarded as conclusive.

As stated, several investigations have found increased reports of physical complaints among individuals with PTSD. However, the mechanisms responsible for this relationship have been only speculated upon. Furthermore, these theories usually neglect psychological factors. Studies have primarily compared the reporting of physical complaints among persons with and without PTSD. While this type of comparison has revealed significant differences between those groups (PTSD vs. non-PTSD), few investigations have examined within group differences, regarding reports of physical complaints, among individuals with PTSD. Individuals with PTSD do not represent a homogeneous group and therefore it is improbable, if not implausible, that individuals with PTSD will report uniform levels of physical complaints. An examination of within group differences among individuals with PTSD could provide important data concerning

which variables are associated with increased physical complaints. For example, individuals with PTSD who report increased levels of physical complaints may experience greater symptomatology associated with the diagnostic symptom cluster involving avoidance. Such information might improve treatment outcomes as well as decrease the long term social and economic costs associated with the disorder.

The Present Study

Though physical complaints have been observed among individuals with PTSD, the precise mechanisms contributing to the increased reporting of physical complaints and health care utilization are likely complex. In past research, several factors have been theoretically linked with increased reports of physical symptoms. The purpose of the present study was to examine the importance of these factors in the reporting of physical symtomatology often found in persons with PTSD. Specifically, the current study investigated the possible roles of cynical hostility, emotional avoidance, and secondary gain behaviors in the reporting of physical complaints among Vietnam combat-veterans who are seeking treatment for PTSD. In addition, the present study also examined the relationship between the reporting of physical complaints and non-psychiatric health care utilization among Vietnam combat-veterans with PTSD.

Hypotheses

The hypotheses of the current study were based on the premise that psychological variables play a role in the reporting of physical complaints. As stated above, several factors, which include emotional avoidance, cynical hostility, and financial compensation

as a secondary gain behavior, have been theoretically linked with increased reports of physical symptoms. The goal of the proposed study was to empirically examine the following hypotheses, which involve the aforementioned factors.

Hypothesis I: *Vietnam veterans with PTSD who report high levels of emotional avoidance would report a greater amount of physical complaints.* Specifically, it was hypothesized that a positive correlation will be found between emotional avoidance as measured on the Impact of Event Scale-Avoidance Sub-scale (IES-Avoidance) and reports of physical symptoms as measured on the Wahler Physical Symptoms Inventory (WPSI).

Hypothesis II: *Vietnam veterans with PTSD who are currently seeking financial compensation will report greater levels of physical complaints.* Specifically, it was hypothesized that a positive correlation will be found between financial compensation seeking status as measured by a single item that asked respondents if they were 1) currently trying to obtain financial compensation for the first time, or 2) if they were trying to increase their current percentage of service connection (in either case, if the participant answered "yes" they would be considered as compensation seeking), and reports of physical symptoms as measured on the Wahler Physical Symptoms Inventory (WPSI).

Hypothesis III: *Vietnam veterans with PTSD who are cynically hostile will report increased levels of physical complaints.* Specifically, it is hypothesized that a positive correlation will be found between cynical hostility as measured on the Cook-Medley Scale and physical symptoms as indicated on the WSPI.

Hypothesis IV: *Collectively, cynical hostility, emotional avoidance, and secondary gain behavior will predict the increased reporting of physical symptoms often observed in Vietnam veterans with PTSD.* Specifically, it is hypothesized that after controlling for severity of PTSD, emotional avoidance as measured on the IES-avoidance scale, cynical hostility as reported on the Cook-Medley Scale and financial compensation seeking, as reported on a single item question, would predict those Vietnam veterans with PTSD who endorse increased levels of physical complaints on the WPSI.

Hypothesis V: *Collectively, the psychological variables cynical hostility, emotional avoidance, and secondary gain behavior will predict increased utilization of healthcare services by Vietnam veterans with PTSD.* Specifically, it was hypothesized that, physical complaints as measured on the WPSI, emotional avoidance as measured on the IES-avoidance scale, cynical hostility as reported on the Cook-Medley Scale, and financial compensation seeking as reported on the OMFAQ will predict a greater number of non-psychiatric hospital visits, as indicated by medical records from the Veterans Affairs Medical Center located in Oklahoma City, OK, for the one-year period prior to their interview.

CHAPTER III

METHODOLOGY

Participants and Recruitment

Participants were 58 Vietnam veterans who met diagnostic criteria for post-traumatic stress disorder (PTSD) as defined by the Diagnostic and Statistical Manual of Mental Disorders (DSM-IV; APA, 1994). Individuals were recruited, during their previously scheduled unrelated appointment at the Post-traumatic Stress Clinic located at the Veteran's Affairs Medical Center (VA) in Oklahoma City, OK. Participants completed a signed consent form for inclusion in the study. Subjects did not receive compensation for their participation in the study.

Demographically, participants in this study were as follows: The sample included veterans from several of branches of the armed forces. Seventy-three percent were from the Army, 16 % were from the Navy, 7% were from the Marines, and 4% were from the Air Force. Seventy-nine of the participants were Caucasian and 21% were African-American. Over half of the participants were married (60%), with 4% being single, 30% divorced, 6% separated, and 2% widowed. In addition, 78% were receiving some level of compensation, with 10% being fully service connected. Finally, 67% of the sample reported they were seeking some form of financial compensation.

Instruments

The Clinician-Administered PTSD Scale (CAPS; Blake, Weathers, Nagy, Kaloupek, Charney, & Keane, 1995), a widely used measurement of PTSD symptomatology, was used to determine the presence and severity of PTSD. The

instrument is a 30-item scale that assesses each of the 4 core clusters of symptoms necessary for diagnosis. Though no data presently exists on the new version of this measure, psychometric properties of the original CAPS are well established. Test-retest reliability studies report *r*'s ranging from .77 to .96 for the three symptom-criterion subgroups and .90 to .98 for total CAPS severity scores (Weathers et al., 1992). In addition, the CAPS severity score of 65 was found to be highly correlated with the Structured Clinical Interview for the DSM-III (SCID; Spitzer & Williams, 1986) diagnosis for PTSD.

