

## ABSTRACT

Title of Dissertation: Sociocultural Mechanisms Associated with Posttraumatic Stress

Disorder: An Analysis of Latino Veterans

Ann LeFevre, Doctor of Philosophy, 2011

Dissertation Directed by: Donna Harrington, PhD, Professor and Chair, PhD Program, &

Deborah Gioia, PhD, Associate Professor

Although numerous risk factors are related to the development of PTSD and the severity of PTSD symptoms, ethnicity - especially factors related to Latino ethnicity - has recently been reported as a risk factor in numerous studies. The purpose of this study was to identify and examine social and cultural factors that may contribute to the development of PTSD and increased PTSD symptom severity among Latino veterans through the development of a cultural model of traumatic stress. Grounded in stress and coping theory, the cultural model was broken down into three phases: 1) pre-trauma; 2) peri-trauma; and 3) post-trauma. Mail surveys were used to gather information from a sample of Latino veterans enrolled in the VA Palo Alto Health Care System.

Approximately half of the respondents met criteria for PTSD and the other half did not, with a total of 146 completed surveys. Bivariate analyses, hierarchical logistic regression, and hierarchical multiple regression were used to analyze the data. Variables analyzed in this study included demographics, childhood adversity, acculturation, familialism, perceived racial and ethnic discrimination, combat exposure, combat injury, peri-trauma coping (i.e., dissociation), post-trauma coping (i.e., emotion-focused, problem-focused, dysfunctional), post-trauma social support, and fatalism. Although most of the cultural variables were correlated with PTSD in the bivariate analyses, they

were no longer significant in the multivariate models when stronger predictors were included. Combat exposure and stress appraisal predicted the development of PTSD and PTSD symptom severity in both multivariate models. Whereas combat injury predicted PTSD development, it was not a strong predictor of PTSD symptom severity. Peri-trauma dissociation and dysfunctional post-trauma coping predicted PTSD symptom severity, but were not strongly correlated with the development of PTSD. Although the cultural factors and many of the social factors did not individually predict PTSD or severity of PTSD symptoms in the full models, the conceptual model as a whole performed well and the individual predictors worked well together as sets to predict PTSD and PTSD symptom severity. This indicates that factors related to ethnicity may be of importance in models predicting PTSD and PTSD symptom severity and should be considered.

Sociocultural Mechanisms Associated with Posttraumatic Stress Disorder:  
An Analysis of Latino Veterans

by  
Ann L. LeFevre

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## Chapter 1

### INTRODUCTION AND LITERATURE REVIEW

In the United States, approximately 7% of the general population develops posttraumatic stress disorder (PTSD) at some point in their lives (Kessler, Berglund, Demler, Jin, Merikangas, & Walters, 2005). Due to increased exposure to traumatic situations (i.e., combat), the prevalence of PTSD is much greater among war veterans compared to the general population (Hoge, Castro, Messer, McGurk, Cotting, & Koffman, 2004). For example, 54% of American male Vietnam veterans are estimated to have had PTSD at some point in their lives (Kulka, Schlenger, Fairbank, Hough, Jordan, Marmar et al., 1990). In the more recent Global War on Terror (GWOT), nearly 20% of Marines and 18% of Soldiers met the criteria for PTSD three to four months after their return from combat duty in Iraq or Afghanistan (Hoge et al., 2004). Another study of new returnees found that one year after returning from combat duty in Iraq, nearly 17% of Iraq War veterans had PTSD (Hoge, Terhakopian, Castro, Messer, & Engel, 2007).

Although many risk factors are related to the development of PTSD, factors related to ethnicity – especially related to Latino ethnicity – have recently been reported as risk factors in numerous studies (Cabrera, Hoge, Bliese, Castro, & Messer, 2007; Dohrenwend, Turner, Turse, Lewis-Fernandez, & Yager, 2008; Galea, Ahern, Tracy, Hubbard, Cerda, Goldmann et al., 2008; Perilla, Norris, & Lavizzo, 2002; Pole, Best, Metzler & Marmar, 2005; Pole, Best, Weiss, Metzler, Liberman, Fagan et al., 2001; Rosenheck & Fontana, 1996). Although not all studies found racial/ethnic differences in PTSD prevalence (e.g., Adams & Boscarino, 2005; Penk, Robinowitz, Black, Dolan, Bell, Dorsett et al., 1989; Seal, Bertenthal, Miner, Sen, & Marmar et al., 2007), most

evidence suggests higher rates of PTSD among Latinos. The reason for this phenomenon is unclear. However, the percentage of Latinos in the U.S. is increasing faster than any other minority group, comprising 16% of the nation's total population in 2009 and predicted to comprise 30% of the population by 2050 (U.S. Census, 2010), and as military recruiters continually aim to make the percentage of Latinos in the armed forces reflect the U.S. population (Harlow, 2007; U.S. Department of Veterans Affairs, 2007), this issue will become of increasing importance for agencies that serve veterans.

Disproportionate rates of PTSD among racial and ethnic groups were first noted when researchers evaluated Vietnam veterans in the National Vietnam Veterans Readjustment Survey (NVVRS; Kulka et al., 1990). Kulka et al. reported that whereas 28% of Latinos met the criteria for PTSD, only 14% of White veterans and 21% of African American veterans met the same criteria. Additional studies that evaluated the methods and data used by Kulka et al. confirmed that the prevalence of PTSD among Latino veterans was much higher than among White and African American veterans (Dohrenwend et al., 2008; Lewis-Fernández, Turner, Marshall, Turse, Neria, & Dohrenwend, 2008; Ruef, Litz, & Schlenger, 2000). Interestingly, although significantly higher rates of PTSD have been reported among samples of Latino civilians and Latino veterans (Cabrera et al., 2007; Galea et al., 2008; Pole et al., 2005), a large-scale epidemiologic study found that Latinos in the general population are less likely to have anxiety and other mood disorders than non-Latino Caucasians (Kessler et al., 2005). Additionally, another study found that Latinos had elevated rates of PTSD compared to Whites and African Americans, but no ethnic differences were found in general psychiatric distress (Pole et al., 2005). Although it is known that people vary in their

vulnerabilities to developing PTSD (McNally, 2008), a gap in the literature remains to explain the unique relationship between Latino ethnicity and the development of PTSD.

An unprecedented number of U.S. troops have been deployed to Iraq and Afghanistan in the GWOT (Stiglitz & Bilmes, 2008), and over 90% of troops deployed to Iraq have reported experiencing potentially traumatic events such as being shot at or seeing human remains (Hoge et al., 2004). Although much research continues to be conducted on many aspects of PTSD and the psychological effects of trauma exposure, it is difficult to develop effective and culturally relevant treatment techniques for Latino veterans when the relationship between factors related to Latino ethnicity and PTSD is not comprehensively examined. To address the disconnect between the considerable number of minority individuals exposed to traumatic events and the lack of culturally relevant PTSD treatments available, Osterman and de Jong (2007) proposed developing cultural traumatic stress models to explore the role and implications of culture in the traumatization process, and to “. . . provide a context within which researchers and clinicians can develop and adapt culturally competent scientific hypotheses to consider and adapt their assessments, techniques, and treatment approaches” (p. 439).

The purpose of this study was to identify and examine social and cultural factors that may contribute to the development of PTSD and PTSD symptom severity among Latino veterans through the development of a cultural model of traumatic stress. Grounded in stress and coping theory (Lazarus & Folkman, 1984), this innovative model included empirically and theoretically supported sociocultural variables and assessed the presence of significant relationships between potential risk and protective factors and PTSD in a sample of Latino veterans. In addition, this study contributes to filling gaps in

the coping, trauma, and multicultural mental health treatment literatures by examining and understanding how ethnicity can impact stress appraisal, coping, and trauma development in Latino veterans.

### *Posttraumatic Stress Disorder*

PTSD is a mental disorder that can develop when an individual experiences a catastrophic event followed by intense emotional distress. PTSD is characterized by re-experiencing (e.g., flashbacks), avoidance/numbing (e.g., avoiding trauma-related persons, places, and activities), and hyperarousal (e.g., difficulty concentrating) (American Psychological Association [APA], 2000; Friedman, 2003). An estimated 40% of the people who develop PTSD have permanent, severe, and chronic symptoms that last a lifetime (Friedman, 2003). They may become severely and persistently incapacitated and lose the ability to maintain jobs, relationships, and parenting responsibilities. Some become violent and aggressive towards themselves and others, develop physical health ailments, have legal problems, or become addicted to drugs and alcohol (Schnurr, Green, & Kaltman, 2007; van der Kolk and McFarlane, 1996; van der Kolk, McFarlane, & van der Hart, 1996). PTSD symptoms can lead to overall impaired functioning and poor quality of life, and some sufferers attempt or commit suicide (Ben-Ya'acov & Amir, 2004).

A diagnosis of PTSD requires that an individual meet four criteria listed in the *Diagnostic and Statistical Manual of Mental Disorders* (DSM-IV-TR; APA, 2000). Criterion A requires that a person be exposed to a catastrophic event that involved experiencing, witnessing, or confronting death, threatened death, or serious injury, and the individual had to respond to the event with intense fear, helplessness, or horror.

Possible types of exposure include: (1) being part of or witnessing an event that involves actual or threatened death such as military combat or interpersonal violence, manmade or natural disasters, accidents, incarceration, or exposure to war zone, urban, or domestic violence; (2) witnessing the aftermath of a catastrophic event, including seeing body parts or devastation from the event, but not being in personal danger; or (3) facing the results or facts of a life-altering event, such as learning of the death or serious injury of a loved one (Friedman, 2003).

To meet Criterion B, the individual must have at least one re-experiencing symptom, such as: intrusive memories, nightmares or flashbacks of the trauma, or psychological or physiological reactions triggered by trauma-related stimuli. In addition, three avoidant and numbing symptoms from Criterion C must also be experienced for a diagnosis of PTSD, such as making efforts to avoid trauma-related thoughts and feelings or trauma-related activities, places, and people; amnesia of trauma-related memories; diminished interest in activities, feeling detached from others, or having a restricted range of affect; or sensing a shortened future. Criterion D requires the individual to experience two hyperarousal symptoms, such as insomnia, irritability or anger outbursts; difficulty concentrating; hypervigilance; or an exaggerated startle response. Symptom duration for Criteria B, C, and D must be more than one month for PTSD to be diagnosed, and the individual must experience serious impairment in social, occupational, or other areas of functioning (APA, 2000).

### *History of Diagnosis*

Since World War II, the effect of traumatic distress on war veterans has been known by different names, such as “traumatic neurosis,” “combat neurosis,” “fright neurosis,” and “combat fatigue” (Friedman et al., 2007; van der Kolk, Weisaeth, & van der Hart, 1996). “Trauma” and the diagnosis of PTSD were first introduced in the DSM-III in 1980 (APA, 1980), and a framework was formed for understanding how an individual’s physical, mental, and emotional beings are inexplicably intertwined and influenced by their personal life histories and experiences (van der Kolk & McFarlane, 1996). When PTSD was initially included in the DSM-III, trauma was considered the result of an uncommon, catastrophic stressor that would cause most people to feel intense distress. Soon it was realized that experiencing catastrophic events was not rare and that most people did not feel intense distress or trauma after being exposed. Changes were made to the conceptualization of trauma, and the DSM-IV-TR categorized trauma more generally as the potential result of being exposed to an extreme stressor (APA, 2000).

### *Development of PTSD*

When a very stressful event is experienced, it is typically remembered as a story that changes over time and it does not cause distressing or intense emotions or sensations (van der Kolk & McFarlane, 1996). The memory may be replayed often in order to modify and tolerate its content and accompanying emotions (Horowitz, 1986). However, some people are unable to integrate and accept the memory; instead of moving on with their lives after a traumatic event, they start organizing their lives around the trauma. They continuously replay the traumatic event through feelings, thoughts, behaviors, relationships, and physiological states. The life-altering memories are timeless; those

with PTSD relive the traumas in the present with the same intense emotions and sensory experiences as when the event actually occurred. Thus, the traumatic event is not accepted as an event that took place in the past, and it is not connected to past memories. Living in the present may no longer be enjoyable for those with PTSD because their psychological, biological, and social natures are no longer balanced; their coping abilities from the past are no longer sufficient (Armstrong, Best, & Domenici, 2006; van der Kolk & McFarlane, 1996).

#### *Risk Factors for PTSD*

Not everyone exposed to a catastrophic event develops PTSD. In fact, the majority of individuals who experience catastrophic events do not develop the disorder (Friedman et al., 2007). It is thought that certain pre-trauma, peri-trauma, and post-trauma personal and cultural characteristics increase a person's vulnerability to developing PTSD and to the severity of PTSD symptoms after experiencing a distressing event. A set of variables that may influence PTSD in Latino veterans is closely examined in the literature review section of this dissertation (see Chapter 4). In addition, it is believed that risk factors work together to influence PTSD and that pathways underlying risk factors contribute to the experience of PTSD (Friedman et al., 2007; Vogt, King, & King, 2007). Although independent risk factors may be variables, they are more likely to mediate or moderate other risk factors, overlap with other factors, or serve as proxy risk factors for other variables (Vogt et al., 2007).

#### *Cultural Influences on PTSD*

Although expressions of physical and psychological disorders are culturally determined and are not universal (Miranda, Bilot, Peluso, Berman, & Van Meek, 2006),

the connection between symptoms and culture is often overlooked in the health care profession (Balls Organista, Organista & Kurasaki, 2003). The ways an individual may experience distress must be considered within one's social and cultural context (Kirmayer, 1996), while also taking the life history of the person into account (Brody, 1994). Therefore, PTSD is not based solely on individual characteristics but also on sociocultural interactions over time (Bronfenbrenner, 1979).

### *Stress and Coping Theory*

According to Lazarus and Folkman's (1984) transactional model of stress and coping, stress occurs when one's personal resources are perceived as being outweighed by experiences occurring between the individual and the environment. Lazarus and Folkman (1987) explained that the emotional life of an individual cannot be understood from the perspective of just the person or just the environment; the two basic subsystems lose their independent identities and are merged into a new unit of analysis. For example, a potential threat or stressor is not experienced solely by the person or considered solely a feature of the environment, but is instead evaluated by a person with distinct characteristics responding to certain features in the environment (Lazarus & Folkman, 1987). Slavin, Rainer, McCreary, and Gowda (1991) noted Lazarus and Folkman's emphasis on the individual in regards to stress and mastery of problems and the consequent reflection of White (i.e., majority culture) values. They consequently expanded Lazarus and Folkman's model of stress and coping to reflect the social embeddedness of the individual in an effort to broaden the cultural scope of stress and coping theory.

## *Appraisal*

Lazarus and Folkman (1984) proposed that, as a potentially stressful event is occurring, the individual assesses the situation as harmful, threatening, or challenging. This process is known as primary appraisal. To do this, the person evaluates any personal stakes in the situation and the relevance of the situation to the person's well-being (Lazarus & Folkman, 1987). If the individual has already sustained damage of some kind, possibly in the form of a serious injury or illness, the loss of a loved one, or impairment to self- or social-esteem, the primary appraisal of the situation is that of harm or loss. If harms or losses are anticipated, the situation could be appraised as threatening. If loss or harm has not occurred and is not anticipated (e.g., preparing to participate in a sporting event, becoming a new parent, embarking on a trip to a foreign country), positive emotions such as eagerness and excitement may replace the negative emotions of fear and anxiety, and the event may be appraised as challenging (Lazarus & Folkman, 1984).