The Avoidance Sub-Scale of the Impact of Event Scale (IES-R; Horowitz, Wilner, & Alvarez, 1979), a 6-item (total instrument = 15 items) self-report instrument, was used to measure the extent of current emotional avoidance. At the time of this study, no psychometrically valid index of emotional avoidance was available. Therefore, the IES was used because of the specific item content of the items on the avoidance scale. Items on this scale describe behaviors that involve some private or emotional event that the individual is unwilling to experience (e.g., "I was aware that I still had a lot of feelings about it, but I didn't deal with them," "I tried not to think about it"). Although only the avoidance scale was used for the purposes of the current investigation, the measure was administered in its entirety to insure psychometrically valid responses. Respondents indicated how frequently they have experienced each of the 15 listed reactions, within the past 30 days, on a 4-point scale ranging from "not at all" to "often." The 30 day duration is a modification from the original IES (duration = 7 days). This adjustment was made to coincide with the diagnostic criteria for PTSD (APA, 1994) and to allow for consistency with the other measures used in the present study. This instrument has demonstrated high

reliability and validity (Schwarzwald, Solomon, Weisenberg, & Mikulincer, 1987).

The Acceptance and Action Questionnaire (AAQ; Hayes, 1996) is a 16-item self-report instrument designed to measure the extent to which an individual is emotionally avoidant. Hayes (1996) gave a 32-item version of the instrument was given to 835 outpatient individuals. Subsequent factor analysis confirmed a single factor solution for the present 16-item version of the questionnaire. The measure has been shown to be moderately correlated with other measures of psychopathology (e.g., BDI, $r = .66$; BAI; $r = .40$; BSI subscales as follows: Depression, $r = .65$; Hostility, $r = .43$; Obsessive Compulsive, $r = .52$; Paranoid Ideation, $r = .39$; Phobic Anxiety, $r = .41$; Psychosis, $r = .60$; Interpersonal Sensitivity, $r = .54$; Somatization, $r = .41$). The AAQ is a relatively new instrument with little normative data. As such, it was used as secondary measure of emotional avoidance.

The Cook-Medley (Ho) Scale (Cook & Medley, 1954) is a measure derived from items included on the original version of the Minnesota Multiphasic Personality Inventory (MMPI; Hathaway & McKinley, 1943). This 50-item self-report instrument, used to measure cynical hostility, has high internal validity (Smith & Frohm, 1985) and high reliability (Barefoot, Dahlstrom, & Williams, 1983; Shekelle, Gale, Ostfield, & Paul, 1983).

The Wahler Physical Symptoms Inventory (WPSI; Wahler, 1968) is a 42-item instrument designed to measure the individuals' present level or intensity of somatic complaining. The respondent rates each of the 42-physical symptom-items on a scale of 0 (almost never) to 5 (nearly everyday). The WPSI is self-administered and takes 5 to 10 minutes for completion. In addition, the WPSI is established as a highly valid and

reliable measure, with normative data for various populations (Wahler, 1983). Scores on this instrument are also significantly correlated with the Hypochondriasis scale (Hs) on the MMPI (males = .66, females = .86). The WPSI was used in the current study as a measure of physical complaints among combat veterans with PTSD.

Healthcare utilization was measured through recording participants' medical records from the previous 12 month period. This examination was expected to provide a representative measurement of the extent of healthcare services used, the frequency of utilization, as well as medical diagnoses and types of services used. Recording of the medical records was done by an assistant who was blind to the study's hypotheses and the participants' previously collected data (i.e., CAPS scores, self-report healthcare utilization, self-report medical conditions, and other rating scales). The trained individual recorded the data, directly from patients' medical records, on provided forms which were designed to obtain only that information that was relevant to the study.

Procedure

The experimenter orally informed prospective participants about the nature of the study during a previously scheduled unrelated appointment at the Post-traumatic Stress Clinic located at the Veterans Affairs Medical Center in Oklahoma City, OK. Individuals were asked to participate in the proposed study as part of another investigation involving the efficacy of a PTSD treatment program by Drs. Orsillo, Jones, and Marx. Participants were recruited while, 1) coming to the clinic for an initial assessment before entry into the treatment program, 2) currently receiving PTSD treatment, or 3) completing a follow-up assessment post-treatment at the clinic. Consenting individuals completed an informed

consent form indicating their voluntary participation in the study. Individuals were also asked to sign a release of medical records form in order to obtain an objective measure of physician diagnosed medical conditions and healthcare utilization within the past 12 months. Upon completion of both signed consent forms, a prerequisite for inclusion in the study, individuals were interviewed using the Clinician-Administered PTSD Scale. This scale provided diagnostic information regarding the presence and severity of PTSD symptomatology. Following the initial clinician-administered phase, participants completed the self-administered questionnaire portion of the study, which took approximately 30-45 minutes. After participants completed the self-report measures, they were thanked for their participation and referred for additional help at the Post-traumatic Stress Clinic if warranted. No compensation was provided for participation in this study.

CHAPTER IV

RESULTS

The means and standard deviations of the measures of each psychological factor, as well as health care use, are shown in Table 1. Sixty-seven percent of the sample reported that they were either 1) trying to obtain financial compensation or 2) trying to increase the percentage of compensation they currently receive. To test the first three hypotheses of this study, one-tailed zero-order correlations were conducted for all factors and the results of these analyses are shown in Table 2. Analyses indicated that participants age was neither significantly correlated with either dependent variables (physical complaints or health care utilization) nor was it related to any of the predictor variables (emotional avoidance, cynical hostility, or financial compensation seeking). Likewise, zero-order correlations performed on other demographic variables (ethnicity, religion, and branch of service duty) also failed to show significant relationships between these variables and reports of physical complaints or health care utilization. Because these demographic variables were not significantly correlated with either of the criterion variables they were not controlled for in the regression analyses. As predicted both emotional avoidance as measured on the IES and cynical hostility as measured on the Cook-Medley Ho scale were significantly positively correlated with reports of physical symptoms. However, there was no significant relationship between financial compensation seeking and physical complaints. Similarly, as predicted, emotional avoidance, cynical hostility, and extent of physical complaints were all positively significantly correlated with extent of health care utilization. However, financial compensation seeking status was not significantly correlated with extent of health care

utilization.

As stated above, because no psychometrically valid measure of emotional avoidance existed at the time of this study, both the IES and the AAQ were included. AAQ total scores were not significantly related to either extent of physical complaints or health care utilization. Further, the AAQ was not significantly correlated with severity of PTSD or the IES avoidance scale. Therefore, the IES avoidance scale was used as the measure of emotional avoidance, and the AAQ was not included in the regression analyses predicting physical complaints or health care utilization.

Physical Complaints

To test the hypothesis that the combined effects of emotional avoidance, cynical hostility, and financial compensation seeking behaviors would significantly predict reporting of physical complaints over and above PTSD severity, a hierarchical regression analysis was conducted (see Table 3). Severity of PTSD, as defined by the overall CAPS score, was entered in the first step of an equation predicting physical complaints as measured by total scores on the WPSI. After step 1, with overall CAPS scores in the equation, the adjusted $R^2 = .19$, F_{inc} (1, 42) = 11.06, $p < .01$. In the second block, the collective effects of emotional avoidance (IES-Avoidance Score), cynical hostility (Cook-Medley Cynical Hostility Scale), and financial compensation seeking behaviors were added to the regression equation. These variables also produced a significant change [adjusted $R^2 = .28$, F_{inc} (4, 39) = 5.21, $p < .01$] in the amount of variance accounted for in the reports of physical symptoms. An examination of the partial correlations revealed that emotional avoidance significantly ($p < .05$) and uniquely contributed to reports of

physical symptoms while cynical hostility and financial compensation seeking were not significant contributors to the equation.

Health Care Utilization

To test the hypothesis that the combined effects of reports of physical complaints, emotional avoidance, cynical hostility, and financial compensation seeking behaviors would significantly predict the number of non-psychiatric hospital visits of veterans with PTSD, a hierarchical regression analysis was used (see Table 4). Since the severity of PTSD, nor any of its sub-scales, was not correlated with the number of non-psychiatric visits, this factor was not put in the regression equation. The variables of emotional avoidance, cynical hostility, and financial compensation seeking, and self-reports of physical complaints were collectively placed in the regression equation in a single block. Results indicated that these factors did not account for a significant amount of the variance [adjusted $R^2 = .06$, $F_{inc}\ (4, 39) = 1.70$, $p = ns$]. Further, it was found that none of the proposed psychological factors uniquely contributed to reports of non-psychiatric health care utilization among Vietnam veterans.

CHAPTER V

DISCUSSION

The purpose of the current study was to investigate the importance of several psychological factors potentially involved with the reporting of physical symtpomatology among Vietnam veterans with PTSD. Specifically, this study examined the relationship between emotional avoidance, cynical hostility, financial compensation seeking behaviors, and self-reported physical complaints. Secondly, this study aimed to examine the relationship between these factors and non-psychiatric health care utilization.

Findings supported the hypothesis that psychological factors play a predictive role in the reports of physical complaints among Vietnam veterans. Specifically, the results of this study indicated that collectively emotional avoidance, cynical hostility, and financial compensation seeking status accounted for a significant portion of the variance in the reports of physical complaints above the influence of PTSD severity. However, despite the overall predictive value of these variables collectively, only emotional avoidance emerged as adding unique predictive value to the regression equation. Thus, based on the results of this investigation, it appears that while emotional avoidance seems to play an integral role in reports of physical complaints among Vietnam veterans with PTSD, the psychological construct of cynical hostility and monetary seeking behavior do not.

These results support a body of theoretical literature that suggests a link between one's unwillingness or inability to experience one's emotional state and subsequent reports of physical discomfort (e.g., Pennebaker, 1997). Further, this finding seems to coincide with the fact that avoidance (of both overt as well as covert stimuli) is a hallmark symptom of PTSD and, as such, infers that individuals with the disorder will

engage in a greater degree of avoidance than their non-PTSD counterparts. This line of reasoning suggests that physical complaints may be an expected symptom of PTSD. The results of the current study add to the body of literature which has shown that the presence of a PTSD diagnosis is related to higher levels of physical complaints among veterans by specifically demonstrating that increased severity of the disorder and higher levels of emotional avoidance seem to be unique predictors of physical complaints

The results of this study also revealed that CAPS-avoidance scale scores were neither significantly correlated with emotional avoidance, as measured using the IES, nor related to reports of physical complaints. These findings suggest that emotional avoidance may fall outside the general cluster of avoidance symptoms as outlined in the DSM-IV (1994). Evidence for this line of thinking can be found by examining the item content of each of the scales used to measure avoidance. Item content on the IES largely reflects avoidance of emotional experiences (e.g., "I was aware that I still has a lot of feelings about it, but I didn't deal with them"; "I tried not to talk about it") as opposed to external stimuli (e.g. "Have you ever tried to avoid certain activities, places, or people that reminded you of the event") which are included in the avoidance cluster of the DSM-IV (1994) PTSD diagnostic criteria . This further suggests that avoidance of private events may be qualitatively different from avoidance of environmental cues (e.g., Wilson & Hayes, 1995). These results suggest that these variations in avoidant behavior may have differential effects on the reports of physical complaints among individuals with PTSD. While the precise underlying mechanisms driving these findings require further investigation, it may be that psychological distress among individuals who avoid emotional experiences is manifested via somatic complaints. Functionally, this behavior

may allow individuals who avoid emotional experience to express their distress through a less emotional and more socially sanctioned manner.