Forms of appraisal are not necessarily mutually exclusive. When a situation is appraised as harmful, it is also likely perceived as threatening because of the inevitable negative implications of the harmful event in the future. Likewise, although threat and challenge appraisals have different emphases, they can occur simultaneously and change from one to the other as an event unfolds (Lazarus & Folkman, 1984). Since the publication of Lazarus and Folkman's (1984) seminal work on stress and coping, research has found that most people use at least two appraisals for a given person-environment transaction, and that Lazarus and Folkman's original appraisals may not fit every situation. Specifically, in addition to harm, threat, and challenge, three forms of

appraisal should be considered: annoyance, concern over other people's problems, and loss for what to do next (Aldwin, 2007).

Secondary appraisal, which may precede or follow primary appraisal, is a complex process in which the person evaluates accessible coping options, the chances that a coping option will ease or alleviate the troubled person-environment transaction, and the probability that the individual can effectively apply that particular coping strategy. Primary and secondary appraisals interact to shape the degree of stress as well as the strength, quality, and content of the emotional reaction. How a person appraises an event influences the coping process and the individual's emotional reaction, as a person's appraisal reflects how much control they think they can exert over the outcome (Lazarus & Folkman, 1984). Following debate on Lazarus' emphasis on cognition over emotion in the appraisal process, Lazarus (1991) proposed that meaning can be made out of situations both consciously and unconsciously, and it has been noted that Lazarus' view of cognition means a general awareness and not strictly logical, cognitive thought (Aldwin, 2007).

Both characteristics of the person and characteristics of the situation influence how one appraises a stressful situation. Person factors include internalized beliefs that indicate what one thinks is true, and commitments that reflect values and what one prefers or considers desirable (Lazarus & Folkman, 1984). Beliefs are pre-existing notions of reality that may be personally formed or culturally shared, and can include higher order beliefs (i.e., constructed from faith and experience), beliefs about personal control (i.e., extent to which a person feels confident or vulnerable in the stressful situation, and about how he or she will respond to the event), and existential beliefs (i.e.,

create meaning out of life and to maintain hope even during damaging experiences) (Lazarus & Folkman, 1984). Commitments (e.g., personal goals), on the other hand, convey what is important or meaningful to the person, and they motivate the choices people make or consider making to preserve their ideals and to achieve desired outcomes. During the appraisal process, beliefs, together with commitments, create a perceptual lens that shapes one's understanding of what is occurring in the environment. Individuals negotiate between their beliefs and commitments during the appraisal process, and together these two main person factors can be thought of as the "self" (Lazarus & Folkman, 1984).

Person factors are important determinants of appraisal that work interdependently with situation factors. Situation factors include the novelty, predictability, and uncertainty of the event, as well as temporal factors, including imminence, duration, and temporal uncertainty (Lazarus & Folkman, 1984). Together, person and situation factors determine the extent to which stressful events will be experienced; influence appraisal by determining what is necessary for the individual's well-being to be maintained during a certain situation; form the individual's perception of the event; and provide the foundation for evaluating outcomes (Lazarus & Folkman, 1984).

Expanding primary appraisal (i.e., what is happening?), Slavin et al. (1991) proposed asking how cultural group membership affects how events are defined and how the stressfulness of the event is evaluated. Although many serious life events are universal human struggles (e.g., loss of a loved one, physical violence), one's cultural knowledge is always drawn from when appraising an event. Expanding secondary appraisal (i.e., what can be done about it?), Slavin et al. noted that cultural group

membership could affect perceptions of the availability of coping resources and options, expectations for successful coping, and beliefs about fate and self-efficacy. Suitable ways of handling potentially threatening events vary among cultures, and there are great differences between cultures regarding the role of fate. Cultural beliefs, as well as the cultural definitions of available social resources, influence the appraisal process. Likewise, evaluation of self-efficacy during potentially threatening events may be influenced by one's level of internalization of negative cultural stereotypes (Slavin et al., 1991).

Although supportive of Lazarus and Folkman's transactional model of stress and coping, Roesch and Rowley (2005) asserted that the appraisal process may not necessarily have to be situation specific. Instead, basing their line of reasoning on the person-environment models of coping and research on problem-solving appraisal, they suggested that some individuals may "bring a trait-like quality to these person-environment interactions that predisposes them to consistently appraise stressors as challenging or threatening" (Roesch & Rowley, p. 188). For example, if an individual has stable resources consistently available (e.g., supportive family and friends, sufficient income, adequate coping skills), these supports may allow the individual to consistently assess stressful situations as challenging instead of threatening.

### *Coping*

The coping process can be defined as "constantly changing cognitive and behavioral efforts to manage specific external and/or internal demands that are appraised as taxing or exceeding the resources of the person" (Lazarus & Folkman, 1984, p.141). In other words, coping is how a person manages psychological stress (Lazarus, 1993). It

is what the person actually thinks or does within a specific context, distinct from the person's typical thoughts and actions (Lazarus & Folkman, 1987), and may include minimizing, avoiding, tolerating, and accepting the stressful conditions, and/or attempting to master the environment (Lazarus & Folkman, 1984). The shifts in this process are a product of continuous appraisals and reappraisals of the person-environment relationship and occur as one reevaluates the circumstances, significance of the situation, and what coping options are available (Lazarus & Folkman, 1984).

Lazarus and Folkman (1984) initially proposed that coping has two main functions: (1) to make changes in oneself or the environment to alleviate distress (i.e., problem-focused coping), and (2) to change one's view of the event or to manage emotional distress (i.e., emotion-focused coping). They asserted that specific contextual analysis of stressful encounters is required, and they noted the difficulty of evaluating a person's overall style of coping. However, they said it is possible to recognize functions of coping in specific encounters. Emotion-focused coping often occurs when a person appraises a situation as unchangeable in regards to harmful, threatening, or challenging environmental conditions. Examples of emotion-focused coping strategies include avoidance, minimization, distancing, selective attention, positive comparisons, and extracting positive value from negative events. Problem-focused coping, on the other hand, involves problem-solving strategies that are specific to the situation and is used when a person appraises environmental conditions as changeable. Both emotion-focused coping and problem-focused coping can be used by an individual during a particular situation (Lazarus & Folkman, 1984). Both functions can be used in nearly every kind of

stressful situation, and coping can vary according to what a person has at stake in the encounter (Lazarus & Folkman, 1987).

Coping occurs both during and after stressful situations. If an event is experienced as particularly taxing, an individual may dissociate while the event is occurring. Although the definition of dissociation varies in the literature, it essentially refers to a “lack of integration of aspects of information processing that would typically be connected” (DePrince & Freyd, 2007, p. 136). For example, during a traumatic experience, a trauma victim may experience a form of “unreality,” such as an altered sense of time, depersonalization, an out-of-body experience, or altered pain perception or body image (van der Kolk, van der Hart, & Marmar, 1996).

Carver, Scheier, and Weintraub (1989) asserted that coping is a stable disposition and is not necessarily situation specific. Lazarus (1993) conceded that whereas the adequacy of a coping method depends on the situation, some coping strategies are more stable across stressful encounters than others. More recently, researchers expanded the classifications of coping into three categories: problem-focused, emotion-focused, and dysfunctional (Carver et al., 1989; Coolidge, Segal, Hook, & Stewart, 2000; Cooper, Katona, & Livingston, 2008). According to this updated view of coping, problem-focused coping includes active, planning, and restraint coping, seeking social support for instrumental reasons, and suppression of competing activities. Emotion-focused coping includes positive reinterpretation and growth, religion, humor, acceptance, and seeking social support for emotional reasons. Dysfunctional coping includes focusing on and venting of emotions, denial, behavioral disengagement, mental disengagement, and alcohol or drug use.

Within situational contexts, available resources and inhibiting constraints of these resources influence the ways people actually cope (Lazarus & Folkman, 1984). Coping resources may include health and energy, positive beliefs, problem-solving skills, social skills, social support, and material resources. Constraints that inhibit the use of these resources can be environmental or personal. Environmental constraints on coping can include competing demands for the same resources, agencies or institutions that impede attempts to cope, and high levels of threat that can hinder effective use of coping resources (Lazarus & Folkman, 1984). Personal constraints of coping can include internalized cultural values and beliefs that limit how the person should behave or feel. These internalized cultural norms determine the appropriateness of individual feelings and acts (Lazarus & Folkman, 1984).

Expanding the role of culture in the coping process, Slavin et al. (1991) questioned how ethnic group membership affects decisions about how to cope with stressful events. They suggested that cultures may support or condemn specific ways of showing distress, and whereas some expressions of distress are considered normal in one culture, other cultures may view these same expressions as pathological. Different cultures prescribe different ways of coping, and minority group members may experience, witness, or learn of negative consequences that can result from using culturally inappropriate methods of coping, therefore rendering certain coping strategies less useful. Slavin et al. also noted that minority group members may need to function in multiple cultural settings and emphasized how one's coping processes may be affected by having dual or multiple roles. In addition, they stressed the importance of considering the

mental and physical health problems that may develop as the result of inadequately coping with stress.

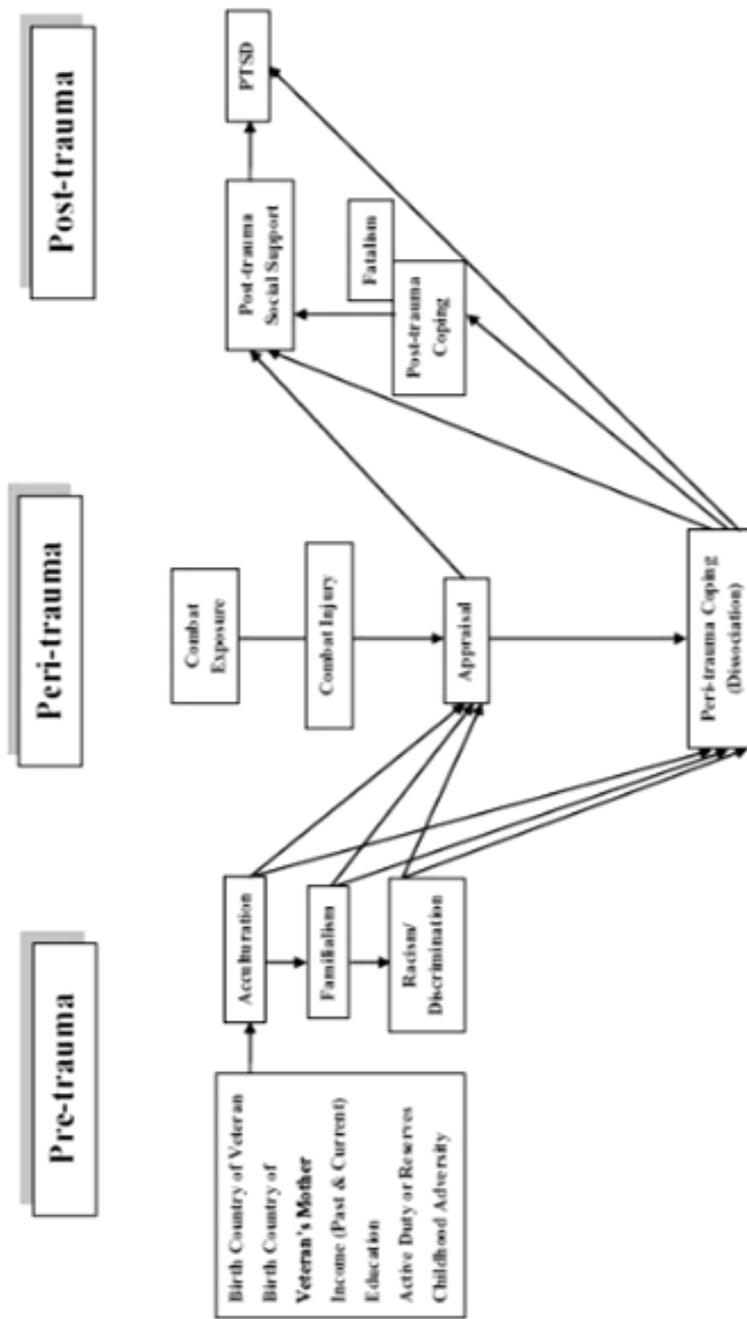
### *Cultural Model of Traumatic Stress for Latino Veterans*

Latinos may be more susceptible to PTSD because of social and cultural factors that increase their vulnerability. For example, Latinos tend to experience greater lifetime exposure to violence than members of other cultures (U.S. Dept. of Justice, 2008), and experiencing repeated traumas following an initial wartime traumatic experience can increase the risk of developing PTSD or cause an increase in PTSD symptoms (Galea, Vlahov, Tracy, Hoover, Resnick, & Kilpatrick, 2004; Galea et al., 2008; Orcutt, Erickson, & Wolfe, 2004). It is also possible that, due to the historical and continued victimization of Latinos, Latino veterans may be more vulnerable to additional military stressors (Hough, Canino, Abueg, & Gusman, 1996). However, cultural values, traditions, and characteristics may also function as protective factors (e.g., high value placed on close family and friends).

The full model that is evaluated in this study is presented in Figure 1 and is structured according to stress and coping theory in its present form as discussed in this dissertation, as well as to prior theoretical and empirical research that is reviewed in the following literature review section. Based on stress and coping theory, the development of PTSD in Latino veterans can be broken down into three phases: 1) pre-trauma; 2) peri-trauma; and 3) post-trauma. The pre-trauma phase includes childhood exposures and cultural factors that are present, internalized, or initiated during the formative years, prior to joining the military. The peri-trauma phase includes exposure to a potentially traumatic war event, appraisal of the event, and how one copes with the event while it is

occurring (i.e., experiences dissociation). The post-trauma phase includes how one copes following the trauma, the perception of social support and beliefs about fatalism, and finally whether the individual meets the criteria for PTSD. Whereas some variables that influence the development of PTSD are universal (e.g., certain childhood factors, combat exposure, lack of social support following a trauma), many of the variables in the model are specifically relevant to the Latino culture. This study proposed that numerous social and cultural variables specific to the Latino culture (e.g., familialism) work together to influence the risk of or protection from developing PTSD. As recommended by Osterman and de Jong (2007), this cultural model of traumatic stress was developed to explore and explain the experience of PTSD in Latino veterans.

Figure 1. Cultural Model of Traumatic Stress for Latino Veterans



### *Literature Review*

Because there is limited literature available for some of the concepts relevant to this study, it is important to highlight the search strategies used in this literature review. Electronic databases including PILOTS (Published International Literature on Traumatic Stress), Academic Search Premier, MasterFILE Premier, PsycARTICLES, Military & Government Collection, Social Sciences Citation Index, Social Services Abstracts, Sociological Abstracts, Google Scholar, and the Psychology and Behavioral Sciences Collection were used to search for social and cultural influences on PTSD. The following combinations of terms were used as key words in the database search: PTSD, trauma, Latinos, Hispanics, veterans, military, culture, ethnicity, predictors, acculturation, familialism, familism, stress and coping theory, appraisal, peritraumatic dissociation, fatalism, collectivism, social support, racism, and discrimination.

In addition, the Health and Psychosocial Instruments (HaPI) database was searched to identify reliable and valid standardized measures using combinations of the following key words: Latinos, Hispanics, PTSD, acculturation, familialism and familism, combat exposure, stress appraisal, peritraumatic dissociation, social support, perceived racism and discrimination, coping, and fatalism. If measures were not located in HaPI, EBSCOhost was searched using the same key words to identify articles measuring study variables in samples of Latino veterans, Latinos, veterans, or general population samples. The literature will be reviewed according to the conceptual model evaluated in this study. Pre-trauma demographic and social variables will be examined first, followed by peritrauma variables, then post-trauma variables.