There are several possible reasons for the non-significant findings regarding the prediction of physical complaints by cynical hostility and financial compensation seeking. First, although cynical hostility was significantly correlated with the extent of self-reported physical complaints, the size of this correlation was relatively small. Thus, given the magnitude of this relationship, it is reasonable to expect that cynical hostility would not account for a significant portion of the variance in physical complaints. Related, because cynical hostility was significantly correlated with PTSD severity as indicated on the CAPS, it might be expected that cynical hostility overlaps heavily with CAPS (PTSD severity) and is therefore not a significant predictor in the regression equation when CAPS is controlled for in step 1. It is also possible that the non-significant relationship between emotional avoidance and overall PTSD severity explains the significant relationship between emotional avoidance and physical complaints. Secondly, since cynical hostility has only been linked to actual physical illness (e.g., Fronek, 1989; Barefoot, 1992), it is possible that individuals with PTSD report physical symptoms in the absence of any physical abnormality. Thus, it may be that cynical hostility better accounts for physical disease than mere reports of physical complaints. However, further research is needed to better clarify these relationships. Similarly, in contrast to the hypothesized results, the magnitude of the correlation between financial compensation seeking and physical complaints was not significant. Based on this finding, it was reasonable to expect that financial compensation seeking status would not account for a significant portion of the variance in physical complaints. A possible

reason for why financial compensation seeking was not significantly related to reports of physical complaints may be a reporting bias among veterans. This study relied solely on participants to accurately report their compensation seeking status. It may be that participants inaccurately reported their compensation seeking behavior. Finally, it may be that these variables are not significantly related to reports of physical symptoms among individuals with PTSD. As such, future research should examine the possible role of other psychological factors (e.g., depression, social support seeking) in the reporting of physical symptoms among individuals with PTSD.

In addition to examining the influence of specific psychological factors on the reporting of physical complaints among Vietnam veterans, the current study, in an effort to evaluate the practical significance of such reports, also examined their effects on past health care utilization. Despite the significant positive correlation between extent of physical complaints and the number of health care visits, as well as between emotional avoidance and the number of health care visits, results indicated that the psychological factors of emotional avoidance, cynical hostility, and financial compensation seeking, in conjunction with the extent of self-reported physical complaints, were not significant predictors of health care utilization. There are several possible reasons for this lack of significant findings. First, although self-reported physical complaints and emotional avoidance were significantly correlated with the number of non-psychiatric hospital visits, these correlations were quite modest. Thus, the magnitude of the relationship between emotional avoidance, physical complaints, and health care utilization may not have been adequate enough for those variables to serve as significant predictors of non-psychiatric health care use. Relatedly, it may have been that the variance accounted for

by each of these separate variables was dispersed when they were examined collectively in the regression equation. Lastly, the lack of statistical significance regarding financial compensation seeking may relate to a possible reporting bias among veterans. This study relied solely on participants to accurately report their compensation seeking status. It may be that participants inaccurately reported their compensation seeking behavior.

The findings of this study should be considered preliminary for several reasons. One important consideration regarding this study is the definition of the construct of emotional avoidance. The concept of emotional avoidance is ill-defined and controversial in the current psychological literature. For example, items in the avoidance cluster of PTSD symptomology are hetergeneous and include "deliberate" efforts to avoid thoughts and feelings, as well as the more "involuntary" symptoms of emotional numbing and attachment, a loss of interest in activities, and a restricted range of affect (Meadows & Foa, 1998). Where any specific behavior falls on the "deliberate—involuntary" continuum is unknown and debatable. Further, the mechanisms responsible for, as well as the specific functions of, such behaviors have yet been determined. This controversy is further fueled by debates as to the best methods through which it can adequately be quantified. The results of this study explicitly demonstrated that findings regarding emotional avoidance can vary depending on the instrument used. Further, how one theoretically defines emotional avoidance has direct implications for how the results of this study are interpreted. As such, more research is needed to better understand and measure the construct of emotional avoidance.

Caution should be employed when trying to generalize these findings to non-veteran populations (e.g., victims of civilian trauma). With regard to mental health,

veterans seeking treatment at VA medical centers may be a unique population. There are also some limitations related to health care utilization. The current study attempted to retrospectively predict previous health seeking behaviors (non-psychiatric health care utilization) using current measures of psychological functioning. Future research may better address this issue by conducting prospective studies which assess the relationship between health care utilization, physical complaints, and psychological variables over time. Additional research with a larger sample is also needed to more confidently determine the precise relationship between trauma, PTSD symptomatology, physical complaints, and health care utilization.

While this study succeeded at identifying psychological factors that are predictive of physical complaints among individuals with PTSD, a large portion of the variance remained unaccounted for by the chosen variables. Thus, more thorough examinations of possible pathophysiological influences will also likely contribute to a better, more complete understanding of physical complaints among this population.

In the United States, health care consumes a considerable portion of the national income (Hodge, 1991). Within the U.S. health care system, the Veterans Health Administration (VHA) is the largest recipient of federal funds. With an annual budget of approximately $17 billion dollars and serving more than 3 million veterans, the VHA is currently in the process of dramatic health care reform (Booss, 1997). Given the current unstable financial and political atmosphere surrounding the health care industry, in conjunction with percentage of individuals who utilize health care services in the absence obvious physical problems, more research is needed on the potential factors associated with the over utilization of health care services. A better understanding of the

relationship between psychological factors, physical complaints, and health care utilization patterns holds the promise of decreasing the provision of unnecessary medical procedures, informing better treatment options, as well as assessment of treatment outcome among individuals with PTSD. Results of the current study, along with the existing empirical evidence, emphasizes the importance of psychologists and physicians working collaboratively, both in research and practice, to better assess the etiology of medical problems. Such collaborative efforts have the potential to improve diagnostic methods, thereby improving the quality and efficiency of patient care and reducing health care costs.

Finally, while the primary focus of psychotherapeutic interventions for PTSD will not likely be somatic complaints, the efficacy of psychotherapy on the reduction of physical reports should be addressed. The predominant schools or approaches to treating the deleterious effects of trauma (e.g., cognitive-behavioral) do incorporate some method of addressing emotional avoidance. Based on the results of this study, it is possible that by reducing emotional avoidance somatic complaints will likewise decrease. To empirically explore this possibility, it may prove valuable for individuals conducting treatment outcome studies to include an index of the frequency and severity with which individuals with PTSD report physical symptoms. Results of such findings may shed some new light on the relevance of psychologists in the diagnostic methods used to assess persons seeking medical treatment.