### *Pre-trauma Demographic and Social Variables*

Research has shown that certain pre-trauma variables can predispose individuals to the development of PTSD and/or influence the severity of PTSD symptoms. For example, having a history of trauma, including childhood adversities (e.g., physical, sexual, or psychological abuse; exposure to alcoholism, mental illness, or domestic violence in the home) (Breslau, 2002; Cabrera et al., 2007; Fontana & Rosenheck, 1993; Ozer, Best, Lipsey, & Weiss, 2003; Vukšić-Mihaljević, Mandić, Bensić, & Mihaljević, 2000); accidents, assaults, and natural disasters (King, King, Foy, & Gudanowski, 1996; Neria, Nandi, & Galea, 2007; Norris, 2005; Ozer et al., 2003) or being exposed to violence or crime in general (Jaycox, Stein, Kataoka, Wong, Fink, Escudero et al., 2002) can contribute to PTSD. Also, experiencing psychological problems (e.g., depression) prior to the target stressor or having a family history of psychopathology or instability can predict PTSD (Breslau, 2002; Denson, Marshall, Schell, & Jaycox, 2007; King et al., 1996; Ozer et al., 2003; Vukšić-Mihaljević et al., 2000). Additional pre-trauma variables that may influence PTSD include demographic characteristics such as lower educational attainment (Denson et al., 2007; Dohrenwend et al., 2008; Vukšić-Mihaljević et al., 2000; Orcutt et al., 2004), lower income or socioeconomic status (Galea et al., 2004; Galea et al., 2008; King et al., 1996), and age (i.e., being younger) (Cabrera et al., 2007; Dohrenwend et al., 2008; Fontana & Rosenheck, 1993; Grieger et al., 2006; King et al., 1996; Seal et al., 2007). Status as active duty versus National Guard and Reserve (NG/R) is another pre-trauma factor that should be considered, as those called from the NG/R (i.e., who live primarily as civilians) may be more vulnerable to combat stressors

than those in active duty (e.g., who have full-time military careers) (Vogt, Samper, King, King, & Martin, 2008).

The relationship between these pre-trauma variables and the development of PTSD is not specific to the Latino culture, however, the Latino population as a whole is vulnerable to many of these factors, which may increase their risk of developing PTSD after a trauma occurs or influence PTSD symptom severity. Specifically, Latinos, on average, have lower educational attainment than Caucasians and African Americans (U.S. Department of Education, 2007); lower median incomes than Caucasians, African Americans, or Asians (U.S. Department of Commerce, 2007); and the U.S. Latino population as a whole is very young, with the median age being 27 (compared to the median Caucasian age of 38 and the median African American age of 33 in the U.S.) (U.S. Census Bureau, 2008a; U.S. Census Bureau, 2008b). Also, Latinos are victims of violence at a rate higher than non-Latinos (U.S. Department of Justice, 2008), and rates of child maltreatment are higher for Latino children than Caucasian children (U.S. Department of Health and Human Services, 2009). Also, relating to stress and coping theory, Slavin et al. (1991) pointed out that simply being a member of a minority group means that its members encounter potential stressors more often related to being in the minority.

### *Acculturation*

Acculturation (i.e., the process of culture learning) is said to be a powerful force that is central to the experience and health of all Latinos in the United States (Abraído-Lanza, Armbrister, Flórez, & Aguirre, 2006; Miranda et al., 2006); the process of acculturation can bring challenges and life changes that may benefit or adversely impact

the health of immigrant and U.S.-born generations of Latinos (Abraído-Lanzo et al., 2006). Acculturation can change an individual's basic cultural values or beliefs (Marín & Gamba, 2003), and problems can arise for Latinos as the result. For example, conflict can arise when collectivistic values (e.g., valuing oneself through others, emphasizing family bonds, and preferring communal goals rather than individual goals) clash with mainstream individualist values (e.g., striving to achieve uniqueness and independence from others) (Comas-Díaz, 2006). Current acculturation theory and research examines acculturation as a multidimensional concept that takes into account individual psychological changes in the acculturating individual as well as the environmental sociological changes that occur as the individual is accepted (Miranda et al., 2006). The impact of these social and environmental changes on the individual's personal beliefs, values, feelings and actions can be great and it is recommended that these shifts be considered when examining minority group outcomes (Trimble, 2003).

For instance, in a national probability sample of U.S. Latino sub-groups, researchers found that greater acculturation (i.e., being born in the U.S.) increased the risk of psychiatric disorders, and that Mexican Americans born in the U.S. were more likely to experience PTSD than those who were foreign-born (Ortega, Rosenheck, Alegría, & Desai, 2000). Similarly, Alegría, Mulvaney-Day, Torres, Polo, Cao, and Canino (2007) found that being proficient in English and being a third generation Latino immigrant were risk factors for Latinos that led to an increase in psychiatric disorders. They also noticed a trend where longer residence in the U.S. was associated with higher lifetime and past-year rates of psychiatric disorders. Additionally, it is noted in the literature that Latinos who are more acculturated have an increased likelihood of lifetime

exposure to violence (Marshall & Orlando, 2002); as previously mentioned, exposure to violence can be a risk factor for PTSD (Breslau, 2002).

It is implied in the literature that Latinos are always acculturating into the White culture and that is the perspective used in this dissertation in order to be consistent with the common usage in the literature. However, this assumption may not always be correct, given the increasing prevalence of diverse cultures within the United States. Abraído-Lanza et al. (2006) asserted that “positing that White culture is the reference point for acculturation may misrepresent acculturation and limit the understanding of complex health responses and outcomes among Latinos” (p. 1344). Latinos interact with other groups of color, yet there is a dearth of studies that consider ideological familiarity with other ethnic minority groups and that challenge White American culture as the standard of acculturation (Abraído-Lanza et al., 2006).

Although the literature on the impact of military service on acculturation is very limited, Leal (2003) found that participating in the military promotes the acculturation of Latinos into U.S. culture, possibly because military service removes people from their homes and communities (i.e., their cultural environments) at a formative age and places them in a very different environment (Leal, 2003). Another study examining the adaptation and cultural identity of immigrants from the former Soviet Union placed in the Israeli military service found that level of acculturation was related to the individual’s desire to acculturate. For example, those who desired to assimilate into the majority Israeli culture viewed their time in the military as an opportunity to acculturate; those who did not want to assimilate into the majority culture viewed this compulsory military service negatively and had reduced sociocultural adjustment (Shalom & Horenczyk,

2004). Although greater acculturation to the majority culture may improve rapport and belongingness while in the military, recent studies have found that high-accultured Latinos may have a greater risk of developing PTSD and other psychiatric disorders than low-accultured Latinos (Alegría et al., 2007; Ortega et al., 2000); however, that is not always the case (Marshall & Orlando, 2002).

Valencia (2006) offered an explanation for the differences in outcomes between high- and low-accultured Latinos. This explanation suggested that Latinos who immigrate to the United States (i.e., low-accultured) often do so voluntarily. They may believe that they are better off than those in their homeland and that they will benefit from better opportunities in the U.S. for themselves and their children. They tend to view problems as temporary issues that can be overcome through work, time, and more education. These recent immigrants may attribute discriminatory acts against them to their being “foreigners” or lacking education. On the other hand, Latinos who are born and raised in the U.S. (i.e., high-accultured) may not be as resilient, and they may view the same struggles as oppressive, institutionalized, permanent, and unable to be fixed through effort and education. Relating specifically to trauma, Draguns (1996) suggested that the adverse effects of the already difficult acculturation process may be amplified following a traumatic event, thereby increasing the risk for PTSD.

### *Familialism*

Latinos place great value on their extended families and close friends (Miranda et al., 2006; Mulvaney-Day, Alegría, & Sribney, 2007), and their identities are grounded in their family, community, ethnicity, and other collective contexts (Comas-Díaz, 2006). As a collectivistic culture, familialism or familism (i.e., loyalty or cultural commitment to

the family) is a central value. It includes obligations to the family, solidarity, perceived family support, reciprocity, and having family members who serve as role models or referents (Chun & Akutsu, 2003; Miranda et al., 2006; Sabogal, Marín, Otero-Sabogal, Marín, & Perez-Stable, 1987). Acculturation can affect aspects of familialism (e.g., family obligations may become less salient as acculturation increases); however, familialism is generally thought to be an important buffer against stress (Balls Organista et al., 2003; Valencia, 2006).

The assumption of mutual obligation among group members is the core element of collectivism (Oyserman, Coon, & Kemmelmeier, 2002). The collectivistic worldview contrasts the individualistic worldview, although it is not necessarily its opposite. Rather, collectivism and individualism have different emphases (Oyserman et al., 2002). In a review of the literature on collectivism and individualism, Oyserman (1993) reported that the collectivistic worldview emphasizes maintaining social norms and common beliefs, attitudes, and practices while performing certain social duties and cooperating with group members. The individualistic worldview emphasizes attaining personal goals and attending to oneself, developing a separate personal identity, and striving for self-actualization. Theoretically, if a Latino veteran with a collectivistic worldview is unable to give or receive family support, his value of familism may be threatened, and his risk of developing PTSD may be increased. Research on PTSD supports this, as a study that found that the prevalence of PTSD was significantly higher for Latinos than for Whites and African Americans also found that Latinos were more familistic than Whites and African Americans (Perilla et al., 2002). Consequently, the risk of developing PTSD for Latinos may be influenced by an increased vulnerability to the consequences of low

family support compared to members of cultures that value independence over collectivism (Pole, Gone, & Kulkarni, 2008).

### *Perceived Racial and Ethnic Discrimination*

Discriminatory experiences both in the military and in the community or work environment may impact the development and symptom severity of PTSD (Pole et al., 2008; Pole et al., 2005; Ruef et al., 2000). Slavin et al. (1991) stated that individuals of ethnic minority are likely to experience discriminatory acts on a regular basis, and Ruef et al. (2000) reported that, in the NVVRS, higher rates of PTSD were found for those who perceived greater racial discrimination. Simply being present in an environment where discrimination is a possibility is stressful, as the individual is required to be vigilant and to use proactive coping skills (Contrada, Ashmore, Gary, Coups, Egeth, Sewell et al., 2000). It has also been speculated that perceived racism may cause chronic stress in the workplace and increase the risk of developing PTSD following a traumatic incident (Pole et al., 2005). Racial and ethnic discrimination does not have to involve overt acts or gestures, and racial disparities in access to socioeconomic resources should also be considered when investigating risk and protective factors for PTSD (Ford, 2008). When comparing Latino sub-groups, Alegría et al. (2007) noted that Puerto Ricans may feel more discriminated against than foreign-born Latino groups because they are born U.S. citizens and they may feel entitled to the same socioeconomic advantages as White Americans.

### *Combat Exposure*

Studies have found that being exposed directly to a combat-related traumatic event increases one's risk of developing PTSD and experiencing more severe PTSD

symptoms (Galea et al., 2004; Hoge et al., 2004; King et al., 1996; Orcutt et al., 2004). Traumatic combat experiences can include: being attacked, ambushed, or receiving incoming fire; being responsible for the death of an enemy combatant or noncombatant; seeing or handling human remains; being wounded or injured, having a close call or having a buddy shot who was nearby; and engaging in hand-to-hand combat or saving the life of a soldier or civilian (Hoge et al., 2004). A recent study of Marines deployed to Iraq in Operation Iraqi Freedom (OIF) found that 97% of respondents reported being shot at and 94% reported seeing dead bodies or human remains. Twenty percent of respondents met clinical criteria for PTSD after deployment to Iraq (compared to 9% who reported PTSD symptoms before being deployed to Iraq), and the prevalence of PTSD was significantly higher for those reporting combat experiences (Hoge et al., 2004).

The differential rates of PTSD in combat-exposed and non-combat exposed veterans are consistent across time. Brinker, Westermeyer, Thuras, and Canive (2007) examined a large sample of Latino and American Indian veterans with lifetime PTSD. They found that the veterans with combat-related PTSD experienced more severe PTSD symptoms and were less likely to experience remission from their PTSD than the veterans who were traumatized by non-combat events (e.g., from physical assaults, accidents, natural disasters, or observing traumatic events). Reporting of combat exposure also appears to remain consistent over time. Recently, Koenen, Stellman, Dohrenwend, Sommer, and Stellman (2007) found that veterans who had previously reported being exposed to certain combat events during the Vietnam War recalled being exposed to the same combat events 14 years later.

### *Combat Injury*

Being injured in combat can also lead to increased rates of PTSD and more severe PTSD symptoms in veterans (Grieger et al., 2006; Hoge et al., 2004; Koren, Norman, Cohen, Berman, & Klein, 2005). Koren et al. (2005) found that soldiers who were injured during combat were significantly more likely to develop PTSD than non-injured soldiers who participated in the same combat situations. Meeting the diagnostic criteria for PTSD was not related to the severity of the injury or severity of the trauma, and wounded soldiers scored higher than non-wounded soldiers on all clinical scales measuring the frequency and intensity of PTSD symptoms. Overall, 16.7% of the injured soldiers met diagnostic criteria for PTSD, compared to 2.5% of the non-injured comparison participants.

### *Appraisal*

Appraisal of potentially stressful situations or events is a subjective experience (Lazarus, 2000). An event is not necessarily stressful; rather, it becomes stressful when an individual views it as harmful or as threatening to their well-being (Zakowski, Hall, Klein, & Baum, 2001). Environmental circumstances, needs of individuals, and access to resources are combined with cultural beliefs and values during appraisals of situations (Aldwin, 2007). Personal meaning also influences how an individual appraises a potential stressor or traumatic event (Lazarus & Folkman, 1987; van der Kolk & McFarlane, 1996). In fact, one can have little or no direct exposure to a traumatic event and still have symptoms of PTSD based on the appraised meaning of the event in one's life (Marshall, Bryant, Amsel, Suh, Cook, & Neria, 2007; Piotrkowski & Brannen, 2002).

Research has shown that appraised threat is a determinant of PTSD symptoms. Piotrkowski and Brannen (2002) found that appraised threat was positively related to number of PTSD symptoms; Iversen, Fear, Ehlers, Hughes, Hull, Earnshaw et al. (2008) also found a strong, positive relationship between appraisal variables (i.e., perceived life threat and ill-preparedness for deployment experiences) and PTSD. Litz, Maguen, Wang, and Cook (2004) likewise concluded that lower threat appraisal may predict lower rates of PTSD. Although Lazarus and Folkman's (1984) transactional model of stress and coping indicates that appraisal is situation-specific, recent research suggests that, ". . . some individuals bring a trait-like quality to person-environment interactions that predisposes them to consistently appraise stressors as challenging or threatening" (Roesch & Rowley, 2005, p. 188). This updated view of stress and coping emphasizes the importance of consistent resources and constraints and the potentially influential role of culture during the appraisal process.

#### *Peri-trauma Coping*

Efforts to cope are initiated during a potentially traumatizing event. Peritraumatic dissociation (i.e., dissociative experiences during or immediately following a traumatic event) is a coping strategy that has been found to directly predict PTSD; those who experience peritraumatic dissociation are more likely to develop PTSD than those who do not (Breh & Seidler, 2007; Denson et al., 2007; Ozer et al., 2003; Pole et al., 2005, 2001; Vukšić-Mihaljević et al., 2000). Research has shown that Latinos are more likely to dissociate during traumatic situations than Whites and African Americans (Pole et al., 2005; 2001), and greater trauma exposure has been associated with higher levels of dissociation in the Latino population (Marshall & Orlando, 2002). Because members of

minority cultures tend to be exposed to a greater number of stressors over time (Slavin et al., 1991), it has been speculated that dissociative responses to racial and ethnic trauma may generally be adaptive for Latinos and represent cultural resilience in difficult environments (Comas-Díaz, 2006). However, this adaptive response to typical stressful situations may become a risk factor for PTSD in traumatic war zone situations.

Acculturation has also been associated with peritraumatic dissociation among Latinos who experienced community violence, and low-acculturated Latinos were found to have more pronounced dissociative symptoms (Marshall & Orlando, 2002). Although retaining the Latino culture (i.e., having low acculturation) has been shown to decrease the risk of mental illness in general, having low acculturation may increase the risk for experiencing peritraumatic dissociation, which in turn increases the risk of PTSD. To explain these counter-intuitive relationships, Marshall and Orlando (2002) suggested that the influence of acculturation on mental health is complicated and additional research is needed to parse out the complex relationships and mechanisms by which acculturation and dissociation predict PTSD.

### *Post-trauma Coping*

Longitudinal studies have found that efforts to cope with a traumatic experience continue in the weeks, months, and years that follow the event (Denson et al., 2007; Galea et al., 2004; Perilla et al., 2002; Tiet, Rosen, Cavella, Moos, Finney, & Yesavage, 2006). How individuals cope with their experiences over time has been found to be associated with PTSD symptoms. Lazarus and Folkman (1984) explained that individuals may use problem-focused or emotion-focused coping. For example, if a situation is appraised as challenging, an individual may use a method of problem-focused

coping (e.g., confrontive coping and planful problem-solving) (Tiet et al., 2006). However, if the event is appraised as harmful, threatening, or uncontrollable, the individual may activate an emotion-focused method of coping (Lazarus & Folkman, 1984; Zakowski et al., 2001). Members of minority cultures tend to use more emotion-focused ways of coping, particularly if the culture is collectivistic (Tweed, White, & Lehman, 2004), such as the Latino culture (Torres & Rollock, 2004). This may be because members of collectivistic cultures risk causing relational discord if they attempt to make changes in the environment, or because they view themselves as more flexible than the environment (Tweed et al., 2004).

Carver et al. (1989) noted that simply distinguishing between problem-focused and emotion-focused coping is not adequate when trying to determine if a coping strategy is helpful or unhelpful, healthy or harmful. Carver et al. asserted that, although some forms of both emotion-focused and problem-focused coping can be unhelpful, forms of both coping methods can also be very helpful. To distinguish between helpful and unhelpful coping, they added a third category, dysfunctional coping, to include unhelpful or unhealthy coping strategies that were previously included in the emotion-focused and problem-focused coping categories. Differences among ages and coping styles have been noted. For example, Coolidge et al. (2000) found that younger adults were more likely to use dysfunctional coping, whereas older adults tended to use problem-focused coping.

### *Fatalism*

Fatalism (i.e., where one passively denies personal control) is a cultural resource common in the Latino culture (Pew Hispanic Center, 2004). When used as a coping method following stressful or traumatic experiences, fatalism has been associated with

higher avoidance symptoms (Perilla et al., 2002), a characteristic of PTSD (APA, 2000). Research on PTSD has shown that members of minority groups tend to be more fatalistic than majority group members, and Spanish-speaking Latinos were found to be particularly fatalistic (Perilla et al., 2002). Fatalism may be tied to religious beliefs (Norenzayan & Lee, 2010); it may also be a form of learned helplessness that can be passed on to other members of the culture through collective knowledge and modeling (i.e., vicarious helplessness) (Ruef et al., 2000). Learned helplessness can develop from experiencing numerous unpredictable and uncontrollable difficult or painful events, and is more common in members of minority cultures (Peterson, Maier, & Seligman, 1993). Bringing fatalistic beliefs to the war zone may create hardships for soldiers, and may increase a person's vulnerability to developing disorders such as PTSD (Ruef et al., 2000).

#### *Post-trauma Social Support*

Research has consistently found that level of social support is related to PTSD; having low social support following a traumatic event has been associated with the development of PTSD and increased severity of PTSD symptoms in all-Latino samples and in multi-race/ethnicity samples (Galea et al., 2004; Galea et al., 2008; Ozer et al., 2003; Pole et al., 2005; Vukšić-Mihaljević et al., 2000). When soldiers return from war, regardless of race or ethnicity, they often struggle with reintegration into their family and community; those who have experienced trauma may feel like they no longer belong and try to isolate themselves from their families and friends (Armstrong, Best, & Domenic, 2006; Rieckhoff, 2006). Persons who lack social support following a traumatic event may become overwhelmed and withdraw through the use of denial or self-destructive

activities; without support, these individuals may not be able to pursue services (Tate, van den Berg, Hansen, Kochman, & Sikkema, 2006).

In an exploratory study of the sociocultural characteristics of PTSD, Escobar, Randolph, Puente, Spiwak, Asamen, Hill et al. (1983) examined three groups of Mexican American Vietnam veterans receiving services at a Veteran's Affairs (VA) neighborhood clinic in California: (1) "highly" symptomatic (i.e., experiencing a greater number of symptoms meeting DSM-III PTSD criteria); (2) "minimally" symptomatic (i.e., experiencing fewer symptoms meeting DSM-III PTSD criteria); and (3) control group (i.e., no PTSD). Those who were highly symptomatic had smaller social networks, fewer contacts with people outside their immediate family, and increased negative emotionality directed toward immediate family members compared to the minimally symptomatic group. In contrast to the control group, participants in both PTSD groups had smaller social networks and less contact with people inside their social networks, and they reported greater alienation from their families and culture. This could be because those with less attachment to and involvement in their culture and social network were at risk of increased PTSD symptoms. Alternately, it could be because those with PTSD either distanced themselves from their networks or the network members distanced themselves from the individuals with PTSD. Also, although being alienated from one's minority culture may indicate greater acculturation to the majority culture, that is not necessarily the case, and Escobar et al.'s study is limited in that it did not measure level of acculturation. It is possible that the risk of developing PTSD was increased because the veterans were more acculturated to the White culture or because they were isolated from both the Latino culture and the White culture.

Theory and prior research support that certain pre-trauma, peri-trauma, and post-trauma sociocultural variables work together to influence the development of PTSD and PTSD symptom severity in Latino veterans. Although some of the variables examined in this study are not specific to the Latino culture, the vulnerability of Latino veterans may be increased as the result of being susceptible to a greater number of risk factors. As the Latino presence in the U.S. military increases, this timely study aimed to further examine the social and cultural risk and protective factors that contribute to PTSD in Latino veterans.

#### *Rationale for the Current Study*

The purpose of this study was to fill gaps in the coping, trauma, and multicultural mental health treatment literatures by exploring and understanding how ethnicity can impact stress appraisal, coping, and trauma development in Latino veterans. Grounded in theory and guided by recent research on PTSD in Latinos, this study contributes to the currently sparse foundation of empirical research needed to develop culturally-relevant treatments for PTSD. Specifically, this study identified and examined social and cultural factors that contribute to the development of PTSD and PTSD symptom severity among Latino veterans. This was accomplished by evaluating an innovative, multifaceted model (shown in Figure 1 above) of empirically and theoretically supported sociocultural variables in a sample of Latino veterans.

The existing literature on this topic is limited in several ways. First, although numerous studies reported that Latinos have higher rates of PTSD, few studies include variables specifically related to ethnicity. For example, Pole et al. (2005) stated that a limitation of their study was that they did not measure level of acculturation, a key

cultural factor shown to influence PTSD (Ortega et al., 2000; Trimble, 2003). Galea et al. (2004) focused primarily on demographic and exposure variables, and although they included a measure of social support, additional ethnicity-related variables such as fatalism and familialism were not measured. Perilla et al. (2002) explored the roles of differential exposure and differential vulnerabilities as possible explanations of why Latinos had higher rates of PTSD, but they did not include a measure of how the individual coped while the traumatic event was occurring (i.e., did they dissociate or were they fully aware of their circumstances). Latinos are more likely to dissociate during a traumatic event than members of other cultures, and peritraumatic dissociation may play a key role in explaining why the prevalence of PTSD is often greater among Latinos (Pole et al., 2005).

Next, there are few studies that looked specifically at samples of Latino veterans, and there is a lack of longitudinal studies that examine the relationship between ethnicity and the development of PTSD. Several studies looked at PTSD in Latinos who experienced trauma in community settings (e.g., Galea et al., 2008; Marshall & Orlando, 2002; Perilla et al., 2002; Pole et al., 2005), and other studies looked at samples of veterans (e.g., Cabrera et al., 2007; Kulka et al., 1990; Rosenheck & Fontana, 1996). Only one study was located that looked specifically at Latino veterans and PTSD (Escobar et al., 1983). All of the studies that were located while reviewing the literature on this topic had cross-sectional designs. This is limiting to theory development because causation cannot be determined in a cross-sectional study, and it is possible that PTSD has bi-directional relationships with some variables. For example, although it is reported that low social support may lead to the development of PTSD, it is also quite likely that

an individual with PTSD may alienate family and friends, and therefore PTSD could also lead to a decrease in social support.

Also, the literature offers few valid, reliable, and succinct (i.e., low respondent burden) measures of Latino ethnicity-related variables. For example, acculturation has been identified in the most recent literature as multidimensional, yet no succinct multidimensional measures of acculturation were located that have been tested in the Latino population (Abraído-Lanza et al., 2006). Measures of familialism are also rare in the literature. In fact, the reliability of the measure used in this study was calculated as part of an unpublished study and obtained through personal contact with the author (Oyserman, personal communication, November 29, 2008). Although fatalism may be an important influence on the development of PTSD and PTSD symptom severity for Latino veterans, the best measure of fatalism located for this study had a Cronbach's alpha of .63 in an earlier study (Cuéllar, Arnold, & González, 1995). (The Cronbach's alpha found in the current study is discussed in the Methods chapter.)

The current study was designed to address several of these limitations. First, this study looked exclusively at Latino veterans, and the model included numerous variables specifically related to Latino ethnicity. The exclusion of cultural variables is a tremendous gap in the literature that needs to be addressed in order for culturally competent treatment for Latino veterans with PTSD to be developed. Next, the majority of the measures used in this study have shown good internal consistency in previous studies, although the purposes or samples in the studies may have been different. Finally, although this exploratory study analyzed cross-sectional data, it formed a preliminary foundation for future longitudinal studies. A cross-sectional design is generally used to

explore under-studied topics, as it is a cost-effective and efficient way to gather information (Neuman & Kreuger, 2003). The significant relationships supported in this study contribute to laying the groundwork for future longitudinal studies.

### *Research Questions*

The purpose of this study was to explore how factors related to Latino ethnicity influence the experience of trauma, coping, and the development of PTSD and PTSD symptom severity for Latino veterans. The presence of significant relationships between sociocultural factors and PTSD was assessed in order to potentially address the increased prevalence of PTSD in the Latino population. The variables that were studied vary widely within the Latino veteran population, and the impact of these variations on PTSD was examined. Based on an updated and expanded version of stress and coping theory, variables were examined in four steps: 1) pre-trauma social variables; 2) pre-trauma cultural variables; 3) peri-trauma variables; and 4) post-trauma variables. Specific research questions addressed in this study include:

1. What sociocultural variables are correlated with the development of PTSD in Latino veterans?
2. How do pre-trauma, peri-trauma, and post-trauma variables work together to influence the severity of PTSD symptoms among Latino veterans?

## Chapter 2

### *Methods*

A cross-sectional survey design was used to examine the relations among the identified sociocultural variables and PTSD in a sample of Latino male veterans currently enrolled in the VA Palo Alto Health Care System (VAPAHCS). This design was selected because it is cost-effective and efficient, and because survey research is the most appropriate method available for collecting original data on self-reported beliefs and behaviors (Neuman & Kreuger, 2003; Rubin & Babbie, 2005).

### *Sampling Frame*

For multiple regression analysis, there are multiple ways to determine sample size adequacy. Aday and Cornelius (2006) indicate that to have adequate power (.80) and a medium effect size (.15), with 19 predictors, at least 190 surveys need to be returned for a ratio of 10:1 (10 respondents to each variable in the model), whereas Stevens (2002) recommends a ratio of 15:1 for a sample size of 285. Tabachnick and Fidell (2007) recommend a sample size of  $N \geq 104 + m$  (where  $m$  is the number of predictors), or 123. Given these considerations, the target sample size for this dissertation was approximately 175-225, which was in the middle of the numbers generated through the three sets of recommendations. In order to attain a sample of this size, 500 surveys were mailed to potential participants, which should have yielded the target amount with an anticipated 45% response rate. Informal questioning of VA researchers regarding “typical” response rates for studies involving veterans led to the anticipated response rate of 45% in the current study.

There were 4,270 veterans without a diagnosis of PTSD who met criteria for this study (i.e., enrolled in the VAPAHCS, male, Latino, under age 50). A random sample of 265 veterans<sup>1</sup> (6% of 4,270) from this group was selected, instead of 250, because it was anticipated that not every address would be complete in the computerized patient record system. The first 250 veterans with complete addresses were included in this study.

There were 7,314 veterans with a diagnosis of PTSD who met criteria for this study (i.e., enrolled in the VAPAHCS, male, Latino, under age 50). A random sample of 265 veterans (4% of 7,314) of these veterans was selected, and the first 250 with complete mailing addresses were included in this study. Thus, a total of 500 veterans were included in the sampling frame.

Although stratifying the sample by Latino sub-groups is preferred (Ortega et al., 2000), that was beyond the scope of the current study due to the small sample size and wide range of birth origins of respondents. Also, grouping Latinos may also be acceptable because many are unified by the Spanish language and the Catholic religion (Pole et al., 2005; Pole et al., 2008; Ruef et al., 2000), and because many Latinos share a history of Spanish colonization, experience of uprooting or separation, and exposure to oppression (Comas-Díaz, 2006).

### *Procedure*

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<sup>1</sup> Female veterans were not included in this study for two primary reasons: 1) Given the low number of Latinas enrolled for services, it would not have been possible to recruit enough women to have sufficient power to examine gender effects; and 2) There are likely additional gender-specific variables not included in this study (e.g., military sexual trauma) that may contribute to PTSD among female veterans.

A modified Dillman's Tailored Design Method<sup>2</sup> (TDM) was used in this study (Dillman, 2007). It is advantageous to use this newer methodology over other existing methodologies because it has been found to increase the response rate of self-administered surveys, produce high quality data, and reduce survey error (Dillman, 2007). The TDM is based on social exchange theory and emphasizes trust, positive regard, and a belief that the rewards of completing the questionnaire will outweigh any potential costs. In the TDM, the surveys are mailed to respondents and self-administered; this is preferred because respondents are able to give more thoughtful and accurate answers in an unrushed home environment (Dillman, 2007). Likewise, researcher bias is reduced and respondents are allowed greater anonymity and privacy, thereby encouraging more forthright responses to potentially sensitive questions (Rubin & Babbie, 2005). Self-administered surveys have been used reliably with samples of traumatized individuals, including multi-ethnic samples of veterans and Latinos (Hoge et al., 2007; Koenen et al., 2007; Koenen, Stellman, Sommer, & Stellman, 2008; Monson, Price, Rodriguez, Ripley, & Warner, 2004; Pole et al., 2005; Toomey, Kang, Karlinsky, Baker, Vasterling, Alpern et al., 2007).

After obtaining approval from the Institutional Review Board (IRB) at the University of Maryland, the IRB at the Stanford University Research Compliance Office<sup>3</sup>, and the VAPAHCS Research Administration, the first contact with the sample

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<sup>2</sup> The TDM includes two additional steps that were excluded from this study due to cost and time restrictions. Typically, a final letter and survey are sent to non-respondents via Federal Express (FedEx) or United Parcel Service (UPS), followed by a final postcard thanking respondents for their participation (Dillman, 2007).

<sup>3</sup> The IRB at the Stanford University Research Compliance Office serves as the IRB for the VA Palo Alto Health Care System. Additional information about IRB approvals is provided under *Human Subjects Protections and IRB Considerations* below.

involved mailing each potential participant a letter (see Appendix A) stating that he had been selected to participate in a voluntary research study that was being conducted at the VA Palo Alto Health Care System, and that he would receive a letter explaining the study, the survey instrument (see Appendix B), and a small financial token of appreciation to compensate him for his time in the mail in a few days. The second contact with the sample included a cover letter (see Appendix C) containing information on the purpose of the study, how the respondent was selected, and resources that may be of assistance, as well as a copy of the survey instrument that included informed consent information, and a self-addressed, stamped return envelope.