REFERENCES

American Psychiatric Association. (1994). Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition. Washington, DC., American Psychiatric Association.

Anderson, N. B., Williams, R. B., Jr., Lane, J. D., Haney, T., Simpson, S., & Houseworth, S. J. (1986). Type A behavior, family history of hypertension, and cardiovascular responsivity among Black women. Health Psychology, 5, 393-406.

Ansorge, S., Litz, B., & Orsillo, S. (1996). Thinking about feelings: The role of meta-mood in post-traumatic stress disorder. NCP Clinical Quarterly, 38-41.

Bain, S. T., & Spaulding, W. B. (1967). The importance of coding presenting symptoms. Canadian Medical Association Journal, 97, 953-959.

Barefoot, J. C. (1992). Developments in the measurement of hostility. In H. S. Friedman (Ed.), Hostility, coping, and health (pp. 13-31). Washington, DC: American Psychological Association.

Barefoot, J. C., Dahlstrom, W. G., & Williams, R. B., Jr. (1983). Hostility, CHD incidence, and total mortality: A 25 year follow up study of 255 physicians. Psychosomatic Medicine, 45, 59-63.

Barefoot, J. C., Dodge, K A., Peterson, B. L., Dahlstrom, G., & Williams, R. B., Jr. (1989). The Cook-Medley hostility scale: Item content and ability to predict survival. Psychosomatic Medicine, 51, 46-57.

Barsky, A. (1981). Hidden reasons some patients visit doctors. Annals of Internal Medicine, 94, 492.

Barsky, A., Wychak, G., & Klerman, G. (1987). Medical and psychiatric determinants of outpatient medical utilization. Medical Care, 24, 548-560.

Bell, P., Kee, M., Loughrey, G. C., Roddy, R. J. & Curran, P. S. (1988). Post-traumatic stress in Northern Ireland. Acta Psychiatrica Scandinavica, 77, 166-169.

Blake, D. D., Weathers, F. W., Nagy, L. M., Kaloupek, D. G., Charney, D. S., & Keane, T. M. (1995). The development of a clinician-administered PTSD scale. Journal of Traumatic Stress, 8, 75-90.

Booss, J. (1997). Change in the Department of Veterans Affairs: What should be done? Neurology, 49, 338-340.

Brodman, K., Erdmann, A. J., Jr., Lorge, I., & Wolff, H. G. (1949). The Cornell Medical Index: An adjunct to medical interview. Journal of the American Medical Association, 140, 530-534.

Brodman, K., Erdmann, A. J., Jr., Lorge, I., & Wolff, H. G. (1951). The Cornell Medical Index health questionnaire: As a diagnostic instrument. Journal of the American Medical Association, 145, 152-157.

Brown, P. J., Recupero, P. R., & Stout, R. (1995). PTSD substance abuse comorbidity and treatment utilization. Addictive Behaviors, 20, 251-254.

Centers for Disease Control (1988). Vietnam experience study: Health status of Vietnam veterans study II, physical health. Journal of the American Medical Association, 259, 2708-2714.

Cohen, K., Auld, F., & Brooker, H. (1994). Is alexithymia related to psychosomatic disorder and somatizing? Journal of Psychosomatic Research, 38, 119-127.

Cook W., & Medley, D. (1954). Proposed hostility and pharasaic-virtue scales for the MMPI. Journal of Applied Psychology, 38, 414-418.

Kuch, K., Cox, B. J., Woszczyna, C. B., Swinson, R. P., & Shulman, I. (1991). Chronic pain in panic disorder. Journal of Behavior Therapy and Experimental Psychiatry, 22, 255-259.

Dembroski, T. M., MacDougall, J. M., Costa, P. T., Jr., & Grandits, G. A. (1989). Components of hostility as predictors of sudden death and myocardial infarction in the Multiple Risk Factor Intervention Trial. Psychosomatic Medicine, 51, 514-522.

Dembroski, T. M., MacDougall, J. M., Williams, R. B., Jr., Haney, T. L., & Blumenthal, J. A. (1985). Components of Type A, hostility, and anger in relationship to angiographic findings. Psychosomatic Medicine, 47, 219-233.

Diamond, E. L. (1982). The role of anger and hostility in essential hypertension and coronary heart disease. Psychological Bulletin, 92, 410-433.

Diamond, E. L., Schneiderman, N., Schwartz, D., Smith, J. C., Vorp, R., & Pasin, R. D. (1984). Harassment, hostility, and Type A as determinants of cardiovascular reactivity during competition. Journal of Behavioral Medicine, 7, 171-189.

Epping-Jordan, J., Compas, B., & Howell, D. (1994). Predictors of cancer progression in young adult men and women: Avoidance, intrusive thoughts, and psychological symptoms. Health Psychology, 6, 539-547.

Escobar, J.I., Golding, J.M., Hough, R.L., Karno, M., Burnam, M.A., & Wells, K.B. (1987). Somatization in the community: The relationship of disability and use of services. American Journal of Public Health, 77, 837-840.

Fairbank, J. A., Schenger, W. E., Caddell, J. M., & Woods, M. G. (1994). Post-traumatic stress disorder. In P. B. Sutker & H. E. Adams (Eds.), Comprehensive Handbook of Psychopathology, second edition, New York City : Plenum.

Fillenbaum, G. (1988). Older Americans resources and procedures, In Multidimensional Functional Assessment of Older Adults, Hillsdale: Lawrence Eribaum.

Fillenbaum, G. G., & Smyer, M. (1981). The development, validity, and reliability of the OARS multidimensional functional assessment questionnaire. Journal of Gerontology, 36, 428-434.

Follette, W. & Cummings, N.A. (1967). Psychiatric services and utilization in a prepaid health plan setting. Medical Care, 5, 24-35.

Folkman, S., & Lazarus, R. S. (1985). If is changes it must be a process: Study of emotion and coping during three stages of a college examination. Journal of Personality and Social Psychology, 48, 150-170.