In addition, a two dollar bill was enclosed in the second mailing as a token compensation for the respondent's time. The enclosure of such tokens has consistently been shown to significantly increase response rates as it is a goodwill gesture of advance appreciation that invokes a sense of reciprocal obligation (Dillman, 2007). The VA permits payment of subjects when this is the standard of practice in non-VA institutions in comparable situations, and when the payments do not appear to constitute undue pressure or influence on the prospective subjects to participate in the research study (Department of Veterans Affairs, 2008). One week after mailing the survey instrument, a letter was mailed (see Appendix D) to all potential respondents thanking them for their participation and courteously reminding those who had not yet returned their surveys to please do so or to contact this researcher if they misplaced their survey.

### *Response Rate*

In this study, 500 surveys were mailed, and 29 surveys were returned to sender because they were “undeliverable,” “refused,” “no forwarding address,” “not at this

address,” “no mail receptacle,” or “addressee unknown,” resulting in 471 surveys delivered. A total of 160 surveys were returned. Of the 160 surveys that were returned, 14 were not completed due to the participant not being Latino, being in active duty, or declining participation. Three additional surveys were received nearly 3 months after the surveys were mailed; results were analyzed 2 months after the surveys were mailed and therefore the additional 3 responses were not included. As such, an overall response rate of 32% was reached and a total of 146 completed surveys were included in this study,

### *Sample*

The majority of respondents in the sample were born in the United States ( $n = 111, 76\%$ ), whereas the majority of respondents’ mothers were born outside of the United States or in Puerto Rico ( $n = 79, 54\%$ ). Most respondents reported growing up in a low income household ( $n = 88, 60\%$ ); currently, the majority of the sample consider themselves to be middle or high income ( $n = 88, 60\%$ ). The majority of respondents in the sample completed some college or higher ( $n = 112, 77\%$ ). Prior to deployment, most respondents reported being active duty ( $n = 94, 64\%$ ), whereas 34 (23%) reported being in the National Guard or Reserve and 13 (9%) responded that they were never deployed and the item was not applicable. The majority of the respondents reported not being injured during combat ( $n = 85, 58\%$ ).

### *Measures*

The survey instrument used in this study was developed to obtain data on individual social and cultural factors to assess the impact of these variables on the development of PTSD and PTSD symptom severity in Latino veterans. The concepts of childhood adversity, acculturation, familialism, perceived racial and ethnic

discrimination, combat exposure, combat injury, stress appraisal, peri-trauma coping/dissociation, post-trauma coping, fatalism, post-trauma social support, and PTSD were operationalized in the survey instrument using existing self-report measures. Demographic and other additional items were adapted by the researcher from previous research and existing measures. The survey was expected to take approximately 30 minutes to complete.

*Pre-trauma social variables.*

A set of pre-trauma variables that may predispose certain individuals to the development of PTSD were measured. Respondents were asked where they were born, where their mothers were born, their family income as a child and current income, and highest education level. They were also asked whether they had enlisted for active duty, were called from the reserves, or were never deployed. An additional item requesting era of service was included in the survey but was dropped when the data was analyzed because 112 respondents (77%) served in Operation Enduring Freedom/Operation Iraqi Freedom, 9 respondents (6%) serving during Peacetime, and 25 (17%) serving during Other, not allowing for statistical comparisons. (See items B1-B7 in Appendix B.) For both questions regarding birthplace, responses of "Puerto Rico" was combined with non-U.S. places of birth for this study because the common spoken language in Puerto Rico is Spanish, and also because Latino foods and cultural traditions are common in Puerto Rico. (It should be noted that only 7 respondents reported that their mothers were born in Puerto Rico; none of the veterans were born in Puerto Rico). For both questions regarding income, middle and high income were combined into one category because only 2 respondents reported growing up in a high income family and only 4 respondents

reported being currently high income. For education, not completing high school was combined with completing high school because only 1 person reported not completing high school, and it is possible that that respondent earned their GED and responded in error. (Although a high school diploma or GED is not always required to enter the military, the vast majority of individuals have at least their GED prior to entering the military.)

*Childhood adversity* was measured using a combination of two modified measures plus a few exploratory items<sup>4</sup>, (Iversen et al., 2008; Schilling, Aseltine, & Gore, 2008). This 25-item, true/false measure included statements such as, “I regularly used to see fighting between my parents,” “I was often in fights at school,” “I received mental health counseling,” “I had a household member who may have been depressed or mentally ill,” and “I was the victim of a fire, flood, or natural disaster.” (See items B8-B32 in Appendix B.) Items pertaining to childhood physical and sexual abuse were not included in the childhood adversity measure due to their sensitive and potentially

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<sup>4</sup> The original wording of Schilling et al.’s (2008) items were changed from questions to true/false statements to make them consistent with Iversen et al.’s (2007) wording (e.g., “Were you ever a victim of a fire, flood, or natural disaster?” was changed to “I was a victim of a fire, flood, or natural disaster”). In addition, Iversen et al.’s item, “I spent time in local authority care” was removed, as was Schilling et al.’s “Did your parents ever have a marital separation of 1 month or more without ever getting divorced,” “Did your parents ever get divorced from one another,” “Did you miss a year of school or have to do it over,” “Were you ever sent away from home because you did something wrong or your parents felt they couldn’t handle you,” “Did either of your parents drink or use drugs so often or so regularly that it caused problems for the family,” “Were you ever seriously physically attacked or assaulted,” “Were you ever physically abused as a child,” and “Were you ever seriously neglected as a child.” Also, Schilling et al.’s three questions on sexual abuse/assault were excluded. Schilling et al.’s item, “Did either of your parents die” was changed to “One or both of my parents died.” Additional exploratory items were added, including, “I spent time in foster or residential care,” “I was adopted,” “I received mental health counseling (e.g., outpatient counseling or inpatient hospitalization for depression),” and “I had a household member who may have been depressed or mentally ill.”

threatening nature. Respondents were asked to circle the response that best represented their experiences when they were growing up. Mean scores were calculated for this measure (based on true/false questions where “true” equals “0,” “false” equals “1,”) and lower scores indicate more adverse experiences while growing up. The mean for the full sample in this study ( $M = .74$ ,  $SD = .18$ ) indicates that the respondents experienced, on average, about a quarter of the events included in the measure. This scale had an internal consistency reliability of .76 in this study.

#### *Acculturation.*

Acculturation was operationalized as the Short Acculturation Scale for Hispanics (Marin, Sabogal, Marin, Otero-Sabogal, & Perez-Stable, 1987). This 12-item scale included questions such as, “In general, what languages(s) do you read and speak?” “In what language(s) do you usually think?” and “In what languages are the T.V. programs you usually watch?” (See items A1-A12 in Appendix B.) Response categories included “Only Spanish,” “More Spanish than English,” “Both Equally,” “More English than Spanish,” and “Only English.” Additional items followed, such as “Your close friends are...,” “If you could choose your children’s friends you would want them to be...”. Response categories included “All Latinos/Hispanics,” “More Latinos than Americans,” “About Half and Half,” “More Americans than Latinos,” and “All Americans.” Responses were summed, and higher totals represented greater acculturation to the majority culture. Results of this scale (based on a Likert-scale ranging from “1” through “5” where higher scores correlate to greater acculturation to the majority culture) indicated that the sample was greater than moderately acculturated ( $M = 3.83$ ,  $SD = .59$ ).

This measure has shown good internal consistency previously ( $\alpha = .92$ ; Marin et al., 1987) and good reliability in this sample ( $\alpha = .87$ ).

*Familialism.*

Familialism was measured with the familialism subscale of the Individualism and Collectivism Measure (IC; Oyserman, 1993; Oyserman & Lauffer, 2002). This 7-item instrument measures the extent of agreement with statements such as, “I often turn to my family for social and emotional support,” “My family is central to who I am,” and “It is important to me to respect decisions made by my family.” (See items L1-L7 in Appendix B.) Responses were indicated on a 4-point Likert scale ranging from 1 (*strongly disagree*) to 4 (*strongly agree*). Scores were summed, and higher scores indicated stronger feelings of familialism. Results of the familialism subscale of the IC scale indicated that the sample placed greater than moderate value on their family ( $M = 3.01$ ,  $SD = .76$ ). The familialism subscale of the IC has shown good internal consistency in samples from the United States ( $\alpha=0.87$ ), Canada ( $\alpha=0.85$ ), and Japan ( $\alpha=0.74$ ) (Oyserman, personal communication, November 29, 2008; Oyserman, 2008). This measure also had good internal consistency in this study ( $\alpha = .87$ ).

*Perceived racial and ethnic discrimination.*

Perceived racial and ethnic discrimination was measured with the Brief Perceived Ethnic Discrimination Questionnaire – Community Version (Brief PEDQ-CV; Brondolo, Kelly, Coakley, Gordon, Thompson, Levy et al., 2005). This 17-item scale is based on the original Perceived Ethnic Discrimination Questionnaire (PEDQ; Contrada, Ashmore, Gary, Coups, Egeth, Sewell et al., 2001) and the Perceived Ethnic Discrimination Questionnaire – Community Version (PEDQ-CV; Brondolo et al., 2005). The Brief

PEDQ-CV asks respondents to consider how often they experience verbal rejection, avoidance, exclusion, denial of equal treatment, devaluating actions, threats of violence, and aggression because of their ethnicity/race. Examples of items include, “Have others thought you couldn’t do things or handle a job?”; “Have others made you feel like an outsider who doesn’t fit in because of your dress, speech, or other characteristics related to your ethnicity?”; and “Have people been nice to you to your face but said bad things about you behind your back?”. (See items J1-J17 in Appendix B.) Respondents indicated their agreement with each question on a 5-point Likert scale ranging from 1 (*never*) to 5 (*very often*). The mean scores for this measure for the full sample ( $M = 2.2$ ,  $SD = .81$ ) indicated that the sample on average had a less than moderate number of discriminatory experiences. The Brief PEDQ-CV has shown good internal consistency in a large, multi-ethnic sample of primarily African Americans and Latinos ( $\alpha=0.87$ ; Brondolo et al., 2005) and also good reliability in the present study ( $\alpha = .93$ ).

*Combat exposure.*

In this study, combat exposure was operationalized as the Combat Exposure Scale (CES). The CES is a 7-item scale developed by Keane, Fairbank, Caddell, Zimering, Taylor, and Mora (1989, 2008) that is used to measure severity of combat exposure by inquiring about the frequency of various combat experiences. Examples of questions include, “Were you ever under enemy fire?”, “How often did you see someone hit by incoming or outgoing rounds?”, and “How often were you in danger of being injured or killed (i.e., being pinned down, overrun, ambushed, near miss, etc.)?” (See items E1-E7 in Appendix B.) Using a 5-point Likert scale, respondents indicated the frequency of their experiences with each item, ranging from “No,” “Never,” or “None” (1) to “51+

times,” “7 months or more,” “26+ times,” or “76% or more” (5), depending on the context of the question. Higher scores indicated higher combat exposure. The mean scores for this measure for the full sample ( $M = 2.64$ ,  $SD = 1.18$ ) indicated that the full sample on average had a moderate number of combat exposure experiences. This scale has shown good internal consistency in a sample of cognitively intact veterans residing in extended care settings ( $\alpha = 0.84$ ; Cook, Elhai, Cassidy, Ruzek, Ram, & Sheikh, 2005), and in a sample of Vietnam-era veterans who were seeking services at Vet Centers ( $\alpha = 0.85$ ; Keane et al., 1989; Keane et al., 2008). The CES also had good internal consistency in this study ( $\alpha = .92$ ).

*Combat injury.*

Combat injury was measured with one item that asked, “Were you injured during combat?” “Yes” was coded “0” and “No” was coded “1.” There were no additional questions included for this variable (e.g., type or severity of injury, whether the injury was caused by opposing forces or friendly fire) because research has shown that any injury, regardless of the type or severity, contributes to PTSD (Koren et al., 2005). (See item D1 in Appendix B.) Although inquiring about service connection status was considered (i.e., receiving VA compensation for being partially or fully disabled as the result of a physical or mental injury received while serving in the military), this was decided against because not all veterans who are injured apply for service connection status, so inquiring about service connection status may not adequately capture this variable.

### *Appraisal.*

Appraisal was measured using a revised version of the Stress Appraisal Measure (revised SAM; Roesch & Rowley, 2005). The revised SAM is a 19-item measure adapted from Peacock and Wong's (1990) Stress Appraisal Measure (SAM), which assesses primary and secondary appraisal dimensions as proposed by Lazarus and Folkman's (1984) transactional model of stress. Although Lazarus and Folkman emphasized that appraisal is situation-dependent, it has also been suggested that a trait-like quality may be brought to potentially stressful situations by some individuals, predisposing them to appraise stressors consistently as challenging or threatening (Chaplin, John, & Goldberg, 1988; Roesch & Rowley, 2005). The revised SAM includes three factors that assess primary appraisal: Challenge, Threat, and Centrality (i.e., how the situation affects the individual's well-being). One factor, Resources, measures secondary appraisal. Questions include, for example, "I perceive stress as threatening," "There are long-term consequences as a result of stress," and "I have the skills necessary to overcome stress." (See items C1-C19 in Appendix B.) Responses were indicated on a 5-point Likert scale ranging from 0 (*not at all*) to 4 (*a great amount*), with higher scores correlated with more positive appraisals of stress, and summed. The mean scores for this measure (taking reverse scoring into account) for the full sample ( $M = 2.42$ ,  $SD = .86$ ) indicated that the full sample on average had an ambivalent view of stress. The revised SAM was found to be internally consistent in a large, multiethnic sample (alphas for the four separate factors ranged from 0.68 to 0.81; Roesch & Rowley, 2005). The full scale was found to be internally consistent in the present study ( $\alpha = .94$ ).

*Peri-trauma coping/dissociation.*

One particular coping strategy, peritraumatic dissociation, has been noted in the literature to be strongly related to the development of PTSD and PTSD symptom severity (Ozer et al., 2003; Pole et al., 2005). Peritraumatic dissociation was measured using the RAND Peritraumatic Dissociative Experiences Questionnaire (RAND PDEQ; Marshall, Orlando, Jaycox, Foy, & Belzberg, 2002). The RAND PDEQ is an 8-item scale adapted from Marmar, Weiss, and Metzler's (1997) 10-item Peritraumatic Dissociative Experiences Questionnaire (PDEQ) that was developed to assess peritraumatic dissociation in diverse ethnic and socioeconomic populations (Marshall et al., 2002). In the RAND PDEQ, respondents were first asked to remember how they felt and what they experienced during and immediately after their most disturbing military-related incident. They were then asked to respond to items such as the following: "I 'blacked out' or 'spaced out' or in some way felt that I was not part of what was going on," "What was happening didn't seem real, like I was in a dream or watching a movie," and "There were moments when I wasn't sure where I was or what time it was." (See items G1-G8 in Appendix B.) Using a 5-point Likert scale, respondents indicated the strength of their agreement with each item, ranging from 1 (*not at all true*) to 5 (*extremely true*). Scores were calculated by averaging the 8 items, and higher scores indicated greater peritraumatic dissociation. The mean scores for this measure for the full sample ( $M = 2.32$ ,  $SD = 1.12$ ) indicated that the full sample on average had slightly less than moderate agreement with statements describing dissociative experiences. This scale has demonstrated adequate internal consistency in male, Hispanic survivors of community

violence ( $\alpha = .69$ ; Denson et al., 2007), in a sample of female survivors of sexual assault ( $\alpha=0.83$ , Study 3; Marshall et al., 2002), and in the present study ( $\alpha = .92$ ).

*Post-trauma coping.*

Post-trauma coping was measured using the Brief COPE. The Brief COPE (Carver, 1997) was adapted from Carver, Scheier, and Weintraub's (1989) Coping Orientations to Problems Experienced scale (COPE) that was created to measure distinct aspects of problem-focused and emotion-focused coping. The Brief COPE is comprised of 14 subscales and can be evaluated as three composite subscales (Coolidge et al., 2000; Cooper, Katona, & Livingston, 2008): emotion-focused, problem-focused, and dysfunctional coping. Using the composite subscales, the 28-item Brief COPE assesses how frequently respondents use emotion-focused coping strategies (e.g., acceptance, emotional support, positive reframing), problem-focused coping strategies (e.g., active coping, instrumental support, planning), and dysfunctional coping strategies (e.g., denial, self-blame, venting). (See items K1-K28 in Appendix B.) Respondents rated the extent of their agreement with the statements on a 4-point Likert scale ranging from 1 (*I haven't been doing this at all*) to 4 (*I've been doing this a lot*). Scores were summed, and higher scores on each subscale indicated greater use of each coping strategy.

The mean scores for the emotion-focused coping subscale ( $M = 2.23$ ,  $SD = .62$ ) indicated that the respondents on average have been using emotion-focused techniques slightly more than “a little bit” of the time. The mean scores for the problem-focused coping subscale ( $M = 2.46$ ,  $SD = .74$ ) indicated that the respondents on average have been using problem-focused techniques between “a little bit” and “a medium amount”. The mean scores for the dysfunctional coping subscale ( $M = 2.14$ ,  $SD = .59$ ) indicated

that the respondents on average have been using dysfunctional coping techniques slightly more than “a little bit” of the time. The three subscales of the revised Brief COPE have demonstrated adequate internal consistency ( $\alpha = .72$  for emotion-focused coping,  $\alpha = .84$  for problem-focused coping,  $\alpha = .75$  for dysfunctional coping) in a study of caregivers of Alzheimer’s patients (Cooper et al., 2008). The Brief COPE has been used extensively in health-related research (e.g., Bellizzi & Blank, 2006; Brown, Battista, Sereika, Bruchlman, Dunbar-Jacob, & Thase, 2007; Carver, Meyer & Antoni, 2000; Cooper, Katona, Orrell, & Livingston, 2006; Einav, Shalev, Ofek, Freedman, Matot, & Weiniger, 2008; Meyer, 2001; Ream, Richardson, & Alexander-Dann, 2002; Vosvick, Koopman, Gore-Felton, Thoresen, Krumboltz, & Spiegel, 2003). The three subscales also had good internal consistency in the present study ( $\alpha = .81$  for emotion-focused coping,  $\alpha = .84$  for problem-focused coping,  $\alpha = .80$  for dysfunctional coping).

#### *Fatalism.*

Fatalism was measured with the fatalism subscale of the Multiphasic Assessment of Cultural Constructs – Short Form (MACC-SF) (Cuéllar et al., 1995). Eight true/false items measured the extent to which people felt their destinies are beyond their control. After accounting for reverse scoring, items were summed, and higher scores indicate greater fatalistic beliefs. Examples of items include, “It is more important to enjoy life now than to plan for the future,” “We must live for the present, who knows what the future may bring,” and “People die when it is their time and there is not much that can be done about it.” (See items H1-H8 in Appendix B.) The mean scores for this measure ( $M = .50$ ,  $SD = .24$ ) indicated that the respondents on average agreed with half the items in the measure. A study assessing cultural constructs of Mexican Americans reported the

coefficient alpha for this fatalism subscale to be .63 (Cuéllar et al., 1995). The generally accepted cut-off for an “adequate” scale in the social sciences for the coefficient alpha is .70; however, by convention, a more lenient cut-off of .60 is common in exploratory research (Garson, 2008). The internal consistency for this scale in the present study was .67.

*Post-trauma social support.*

Post-trauma social support was measured with the Short-Form Interpersonal Support Evaluation List (SF-ISEL), which is a 6-item instrument that measures perceived social support (Williamson & Schulz, 1992). The SF-ISEL was adapted from the Interpersonal Support Evaluation List (ISEL; Cohen & Hoberman, 1983; Cohen, Mermelstein, Kamarck, & Hoberman, 1985), and asks respondents to rate their level of agreement with statements about tangible support, belonging, and appraisal of support. Response categories range from 1 (*definitely true*) to 4 (*definitely false*), and after taking reverse scored items into consideration, higher scores indicate greater social support. Examples of statements from the SF-ISEL include: “If I were sick, I could easily find someone to help me with my daily chores,” “I often meet with family or friends,” and “When I feel lonely, there are several people I can talk to.” (See items I1-I6 in Appendix B.) The mean scores for this measure ( $M = 1.08$ ,  $SD = .73$ ) indicated that, on average, respondents experienced a high level of social support from family and friends. The SF-ISEL has demonstrated good internal consistency in samples of male veterans with spinal cord injuries ( $\alpha=0.77$ ; Rintala, Robinson-Whelen, & Matamores, 2005), elderly outpatients ( $\alpha=0.73$ ; Williamson & Schulz, 1992), and women with breast cancer

( $\alpha=0.82$ , Williamson, 2000). This scale was found to be reliable in the present study ( $\alpha = .78$ ).

### *PTSD.*

PTSD was measured using the 17-item PTSD Checklist – Military Version (PCL-M; Weathers, Litz, Herman, Huska, & Keane, 1993), which corresponds to the 17 symptoms of PTSD listed in the DSM-IV-TR (APA, 2000). Respondents were asked to report how often they experienced specific symptoms within the past month, such as, “Repeated, disturbing memories, thoughts, or images of a stressful military experience from the past,” “Having physical reactions (e.g., heart pounding, trouble breathing, or sweating) when something reminded you of a stressful military experience from the past,” and “Feeling jumpy or easily startled.” (See items F1-F17 in Appendix B.) Responses were indicated on a 5-point Likert scale ranging from 1 (*not at all*) to 5 (*extremely often*). Higher scores indicate a greater number of PTSD symptoms or greater symptom severity (Hoge et al., 2004). Scores were summed, and scores of 50 or higher indicated a likely diagnosis of PTSD on the scale ranging from 17 to 85. The mean scores for this measure ( $M = 3.05$ ,  $SD = 1.20$ ) indicated that respondents on average experienced PTSD symptoms a moderate amount of the time. Eighty-one respondents scored a 50 or higher, indicating PTSD. The PCL-M has shown excellent internal consistency in a sample of Vietnam theater veterans ( $\alpha=0.97$ ) and a sample of Persian Gulf theater veterans ( $\alpha=0.96$ ) (Weathers et al., 1993). The PCL-M showed similar internal consistency in the present study ( $\alpha = .97$ ).

### *Human Subjects Protections and IRB Considerations*

Participation in this study did not directly benefit the respondents, however, the study may benefit individuals in the future. Specifically, this research will contribute to the foundation of literature that may influence the development of culturally relevant PTSD treatment for Latino veterans. Whereas participation in this study included a self-administered survey that took approximately 30 minutes to complete, any potential risks or discomforts of research participation were minimal. Although it was possible that participants experienced minimal discomfort when responding to questions that were sensitive in nature, research with trauma victims has shown that trauma questions cause minimal distress and are perceived as neutral compared to questions about day-to-day experiences (Cromer, Freyd, Binder, DePrince, & Becker-Blease, 2006; DePrince & Freyd, 2004). However, the sensitive nature of this study was taken into consideration in that participants were informed of the topic and purpose of the study in advance, and they were reminded that they could terminate their participation at any time. Also, resources and crisis contact numbers were included in the survey cover letter for the participant's use if necessary.

There was also the potential for loss of confidentiality, which was addressed by storing completed surveys and participant protected health information (PHI) in locked cabinets in locked clinical offices at the VA Palo Alto Health Care System. Also, all surveys and identifying participant information were destroyed upon completion of the study. Computerized data were stored in a password-protected SPSS file on a password-protected computer. Finally, the risk of loss of privacy was minimized by not including

participant names on the cover letter or survey instrument. Potential participants were encouraged to complete the survey privately, in a location with minimal distractions.

A Health Insurance Portability and Accountability Act (HIPAA) waiver of documentation of consent was granted. This research could not have been practically conducted otherwise, given that data was collected using mail surveys and no face-to-face contact was made with participants. The risks of participating in this study were very minimal and included the possibility of experiencing minor emotional distress when completing survey questions that were potentially sensitive in nature. The rights and welfare of the subjects were not adversely affected with the waiver of documentation of consent. In fact, the risk of identifying subjects and violating their confidentiality was decreased by eliminating the need to store consent forms containing identifying information past the data collection phase. The following statement was included in the survey to address consent: "Please remember that your participation in this survey is voluntary. By returning this completed survey, you are giving your permission to allow the researcher to use the information provided for research purposes."

All research procedures were reviewed and approved by the Institutional Review Board (IRB) at the University of Maryland, the IRB at the Stanford University Research Compliance Office, and the VAPAHCS Research Administration. Therefore, it was determined that the potential risks present in this study were reasonable in relationship to the potential benefit of contributing to the currently sparse literature available on Latino veterans and PTSD. This contribution to the literature may lead to improved treatment for a growing number of Latino veterans.

### *Data Analysis*

All data were entered into a database using SPSS® version 18 for Windows (SPSS, Inc., 2010) in the Windows Vista environment. Descriptive, bivariate, and multivariate statistical analyses were performed in SPSS® version 18 for Windows (SPSS, Inc., 2010) in the Windows Vista environment. After the data were entered and cleaned, descriptive and bivariate analyses were conducted to describe the sample characteristics and Cronbach's alpha was calculated for all scales to check internal consistency reliability. Next, a logistic regression analysis with hierarchical entry was run to statistically analyze the relationships between the model variables and the development of PTSD. A multiple regression analysis with hierarchical entry was conducted to analyze the relationships between the social and cultural variables and PTSD symptom severity. A two-tailed alpha of .05 was used for the statistical tests in this study, and the assumptions for logistic and multiple regression were adequately met. There were a number of significant associations among independent variables, yet none of these surpassed the level of acceptable multicollinearity for independent variables in multivariate logistic regression analyses or multiple regression analyses. All continuous variables were centered prior to being entered in the regression analyses for ease of comparison (Cohen, Cohen, West & Aiken, 2003).

Variables were entered in four steps, grouped into functional sets (Cohen et al., 2003), and based on time sequence, theory, prior research, and logic. According to the adaptation of Fisher's Protected *t* Test (Cohen et al., 2003), if a set was not statistically significant, the individual variables within that set were not interpreted.

Step 1 (Pre-trauma Social Variables):

- Demographics (birthplace, mother's birthplace, family income as a child, current income, education level)
- Enlisted for active duty or called from reserves
- Childhood adversity

Step 2 (Pre-trauma Cultural Variables):

- Acculturation
- Familialism
- Racism/Discrimination

Step 3 (Peri-trauma Variables):

- Combat exposure
- Combat injury
- Stress appraisal
- Peri-trauma coping/dissociation

Step 4 (Post-trauma Variables):

- Coping (problem-focused, emotion-focused, dysfunctional)
- Social support
- Fatalism

## Chapter 3

### *Results*

The results of the present study, including the results of the bivariate and multivariate statistical analyses, are included in this section. Prior to running multivariate analyses, chi-square analyses, independent samples *t*-tests, and correlations were conducted to test for significant ( $p < .05$ ) relationships between the social and cultural factors and PTSD. Results of the multivariate analyses, conducted to address the research objectives explored in this study, are presented following the bivariate results.

#### *Comparison of Those With and Without PTSD*

Of the completed surveys, 81 (56%) scored in the positive range for PTSD (PCL-M  $\geq 50$ ) and 64 (44%) scored in the negative range for PTSD (PCL-M  $\leq 49$ ). (One respondent did not complete the PTSD measure). Although more veterans with PTSD responded than veterans without PTSD, the difference was not statistically significant ( $p > .05$ ), suggesting that response bias is unlikely. The term “those with PTSD” is used in this dissertation to refer to individuals who scored  $\geq 50$  on the PCL-M. The term “those without PTSD” is used to refer to individuals who scored  $\leq 49$  on the PCL-M. A minimal amount of data was missing, and therefore ipsative mean imputation (i.e., person mean substitution) was completed prior to running all analyses (Schafer & Graham, 2002).

#### *Demographic Characteristics*

Chi-square analyses were conducted to test for significant relationships between the dichotomous and categorical social variables and PTSD (i.e., whether the respondent met criteria for PTSD) (see Table 1). Significant relationships ( $p < .05$ ) were found

between education level, combat injury, and PTSD. Latino veterans who were high school graduates were more likely to meet criteria for PTSD than Latino veterans with at least some college (75% vs. 51%). Participants who were injured during combat were more likely to meet criteria for PTSD than those who were not injured during combat (81% vs. 41%). Chi-square statistics for birthplace of veteran, birthplace of veteran's mother, family income as a child, current income, and whether the respondent was called from active duty, National Guard/Reserve, or never deployed, and PTSD were not significant ( $p > .05$ ).

#### *Characteristics of Social and Cultural Measures*

Independent samples  $t$ -tests were run to test for significant group differences between respondents who met criteria for PTSD and those who did not meet criteria for PTSD (see Table 2). Group means were statistically different ( $p < .05$ ) for childhood adversity, familialism, perceived discrimination, combat exposure, stress appraisal, peri-trauma coping/dissociation, dysfunctional post-trauma coping, post-trauma social support, and fatalism. Those who met criteria for PTSD had greater experiences of childhood adversity (mean difference of .07), weaker familialistic beliefs (mean difference of .36), more discriminatory experiences (mean difference of .47), greater exposure to combat (mean difference of 1.10), less positive appraisals of stress (mean difference of .91), greater peri-trauma dissociation (mean difference of .95), increased dysfunctional post-trauma coping (mean difference of .60), less post-trauma social support (mean difference of .50), and greater fatalistic beliefs (mean difference of .10).  $t$ -tests were not statistically significant ( $p > .05$ ) for acculturation, emotion-focused post-trauma coping, problem-focused post-trauma coping, and PTSD.

**Table 1.** Social and Cultural Characteristics of Sample (Categorical Variables)

<b>Characteristic</b>	<b>PTSD</b>		$\chi^2$	<i>p</i>
	<b>Yes (n = 81)</b>	<b>No (n = 64)</b>		
	<i>n (%)</i>	<i>n (%)</i>		
Birth place			.13	.72
United States	61 (75)	49 (77)		
Non-United States	15 (19)	14 (22)		
Mother's birthplace			.06	.80
United States	31 (38)	25 (39)		
Non-United States	42 (52)	37 (58)		
Childhood income			2.54	.11
High/Medium	26 (32)	29 (45)		
Low	53 (65)	34 (53)		
Current income			1.56	.21
High/Medium	45 (56)	43 (67)		
Low	34 (42)	21 (33)		
Education			6.07	.01*
High school or less	24 (30)	8 (13)		
Some college or higher	56 (69)	55 (86)		
Pre-deployment status			3.33	.19
Active duty	56 (69)	37 (58)		
National Guard/Reserve	16 (20)	18 (28)		
Never deployed	5 (6)	8 (13)		
Combat injury			20.55	.00*
Injured	42 (52)	10 (16)		
Not injured	35 (43)	50 (78)		

*Note.* Percentages may not sum to 100 due to missing data and rounding. \*  $p < .005$

**Table 2.** Social and Cultural Characteristics of Sample (Continuous Variables)  
PTSD

Characteristic	PTSD		<i>t</i>	<i>p</i>
	Yes (n = 81) <i>M (SD)</i>	No (n = 64) <i>M (SD)</i>		
Childhood adversity	.71 (.18)	.78 (.17)	2.37	.02*
Acculturation	3.86 (.56)	3.79 (.64)	-.69	.49
Familialism	2.85 (.74)	3.21 (.75)	2.85	.01*
Discrimination	2.40 (.83)	1.93 (.71)	-3.67	.00*
Combat exposure	3.12 (1.01)	2.02 (1.09)	-6.18	.00*
Stress appraisal	2.02 (.80)	2.93 (.64)	7.44	.00*
Peri-trauma coping/Dissociation	2.74 (1.07)	1.79 (.95)	-5.49	.00*
Post-trauma coping				
Emotion-focused	2.22 (.58)	2.23 (.66)	.07	.94
Problem-focused	2.49 (.70)	2.40 (.76)	-.79	.43
Dysfunctional	2.40 (.48)	1.80 (.55)	-6.97	.00*
Fatalism	.55 (.25)	.45 (.23)	-2.62	.01*
Social support	1.30 (.72)	.80 (.64)	-4.36	.00*

*Note.* Percentages may not sum to 100 due to missing data and rounding. \**p* < .005

Correlations were examined to test for significant bivariate relationships between all social and cultural variables and severity of PTSD symptoms (see Table 3).