Folkman, S., Lazarus, R. S., Dunkel-Schetter, C., DeLongis, A., & Gruen, R. (1986). The dynamics of a stressful encounter: Cognitive appraisal, coping, and encounter outcomes. Journal of Personality and Social Psychology, 50, 992-1003.

Fontana, A. F., Kerns, R. D., Blatt, S. J., Rosenberg, R. J., Burg, M. M., & Colonese, K. L. (1989). Cynical mistrust and the search for self-worth. Journal of Psychosomatic Research, 33, 449-456.

Foy, D., Sipprelle, R., Ruger, D., & Carroll, E. (1987). Etiology of post-traumatic stress disorder in Vietnam veterans: Analysis of premilitary, military, and combat exposure influences. Journal of Consulting and Clinical Psychology, 52, 79-87.

Friedman, H. S., & Booth-Kewley, S. (1987). Personality, Type A behavior, and coronary heart disease: The role of emotional expression. Journal of Personality and Social Psychology, 53, 783-792.

Glass, D. C., Lake, C. R., Contrada, R. J., Kehoe, K., & Erlanger, L. R. (1983). Stability of individual differences in physiological responses to stress. Health Psychology, 2, 317-341.

Goldberg, J., True, W. R., Eisen, S. A., & Henderson, W. G. (1990). A twin study of the effects of the Vietnam war on posttraumatic stress disorder. Journal of the American Medical Association, 263, 1227-1232.

Gomez, D., & Dally, P. (1977). Psychologically medicated abdominal pain in surgical and medical outpatient clinics. British Medical Journal, 2, 1451-1453.

Green, B. L. (1994). Psychosocial research in traumatic stress: An update. Journal of Traumatic Stress, 7 (3), 341-362.

Green, B. L., Grace, M. C., Lindy, J. D., Gleser, G. C., & Leonard, A. C. (1990a). Risk factors for PTSD and other diagnoses in the general sample of Vietnam veterans. American Journal of Psychiatry, 147, 729-733.

Green, B. L., Lindy, J. D., Grace, M. C., Gleser, G. C., Leonard, A. C., Korol, M., & Winget, C. (1990a). Buffalo Creek survivors in the second decade: Stability of stress symptoms. American Journal of Orthopsychiatry, 60, 43-54.

Hayes, S. C. (1996). Acceptance and action questionnaire. Unpublished instrument, University of Nevada at Reno.

Hayes, S. C., & Follette, W. C. (1992). Can functional analysis provide a substitute for syndromal classification? Behavioral Assessment, 14, 345-365.

Hayes, S., Wilson, K., Gifford, E., Follette, V., & Strosahl, K. (1996). Experiential avoidance and behavioral disorders: A functional dimensional approach to diagnosis and treatment. Journal of Consulting and Clinical Psychology, 6, 1152-1168.

Hodge, M. L. (1991). New perspectives on our national health care dilemma. Health Care Management Review, 16 (3), 63-71.

Horowitz, M., Wilner, M., & Alvarez, W. (1979). Impact of Event Scale: A measure of subjective stress. Psychosomatic Medicine, 41, 209-218.

Jones, E. E., & Berglas, S. (1978). Control of attributions about the self through self-handicapping strategies: The appeal of alcohol and the role of underachievement. Personality and Social Psychology Bulletin, 4, 200-206.

Joesoef, M. R., Wetterhall, S. F., DeStefano, F., Stroup, N. E., & Fronek, A. (1989). The association of peripheral arterial disease with hostility in a young, healthy veteran population. Psychosomatic Medicine, 51, 285-289.

Keane, T. M., Fairbank, J. A., Caddell, J. M., Zimering, R. T., Taylor, K. L., & Mora, C. (1989). Clinical evaluation of a measure to assess combat exposure. Journal of Consulting and Clinical Psychology, 1, 53-55.

Keane, T., & Wolfe, J. (1990). Comorbidity in posttraumatic stress disorder: An analysis of community and clinical studies. Journal of Applied Social Psychology, 20, 1776-1788.

Kellner, R. (1986). Somatization and hypochodriasis. New York: Praeger.

Koss, M. P., Koss, P. G., & Woodruff, W. J. (1991). The deleterious effects of criminal victimization on women's health and medical utilization. Archives of Internal Medicine, 151, 342-347.

Krystal, H. (1971). Trauma: Consideration of severity and chronicity. In H. Krystal & W. Niederland (Eds.). Psychic Traumatization. Boston: Little Brown.

Krystal, J. H., Giller, E. L. & Cicchetti, D. V. (1986). Assessment of alexithymia in post-traumatic stress disorder and somatic illness: Introduction of a reliable measure. Psychosomatic Medicine, 48, 84-94.

Kubany, E.S., Gino, A., Denny, N. R. & Torigoe, R.Y. (1994). Relationship of cynical hostility and PTSD among Vietnam veterans. Journal of Traumatic Stress, 7 (1), 21-31.

Kulka, R. A., Schlenger, W. E., Fairbank, J. A., & Hough, R. L. (1988). National Vietnam veterans readjustment study (NVVRS): Description, current status, and initial PTSD prevalence estimates, Veterans Administration, Washington, DC.

Lieker, M., & Hailey, B. J. (1988). A link between hostility and disease: Poor health habits? Behavioral Medicine, 3, 129-133.

Lipowski, Z. (1986). Somatization: A borderline between medicine and psychiatry. Canadian Medical Association Journal, 135, 609-614.

Lipowski, Z. (1987). Somatization: The experience and communication of psychological distress as somatic symptoms. Psychotherapy and Psychosomatics, 47, 160-167.

Litz, B.T., Keane, T. M., Fisher, L., Marx, B., & Monaco, V. (1992). Physical health complaints in combat-related post-traumatic stress disorder: A preliminary report. Journal of Traumatic Stress, 5 (1), 131-141.

Lundberg, U., Hedman, M., Melin, B., & Frankenhaeuser, M. (1989). Type A behavior in health males and females as related to physiological reactivity and blood lipids. Psychosomatic Medicine, 51, 113-122.