Significant correlations (*p* < .05) were found between childhood adversity (*r* = -.21), stress appraisal (*r* = -.61), combat exposure (*r* = -.58), peri-trauma coping/dissociation (*r* = .37), fatalism (*r* = .29), post-trauma social support (*r* = .44), discrimination (*r* = .35), familialism (*r* = -.28), dysfunctional post-trauma coping (*r* = .61), and severity of PTSD symptoms. Greater childhood adversity, more negative stress appraisal, higher incidents of combat exposure, increased peri-trauma dissociation, stronger fatalistic beliefs, less social support, greater perceived discrimination, lesser feelings of familialism, and increased dysfunctional coping were related to more severe PTSD symptoms.

Correlations between acculturation, emotion-focused post-trauma coping, problem-

focused post-trauma coping and severity of PTSD symptoms were not statistically significant ( $p > .05$ ).

**Table 3.** Correlations between Social and Cultural Characteristics and PTSD Symptom Severity

Characteristic	PTSD Symptom Severity	
	<i>r</i>	<i>p</i>
Childhood adversity	-.21	.01*
Acculturation	-.02	.80
Familialism	.27	.00**
Discrimination	.35	.00**
Combat exposure	.58	.00**
Stress appraisal	-.61	.00**
Peri-trauma coping/Dissociation	.55	.00**
Post-trauma coping		
Emotion-focused	.01	.93
Problem-focused	.11	.20
Dysfunctional	.61	.00**
Fatalism	.29	.00**
Social support	.44	.00**

\*  $p < .05$  \*\*  $p < .005$

#### Results for each Research Objective

*Research Objective 1 – What sociocultural variables are correlated with the development of PTSD in Latino veterans?*

A hierarchical logistic regression analysis was performed to assess the association between Latino social and cultural variables and the development of PTSD. Variables were entered into the analysis as sets in four steps based on the conceptual model utilized in this study and in an order reflecting their presumed chronological occurrence. Table 4 shows the results of the hierarchical logistic regression analysis.

The first block consisted of pre-trauma social variables (birthplace, mother's birthplace, family income as a child, current income, education, original military status,

and childhood adversity). The second block added pre-trauma cultural variables (acculturation, familialism, perceived discrimination). The third block included peri-trauma variables (combat exposure, stress appraisal, combat injury, peri-trauma coping/dissociation). The final block added post-trauma coping (emotion-focused, problem-focused, dysfunctional), fatalism and social support. The reference category for birthplace mother's birthplace was "born in U.S.," and the reference category for income as a child and current income was "high/middle income." The reference category for original military status was "active duty," and the other two levels of the variable were compared with it. The reference category for education was "high school or less," and the reference category for combat injury was "not injured." An index of the level of association between each independent variable and possible PTSD, derived from the logistic regression analysis, was provided by the odds ratio (OR) with a 95% confidence interval.

The final block of the logistic regression was not statistically significant ( $p = .21$ ); therefore, results from the third step of the multivariate logistic regression are presented in Table 4. All of the models, including the final non-significant step, are presented in Appendix E. None of the variables entered in the first or second blocks (pre-trauma variables), remained significant in the third model. Combat exposure (OR = 2.27), combat injury (OR = .27) and stress appraisal (OR = .18) were significant in the third model. Cox & Snell's R Square ( $R^2 = .46$ ) and Nagelkerke's R-square ( $R^2 = .62$ ) indicated a moderate relationship between prediction and grouping. Prediction success overall was 80% (81% for non-PTSD and 79% for PTSD).

Thus, controlling for the other variables in the model, the odds of developing PTSD were higher for Latino veterans who experienced more combat exposure events, were injured during combat, and had less positive appraisals of stressful situations. Birthplace, mother's birthplace, income as a child, current income, education, original military status, childhood adversity, acculturation, familialism, perceived discrimination, and peri-trauma dissociation were not significant in the third model. Emotion-focused post-trauma coping, problem-focused post-trauma coping, dysfunctional coping, social support, and fatalism were not interpreted because the final block was not statistically significant (Cohen et. al., 2003).

**Table 4.** Hierarchical Logistic Regression Analysis Predicting PTSD, Odds of Developing PTSD as a Function of Social and Cultural Variables ( $N = 110$ ), Third Model

<b>Variable</b>	<b>Step <i>p</i></b>	<b><i>B</i></b>	<b><i>SE</i></b>	<b>Final OR</b>	<b>(95% CI)</b>
Step 1: Pre-trauma social variables	.01*				
Birthplace					
U.S. (reference)				1.00	
Non-U.S.		.93	.88	2.53	(.45-14.14)
Mother's birthplace					
U.S. (reference)				1.00	
Non-U.S.		-.53	.69	.59	(.15-2.27)
Child income					
Middle/high income (reference)				1.00	
Low income		.50	.61	1.65	(.50-5.49)
Current income					
Middle/high income (reference)				1.00	
Low income		-.78	.67	.46	(.12-1.71)
Education					
High school or less (reference)				1.00	
Some college or higher		.62	.85	1.86	(.35-9.83)
Original military status					
Active duty (reference group)				1.00	
National Guard/Reserve		-.46	.71	.63	(.16-2.56)
Never deployed		.46	1.12	1.59	(.18-14.34)
Childhood adversity		-1.54	1.97	.21	(.01-10.18)
Step 2: Pre-trauma cultural variables	.03*				
Acculturation		-.20	.67	.82	(.22-3.02)
Familialism		-.02	.47	.98	(.39-2.45)
Discrimination		.52	.39	1.68	(.79-3.61)
Step 3: Peri-trauma variables	.00*				
Combat exposure		.82	.34	2.27*	(1.18-4.38)
Stress appraisal		-1.73	.48	.18*	(.07-.46)
Combat injury					
Not injured (reference group)				1.00	
Injured		1.32	.67	3.73*	(1.01-14.79)
Peri-trauma coping/dissociation		.02	.33	1.02	(.53-1.96)
Step 4: Post-trauma variables	.21				

*Note.* Cox & Snell's  $R^2 = .46$ , Nagelkerke's  $R^2 = .62$ . Prediction success overall was 80% (81% for non-PTSD and 79% for PTSD). \* $p < .05$

*Research Objective 2 – How do pre-trauma, peri-trauma, and post-trauma variables work together to influence the severity of PTSD symptoms among Latino veterans?*

A hierarchical multiple regression analysis was performed to test how pre-trauma, peri-trauma, and post-trauma variables work together to influence the severity of PTSD symptoms. Table 5 shows the results of hierarchical multiple regression analysis, including changes in  $R^2$  for each set of predictor variables, and  $B$ ,  $\beta$ ,  $t$ , and  $p$  for the final model. Variables were entered into the regression analysis as sets in four steps based on the conceptual model that was presented in this study and in an order reflecting their presumed chronological occurrence. The variables were coded and entered in the same manner as was done for the logistic regression.

As can be seen in Table 5, all steps of the multiple regression were statistically significant. In the final model, none of the variables entered in the first or second step (pre-trauma variables) remained significant. All models are presented in Appendix F. Combat exposure ( $t = 3.93$ ,  $p < .0005$ ), stress appraisal ( $t = -3.55$ ,  $p = .001$ ), and peri-trauma coping/dissociation ( $t = 2.68$ ,  $p = .01$ ) were entered in the third block and remained significant in the final model. Dysfunctional coping ( $t = 3.62$ ,  $p < .0005$ ) was entered in the final step and was a significant predictor of possible PTSD. Combat exposure was almost statistically significant at the  $p < .10$  level in the final model.

Thus, controlling for the other variables in the model, respondents who had greater exposure to combat, a more negative view of stress, had greater experiences of dissociation, and who currently use more dysfunctional methods of coping had greater PTSD symptom severity. There was also a trend towards greater combat exposure

predicting increased symptom severity. Overall, the final model accounted for 72% of the variance in PTSD symptom severity. The adjusted  $R^2$  for the final model (66%) indicated that one could expect to find 66% of the variance in PTSD symptom severity accounted for by these variables in another sample, suggesting that this model may cross-validate well. Looking at each set of predictors, step one accounted for 23% of the variance in PTSD symptom severity, step two accounted for 7%, step three accounted for 36%, and step four accounted for 5% of the variance in PTSD symptom severity.

**Table 5.** Summary of Hierarchical Multiple Regression Analysis for Variables Predicting Severity of PTSD Symptoms ( $N = 110$ ) Final Model

<b>Variable</b>	<b>Step <math>R^2</math></b>	<b>Step <math>F</math></b>	<b><math>B</math></b>	<b><math>SE B</math></b>	<b><math>\beta</math></b>	<b><math>t</math></b>
Step 1: Pre-trauma social variables	.23	4.35*				
Birthplace**						
Non-U.S.			.04	.20	.01	.19
Mother's birthplace**						
Non-U.S.			-.01	.15	-.004	-.06
Child income**						
Low income			.10	.14	.04	.69
Current income**						
Low income			.18	.14	.07	1.30
Education**						
Some college or higher			-.19	.17	-.06	-1.10
Original military status**						
National Guard/Reserve			.002	.16	.001	.01
Never deployed			-.05	.27	-.01	-.19
Childhood adversity			-.11	.43	-.02	-.24
Step 2: Pre-trauma cultural variables	.30	4.52*				
Acculturation			-.09	.14	-.04	-.63
Familialism			-.02	.12	-.01	-.19
Discrimination			.02	.10	.02	.24
Step 3: Peri-trauma variables	.66	14.70*				
Combat exposure			.28	.07	.27	3.93*
Stress appraisal			-.44	.12	-.31	-3.55*
Combat injury						
Not injured			-.27	.16	-.11	-1.72
Peri-trauma coping/dissociation			.19	.07	.17	2.68*
Step 4: Post-trauma variables	.72	13.56*				
Post-trauma Coping						
Emotion-focused			-.11	.16	-.06	-.72
Problem-focused			.18	.12	.11	1.45
Dysfunctional			.55	.15	.27	3.62*
Social support			-.01	.15	-.01	-.08
Fatalism			-.09	.30	-.02	-.29

*Note.* \* $p < .05$  \*\*Reference category for birthplace and mother's birthplace is "U.S.". Reference category for child and current income is "high/middle income." Reference category for education is "high school or less." Reference category for original military status is "active duty." Reference category for combat injury is "injured."

In summary, although most of the cultural variables were correlated with PTSD in the bivariate analyses, they were no longer significant in the multivariate models when stronger predictors were included. Combat exposure and stress appraisal predicted the development of PTSD and PTSD symptom severity in the multivariate models. Whereas combat injury predicted PTSD development, it was not as strong a predictor of PTSD symptom severity. Peri-trauma coping/dissociation and dysfunctional post-trauma coping predicted PTSD symptom severity, but were not strongly correlated with the development of PTSD. A discussion of the results, strengths and limitations, and implications for practice, theory, and future research are included in the following chapter.

## Chapter 4

### *Discussion*

The results of this study emphasize and reiterate the long-term effects of war on veterans. Overall findings from this study indicate that strong relationships exist between variables directly related to war (e.g., combat exposure and injury) and PTSD; cultural variables were not predictive of PTSD after taking war variables into consideration. The existing body of literature reviewed for this study highlights the dearth of quantitative research available on the relationship between cultural factors and PTSD, and specifically on Latino veterans and PTSD. In previous studies, some cultural variables were not included (e.g., Galea et al., 2004; Perilla et al., 2002; Pole et al., 2005), and only one study was located that looked specifically at Latino veterans (Escobar et al., 1983).

The current study was designed to build on existing studies with the purpose of developing a model of traumatic stress based on theory and current research. Because all of the constructs included in the proposed model are not effectively captured in the literature, some constructs, though operationalized by measures used in the trauma literature and literature on the Latino culture, were included on the basis of the theory and existing studies used to inform this study. Given that some of the constructs in the conceptual model do not appear to have been applied to previous research on Latino veterans and PTSD, this study contributes empirical support for factors associated with the development of PTSD and severity of PTSD symptoms for Latino veterans that may not be present in the literature. Some of the findings in the present study are similar to or build upon those that are located in the existent body of literature. Some results were not supportive of previous literature, because certain variables included in the model were

not statistically significant predictors of PTSD or severity of PTSD symptoms. None of the results contradicted previous literature.

### Findings Summarized

#### *The Development of PTSD*

The first research objective of this study was to explore what pre-trauma, peri-trauma, and post-trauma social and cultural variables are correlated with the development of PTSD for Latino veterans. Combat exposure and combat injury, as supported by previous studies (Grieger et al., 2006; Hoge et al., 2004; Koren et al., 2005), predicted PTSD in this sample. Stress appraisal, as in earlier studies (Iversen et al., 2008; Litz et al., 2004), was a significant predictor of PTSD in this sample.

Although the literature suggests that high-aculturated Latinos may be at greater risk of developing PTSD (Ortega et al., 2000; Alegría et al., 2007), acculturation was not a significant predictor of PTSD in this study. Approximately half of the respondents scored in the positive range for PTSD and half scored in the negative range. It is possible that there was a ceiling effect of the measure; it is also possible that, as proposed by Leal (2003), the overall high acculturation level of the sample was the result of all sample members having served in the military. Additional pre-trauma variables were explored in this study, as they were supported in the literature as contributing to the vulnerability of Latino veterans. None of the pre-trauma variables (i.e., birthplace, mother's birthplace, family income as a child, current income, education, original military status, and childhood adversity) predicted PTSD in this study. It should be noted that the statistics for childhood adversity in the logistic regression were a bit extreme (i.e., OR is .04 in Table 4.1, then becomes non-significant in Table 4.2 and the effect changes direction in

Table 4.4). Upon further examination of descriptive statistics and a chi-square, it was determined that a much smaller number of respondents experienced higher levels of childhood adversity, and this smaller number was linked to the dependent variable.

Additional cultural variables were explored as potential predictors of PTSD in this study, including familialism, perceived discrimination, and fatalism. Although strong bivariate relationships existed between each cultural variable and PTSD, familialism and discrimination were not predictors of PTSD in the multivariate models. Because fatalism was included in the final non-significant step of the logistic regression analysis, this predictor was not individually interpreted. If the final step was statistically significant, fatalism would have been interpreted as non-significant.

Peri-trauma coping, specifically dissociation, was established in previous literature (Breh & Seidler, 2007; Denson et al., 2007; Ozer et al., 2003; Pole et al., 2005, 2001; Vukšić-Mihaljević et al., 2000) as directly predicting PTSD, but was not a significant predictor of PTSD in this sample controlling for all other variables in the model. Post-trauma social support, although consistently found to predict PTSD in the literature (Galea et al., 2004; Galea et al., 2008; Ozer et al., 2003; Pole et al., 2005; Vukšić-Mihaljević et al., 2000), was included in the final non-significant step of the logistic regression analysis and was not individually interpreted. Post-trauma coping, also included in the final non-significant step, was not individually interpreted. If the final step was statistically significant, post-trauma support and post-trauma coping (i.e., emotion-focused, problem-focused, dysfunctional) would have been interpreted as non-significant.