March, J. S. (1993). What constitutes a stressor? The "Criterion A" issue. In J. R. Davidson & E. B. Foa (Eds.), Post-traumatic Stress Disorder: DSM IV and Beyond, Washington, DC: American Psychiatric Press.

Meadows, E.A. & Foa, E.B. (1998). Intrusion, arousal, and avoidance: Sexual trauma survivors. In V.M. Follette, J.I. Ruzek, & F.R. Abueg (Eds.), Cognitive-Behavioral Therapies for Trauma (pp. 100-123), New York: The Guilford Press.

McCann, B. S., & Matthews, K. A. (1988). Influences of potential for hostility, Type A behavior, and parental history of hypertension on adolescents' cardiovascular responses during stress. Psychophysiology, 25, 503-511.

McFarlane, A. C., Atchison, M., Rafalowicz, E., & Papay, P. (1994). Physical health complaints in post-traumatic stress disorder. Journal of Psychosomatic Research, 38, 715-726.

McHorney, C. A., & Mor, V. (1988). Predictors of bereavement depression and its health services consequences. Medical Care, 26, 882-893.

Monson, R. A., & Smith, G. R. (1983). Current concepts in psychiatry: Somatization in primary care. New England Journal of Medicine, 308, 1464-1465.

Op den Velde, W., Falger, P. R., Hovens, J. E., DeGroen, J. H. M. Lasschuuit, J., Van Duijn, H., & Schouten, E. G. W. (1993). Post-traumatic stress disorder in Dutch resistance veterans from World War II. In J. P. Wilson & B. Raphael (Eds.), International Handbook of Traumatic Stress Syndromes (pp. 219-230), New York: Plenum Press.

Organista, P. B.& Miranda, J. (1991). Psychosomatic symptoms in medical outpatients: An investigation of self-handicapping theory. Health Psychology, 10 (6), 427-431.

Pennebaker, J.W. (1997). Opening Up: The Healing Power of Expressing Emotions. New York: The Guilford Press.

Pilisuk, M., Boylan, R., & Acredolo, C. (1987). Social support, life stress, and subsequent medical care utilization. Health Psychology, 6, 279-282.

Quill, T. E. (1985). Somatization disorder: One of medicine's blind spots. Journal of the American Medical Association, 254, 3075-3079.

Rosenheck, R. & Fontana, A. (1995). Do Vietnam-era veterans who suffer from post-traumatic stress disorder avoid VA mental health servieces? Military Medicine, 160, 136-142.

Rothbaum, B. O., & Foa, E. B. (1993). Subtypes of posttraumatic stress disorder. In J. R. T. Davidson & E. B. Foa (Eds.) Post-traumatic Stress Disorder: DSM IV and Beyond, American Psychiatric Press, Washington, DC.

Rothbaum, B. O., Foa, E. B., Riggs, D. S., Murdock, T., & Walsh, W. (1992). A prospective examination of post-traumatic stress disorder in rape victims. Journal of Traumatic Stress, 5, 455-475.

Roter, D. L. & Ewart, C. K. (1992). Emotional inhibition in essential hypertension: Obstacle to communication during medical visits. Health Psychology, 11, 163-169.

Schwarzwald, J. Solomon, Z., Weisenberg, M., & Mikulincer, M. (1987). Validation of the impact of event scale for psychological sequelae of combat. Journal of Consulting and Clinical Psychology, 55, 251-256.

Shalev, A., Bleich, A., & Ursano, R. J. (1990). Post-traumatic stress disorder: Somatic comorbidity and effort tolerance. Psychosomatics, 31, 197-203.

Shapiro, S., Skinner, E. A., Kessler, L. G., Von Korff, M., German, P. S., Tischler, G. L., Leaf, P. J., Benham, L., Cottler, L., & Regier, D. A. (1984). Utilization of health and mental health services: Three epidemiological catchment area sites. Archives of General Psychiatry, 41, 971-978.

Shekelle, R., Gale, M. Ostfeld, A., & Paul, O. (1983). Hostility, risk of coronary heart disease, and mortality. Psychosomatic Medicine, 45, 109-114.

Sifneos, P. E. (1973). The prevalence of "alexithymic" characteristics in psychosomatic patients. Psychotherapy and Psychosomatics, 22, 255-262.

Smith, T. W. (1992). Hostility and health: Current status of a psychosomatic hypothesis. Health Psychology, 11, 139-150.

Smith, T. W., & Frohm, K. D. (1985). What's do unhealthy about hostility? Construct validity and psychosocial correlates of the Cook and Medley Ho scale. Health Psychology, 4, 503-520.

Smith, G. R., Jr., Monson, R. A., & Ray, D. C. (1986). Patients with multiple unexplained symptoms: Their characteristics, functional health, and health care utilization. Archives of Internal Medicine, 146, 69-72.

Smith, T. W., Snyder, C. R., & Handelsman, M. M. (1982). On the self-serving function of an academic wooden leg: Test anxiety as a self-handicapping strategy. Journal of Personality and Social Psychology, 42, 314-321.

Smith, T. W., Snyder, C. R., & Perkins, S. C. (1983). The self-serving function of hypochondriacal complaints: Physical symptoms as self-handicapping strategies. Journal of Personality and Social Psychology, 44, 787-797.

Snyder, C. R., & Smith, T. W. (1982). Symptoms as self-handicapping strategies: The virtues of old wine in a new bottle. In G. Weary & H. L. Mirels (Eds.), Integrations of clinical and social psychology (pp. 104-127). New York: Oxford University Press.

Solomon, Z. & Mikulincer, M. (1987). Combat stress reactions, post-traumatic stress disorder and somatic complaints among Israeli soldiers. Journal of Psychosomatic Research, 31, 133-137.

Solomon, Z., Mukulineer, M., & Kotler, M. (1987). A two year follow up of somatic complaints among Israeli combat soldiers. Journal of Psychosomatic Research, 31, 131-137.

Spitzer, R., & Williams, J. (1986). Structured Clinical Interview for DSM-III, non patient version [modified for Vietnam Veterans Readjustment study 4/1/87]. New York: Biometrics Research Department, New York State Psychiatric Institute.

Van der Gaag, J., & Van de Ven, W. (1978). The demand for primary health care. Medical Care, 16, 299.

Wahler, H. J. (1968). The physical symptoms inventory: Measuring levels of somatic complaining behavior. Journal of Clinical Psychology, 24, 207-211.

Wahler, H. J. (1983). Wahler Physical Symtpms Inventory Manual. Los Angeles: Western Psychological Services.

Weathers, F. W., Blake, D. D., Krinsley, K. E., Haddad, W., Huska, J. A., & Keane, T. M. (1992). The clinician administered PTSD scale: Reliability and construct validity. Paper presented at the Association for Advancement of Behavior Therapy, Boston.

White, P. (1989). Coexisting physical conditions among inpatients with post-traumatic stress disorder. Military Medicine, 154, 66-70.

Williams, R. B., Jr., Barefoot, J. C., & Shekelle, R. B. (1985). The health consequences of hostility. In M. A. Chesney & R. H. Rosenman (Eds.), Anger and hostility in cardiovascular and behavioral disorders (pp. 173-185). Washington, DC: Hemisphere.

Williams, R. B., Jr., Haney, T. L., Lee, K. L., Kong, Y., Blumenthal, J., & Whalen, R. (1980). Type A behavior, hostility, and coronary atherosclerosis. Psychosomatic Medicine, 42, 539-549.

Wilson, K.G. & Hayes, S.C. (1995). The control of cognition: Theoretical, empirical, and clinical issues. Symposium presented at the Association for Advancement of Behavior Therapy, New York City.

Table 1

Means and Standard Deviations of Psychological Factors and Health Care Utilization (N=58)

Factor	M	SD	Minimum Score	Maximum Score
CAPS-Severity of PTSD	87	13.2	60	144
Avoidance Scale	35.9	6.5	22	51
Reexperiencing Scale	23.8	6.2	11	38
Hyperarousal Scale	28	4.8	18	36
WPSI-Physical Complaints	2.8	.9	.83	4.7
AAQ-Emotional Avoidance	81.9	10.9	54	105
IES-Avoidance Scale (Emotional Avoidance)	17.6	4.2	2	26
Cook-Medley Cynical Hostility Scale	32.9	5.4	19	45
Number of Non-Psychiatric Hospital Visits for 12 Month Period	6.7	7.1	0	27

Table 2

One-Tailed Zero-Order Correlations for Psychological Factors and Non-Psychiatric Health Care Utilization

Variable	1	2	3	4	5	6	7
1. CAPS Total Score (PTSD Severity)	--	.46**	.13	.24*	.21	.03	.13
2. WPSI (Physical Complaints)		--	.39**	.29*	.01	.31**	.20
3. IES-Avoidance Scale (Emotional Avoidance)			--	.41**	-.01	.28*	-.09
4. Cook-Medley Scale (Cynical Hostility)				--	.25*	.15	.20
5. AAQ (Emotional Avoidance)					--	.07	.09
6. Health Care Utilization (Non-Psychiatric Medical Visits)						--	-.11
7. Financial Compensation Seeking							--

Note: *p < .05; **p < .01

Table 3

Summary of Hierarchical Regression Analysis for Variables Predicting Physical Complaints Among Vietnam Veterans

Variable	β	t
Step 1		
Severity of PTSD	.45	3.33**
Step 2		
Cynical Hostility	.03	.17
Emotional Avoidance	.34	2.36*
Financial Compensation Seeking	.17	1.28

Note: Adjusted $R^2 = .19$ for Step 1; Δ in Adjusted $R^2 = .09$ for Step 2 ($p < .01$).
*$p < .05$
**$p < .01$

Table 4

Summary of Hierarchical Regression Analysis for Variables Predicting Non-Psychiatric Health Care Utilization Among Vietnam Veterans

Variable	β	t
Physical Complaints	.28	1.66
Cynical Hostility	.04	0.25
Emotional Avoidance	.14	.80
Financial Compensation Seeking	-.16	-1.02

Note: Adjusted $R^2 = .06$

OKLAHOMA STATE UNIVERSITY
INSTITUTIONAL REVIEW BOARD
HUMAN SUBJECTS REVIEW

Date: 01-02-97 **IRB#:** AS-97-038

Proposal Title: AN ASSESSMENT OF THE EFFECTIVENESS OF THE POSTTRAUMATIC TRAUMATIC STRESS RECOVERY PROGRAM AT THE OKLAHOMA CITY VETERANS AFFAIRS MEDICAL CENTER

Principal Investigator(s): Sue Orsillo, Brian Marx

Reviewed and Processed as: Modification

Approval Status Recommended by Reviewer(s): Approved

ALL APPROVALS MAY BE SUBJECT TO REVIEW BY FULL INSTITUTIONAL REVIEW BOARD AT NEXT MEETING, AS WELL AS ARE SUBJECT TO MONITORING AT ANY TIME DURING THE APPROVAL PERIOD.
APPROVAL STATUS PERIOD VALID FOR DATA COLLECTION FOR A ONE CALENDAR YEAR PERIOD AFTER WHICH A CONTINUATION OR RENEWAL REQUEST IS REQUIRED TO BE SUBMITTED FOR BOARD APPROVAL.
ANY MODIFICATIONS TO APPROVED PROJECT MUST ALSO BE SUBMITTED FOR APPROVAL.

Comments, Modifications/Conditions for Approval or Disapproval are as follows:

Signature: _____
Chair of Institutional Review Board

Date: June 18, 1997

cc: Robert Miranda

VITA

Robert Miranda, Jr.

Candidate for the Degree of

Master of Science

Thesis: AN INVESTIGATION OF PHYSICAL COMPLAINTS AND HEALTH CARE UTILIZATION AMONG VIETNAM VETERANS WITH POST-TRAUMATIC STRESS DISORDER: THE ROLE OF PSYCHOLOGICAL FACTORS

Major Field: Psychology

Biographical:

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