### *Severity of PTSD Symptoms*

The second research objective of this study was to examine what pre-trauma, peri-trauma, and post-trauma variables contribute to the severity of PTSD symptoms for Latino veterans. Similar to earlier studies (Galea et al., 2004; Hoge et al., 2004; King et al., 1996; Orcutt et al., 2004), increased combat exposure predicted more severe PTSD symptoms in this study. Being injured in combat was also related to increased PTSD symptom severity, as in previous studies (Grieger et al., 2006; Hoge et al., 2004; Koren et al., 2005).

The finding in this study that increased peri-trauma coping/dissociation predicted increased PTSD symptom severity is supported by earlier studies (e.g., Pole et al., 2005, 2001). Dysfunctional methods of coping (e.g., self-blame and wishful thinking) have been correlated with PTSD previously (see Denson et al., 2007; Pole et al., 2005). Similarly, higher levels of dysfunctional coping predicted increased PTSD symptom severity in this study. Emotion-focused and problem-focused post-trauma coping were not related to PTSD symptom severity, possibly due to minimal variability in those variables in this study, and perhaps because “ways of knowing” among Latinos likely include multiple dimensions of knowledge, such as spiritual, that vary among the culture and were not included.

Pre-trauma variables, included because they were noted in the literature to possibly increase vulnerability to PTSD (i.e., birthplace, mother’s birthplace, family income as a child, current income, education, and original military status) were not related to PTSD symptom severity in the present study. Experiencing adverse events during childhood, a risk factor for PTSD supported in previous studies (e.g., Breslau,

2002; Cabrera et al., 2007; Neria et al., 2007; Denson et al., 2007) was not related to PTSD symptom severity in the present study. Additional cultural variables, including acculturation, familialism, perceived discrimination, and fatalism, were not related to PTSD symptom severity in the present study, although they were supported in the literature. Decreased post-trauma social support led to increased PTSD symptom severity in previous studies (Galea et al., 2004; Galea et al., 2008; Ozer et al., 2003; Pole et al., 2005), but those results were not supported by the present study. It should be noted that this is the first study to look at all of these factors together. Although many significant social and cultural variables were found in bivariate analyses (consistent with earlier studies), once entered into the multivariate analyses they became non-significant in the context of other stronger variables. Thus, the difference in findings between this study and some previous studies may be due to the multivariate approach used in this study.

### *Conceptual Model*

The conceptual model tested in this study is grounded in stress and coping theory (Lazarus & Folkman, 1984) and is enhanced with social and cultural variables drawn from previous, relevant studies. The individual variables that predicted PTSD and/or severity of PTSD symptoms in this study (i.e., combat exposure, combat injury, stress appraisal, peri-trauma coping/dissociation) emphasize the importance of the peri-trauma phase. The importance of post-trauma coping is highlighted by the strong correlation between dysfunctional coping and PTSD symptom severity.

Although the cultural factors and many of the social factors did not individually predict PTSD or severity of PTSD symptoms in the full models, the conceptual model as a whole performed well and the individual predictors worked well together as sets to

predict PTSD and PTSD symptom severity. This indicates that factors related to ethnicity may be of importance in models predicting PTSD and PTSD symptom severity and should be considered.

#### Strengths and Limitations of the Study

There are both strengths and limitations associated with the present research. Attempts were made to minimize potential limitations in planning for this study by taking into consideration limitations of the research design and limitations identified in previous relevant research. Although limited by the relative lack of a systematic body of literature on which to build, this exploratory study has a strong theoretical foundation and is supported by related bodies of existing literature. In doing so, this study contributes to forming a foundation of systematic research for future studies.

Because of the cross-sectional design of the present study, internal validity must be considered, specifically because there may be problems with meaning (e.g., model specificity, confounding variables) (de Vaus, 2001). However, pre-trauma factors were controlled for during the data analysis stage that might plausibly explain the correlations that were observed. Also, although causal relationships could not be confirmed, correlations were observed and it could be established that certain causal relationships between variables did not exist. In addition, the conceptual model tested in this study, grounded in theory and prior research, was developed prior to beginning this study, and *a priori* models can be used to evaluate if the model fits the data. Likewise, because some of the independent variables were fixed (e.g., demographic and childhood variables, some cultural factors), the causal direction of some relationships could be easily established.

This study was limited in its use of self-report surveys. Crano and Brewer (2002) pointed out that study participants may experience evaluation apprehension or social desirability concerns, causing them to adjust or conform their responses to meet personal or social standards. However, participation was voluntary, and all responses were confidential and anonymous, which might have served to minimize the potential for socially desirable responses. Aday and Cornelius (2006) affirmed that over-reporting and under-reporting can be a limitation of designs that use self-report methods. Also, they cautioned that a respondent's ability to recall events may be limited by the amount of time that has passed since the event occurred and by the significance of the event to the respondent.

Although attempts were made to include all potentially relevant factors in the model, other variables might exist that were not identified or controlled for that might have had an impact on the findings, and some variables were beyond the scope of the study. For example, religious beliefs and spirituality have been reported as influential in PTSD (Comas-Díaz, 2006), but were not included because they were beyond the scope of the study. This study was also limited by the fact that data were collected from Latino veterans enrolled in a San Francisco Bay Area VA health care system; although one of the largest and most diverse VA health care systems in the nation, the sample may not be representative of all Latino veterans, therefore the generalizability of findings may be limited. Generalizability may also be limited because all of the participants in this study were enrolled for treatment at the VA; results may not be the same for Latino veterans not currently receiving treatment. In addition, data was collected in English only, potentially limiting the range of respondents.

A limitation to be underscored in this study was the problem of not being able to differentiate the various Latino ethnic groups due to the overall small sample size and the wide range of subgroups within the sample. The term “Latino” includes people from many different ethnic groups with different experiences of history, colonization, cultural customs, foods, etc. These differences are notable in that members of different cultural subgroups may perceive experiences and manifest symptoms in different ways, and what may be a risk factor in one subgroup may be a protective factor in another subgroup. Ways that an individual experiences distress are not based only on individual characteristics and the life history of the person, but must be considered within the social and cultural context of the person.

A strong point of this study was the sample, which included a nearly equal number of respondents with PTSD and respondents without PTSD. Also, there was a minimal amount of missing data. However, with an overall response rate of only 32% and 110 usable responses in each of the multivariate analyses, power was limited for the multivariate regression analyses (power = .68; Power and Precision 4 software, 2010). The present study sample size was small for analyses with 19 predictors, and it is possible that the regression equations may be over-fitted to the current sample.

In most cases, internal consistency reliability for the measures was high in this study’s sample. In the case of the MACC-SF (measuring fatalism), however, internal consistency reliability was higher in this study’s sample than in a previous study (Cuéllar et al., 1995), yet still did not meet the threshold for adequate reliability typically accepted in social science research. Therefore, results for fatalism must be interpreted with caution. Also, it is possible that there was not enough variability in some of the

individual variables (i.e., emotion-focused coping, problem-focused coping) or ceiling effects in other variables (i.e., acculturation, post-trauma social support) to find statistical significance in the bivariate and multivariate analyses. In addition, it is possible that the effect of childhood adversity was lessened as the result of excluding the items questioning whether the individual experienced childhood sexual abuse, given the strong link between child sexual abuse and PTSD (Molnar, Buka, & Kessler, 2001).

Finally, there were limited valid and reliable measures for the cultural constructs available for this study. Two of the cultural dimensions, acculturation and fatalism, were quite dated and did not accurately reflect the richness of the cultural context. Both are complex, multidimensional constructs, but the available measures were one-dimensional.

### Implications

The findings that emerged out of this exploratory research point to implications in several areas. Implications for practice and theory and suggestions for future research are discussed.

#### *Practice*

The Department of Veterans Affairs (VA) employs over 9,000 social workers (National Association of Social Workers [NASW], 2011), and social workers are employed in all program areas in VA medical centers (U.S. Department of Veterans Affairs, 2009), as well as at vet centers, state veterans homes, and many community based outpatient clinics (U.S. Department of Veterans Affairs, 2011). All VA social workers and other professionals who work with veterans should be knowledgeable about risk and protective factors for PTSD for the veterans they serve, as rates of PTSD are disproportionately high in the veteran population. Although all veterans require and

deserve uniform care (Department of Veterans Affairs, 2008), “color blindness” (Sue, 2003) is not recommended in the provision of mental health services. Culture and life history play roles in the development of mental health disorders and in how mental illness is experienced (Brody, 1994; Kirmayer, 1996) and should be considered when working with clients with mental illness.

Given the potential for increasing rates of PTSD in veterans, VA social workers and others should be aware of the possible implications of factors related to Latino ethnicity when working with Latino veterans with PTSD. In addition to being aware of the effects of combat exposure and injury, peritraumatic dissociation, and dysfunctional post-trauma coping, VA social workers and others should be informed of the strong role that family may play, and how perceived racial and ethnic discrimination might influence PTSD, for example. In practice, those working with Latino veterans should be knowledgeable of the potentially strong relationships between factors related to PTSD and ethnicity. This study provides social workers and other professionals with an understanding of how factors related to Latino ethnicity may impact the experience of trauma among Latino veterans.

This study supports the Council on Social Work Education (CSWE) guidelines for Advanced Social Work Practice in Military Social Work, which states that advanced practitioners in military social work must recognize the potential risk and protective factors among diverse populations and communities that may be the result of military service, and communicate with a culturally responsive approach. They should also recognize the impact of intersectionality of various diversity factors (including, among others, life stage; culture and ethnicity and spirituality) on direct practice. In addition,

information from this study can be applied when providing psychoeducation to families and significant others of Latino veterans, such as emphasizing the potential importance of social support.

### *Theory*

Based on an extensive review of the trauma and multi-cultural mental health literature, it appears that this is the first study of its kind to utilize a comprehensive conceptual model of PTSD development and symptom severity among Latino veterans. Although this conceptual model may be used to increase understanding of the development of PTSD and how PTSD symptom severity may be impacted by social and cultural factors, it is fairly abstract and contains a variety of facets, some of which are difficult to operationalize. For example, familialism is a concept that should be further explored in relation to PTSD but there are not enough sufficiently valid and reliable measures from which to choose.

Refinement of the model will be necessary in order for the model to have continued utility. In particular, a deeper understanding of how factors related to Latino ethnicity interact with pre-, peri-, and post-trauma social factors to influence PTSD is needed. For example, it is likely that there is a bi-directional relationship between social support and PTSD (King et al., 1996); this potential relationship is not captured in the current model.

Stress and coping theory (Lazarus & Folkman, 1984) could be further developed in this cultural context. Based on the results of this study, it is questionable whether all forms of coping are equally important when considering PTSD development and symptom severity. For example, it may not be necessary to separately examine emotion-

focused and problem-focused coping techniques; however, additional studies with greater power should examine this possibility before making this recommendation.

In addition, the theory needs to do more to develop in the area of cultural awareness. For example, the theory could be expanded to include the implications of coping over time and the role that culture may play. Views of family and the need for family support versus general support from friends could be further developed in the coping phase, as well as how beliefs about the future (i.e., fatalism) and perceived discrimination impacts all phases of the stress and coping process.

#### *Suggestions for Future Research*

Although this study provides preliminary evidence for including cultural factors in studies on PTSD development and symptom severity in Latino veterans, in order to fully understand the implications of cultural factors on PTSD, longitudinal studies are needed. Ideally, longitudinal studies would be designed to capture a comprehensive background of pre-military factors prior to deployment, followed by a thorough inventory of peri-trauma factors upon returning from deployment(s), and ending with a follow up interview after exiting the military or after a significant amount of time has passed since the last deployment. There are costs and constraints associated with longitudinal research (i.e., attrition), and additionally the proposed research would take cooperation between the Department of Defense and Department of Veterans Affairs. Taking these potential obstacles into consideration, it is recommended that the research design be refined to better capture change over time, specifically time before, during, and after deployment. Further refinement of the survey instrument utilized in this study to reflect the recommended longitudinal nature will potentially contribute to the development of a

reliable instrument that captures the complex process of PTSD development and the social and cultural variables that impact PTSD symptom severity.

This study was designed to gather data from one VA Health Care System in order to explore whether or not differences actually exist between groups (i.e., PTSD and non-PTSD) on pre-, peri-, and post-trauma social and cultural variables, and whether factors related to Latino ethnicity impact PTSD symptom severity. Because those differences and variables have been preliminarily established and support the theoretical model, it will be important for future research in this area to compare multiple VA Health Care Systems to start the process of comparing contexts. Ideally, a national sample might locate differences among VA systems and address considerations regarding how region may impact social and cultural factors and ultimately the development of PTSD and PTSD symptom severity. In addition, with a large enough sample size, the sample should be evaluated according to Latino subgroups, as the similarities and differences between subgroups are great. Examining PTSD by subgroup will provide rich information for those caring for Latino clients and will contribute to the foundation of knowledge for future treatment development. Likewise, examining the sample by subgroups of active duty, National Guard, and reserve members may provide additional information on risk and protective factors for PTSD (Browne, Hull, Horn, Jones, Murphy, Fear, Greenberg, et al., 2007; Kang, Natelson, Mahan, Lee, & Murphy, 2003; Milliken, Auchterlonie, & Hoge, 2007; Nisenbaum, Barrett, Reyes, & Reeves, 2000).

Future research should also include a qualitative component, preferably conducted by Spanish-speaking researchers and assistants, to explore aspects of the theoretical model that are not captured well in quantitative studies. Rich data could be derived from

questions regarding factors related to Latino ethnicity that are difficult to operationalize in quantitative studies, such as acculturation, familialism, and fatalism. In addition to enhancing the understanding of PTSD among Latino veterans, qualitative research will also inform potential adaptations in the conceptual model and lead to new variables and issues to be included in further quantitative research in this area. Specifically, failure to seek treatment (Brinker et al., 2007), spirituality/religious beliefs (Comas-Díaz, 2006), multiple deployments (Polusny, Erbes, Arbisi, Thuras, Kehle, Rath, Courage, Reddy, & Duffy, 2009; Reger, Gahm, Swanson, & Duma, 2009), alexithymia (McCaslin, Metzler, Best, Liberman, Weiss, Fagan, & Marmar, 2006), length of service (Vincent, Chamberlain & Long, 1994) and unit cohesion (Browne et al., 2007; Fontana, Rosenheck & Horvath, 1997), sequelae of injury (Schneiderman, Braver, & Kang, 2008) and cultural idioms of distress (Osterman & de Jong, 2007) have been linked to PTSD in a limited amount of research and should be further explored in the Latino veteran population.

The concept of perceived racism should also be further explored, particularly in comparative studies that include people from different races and ethnicities, as research has found that exposure to racism and marginalization can be a greater predictor of PTSD than combat exposure (Loo, Fairbank, Scurfield, Ruch, King, Adams, & Chemtob, 2001). It is possible that Latinos do not have the same degree of protective factors in their culture to help them deal with discriminatory encounters (e.g., stereotype threat, microaggressions, microinvalidations). This is a topic that should be considered in future research on PTSD and diverse populations. In addition, female veterans and the role of military sexual trauma (MST) should be included in future studies, as 1 in 100 men and 1 in 5 female service members are MST survivors (U.S. Department of Veterans Affairs,

2011), and there is a strong correlation between sexual trauma and PTSD in the literature (Fierman, Hunt, Pratt, Warshaw, Yonkers, Peterson, Epstein-Kaye, & Norton, 1993).

Finally, given the lack of concise, multidimensional, valid and reliable measures available for cultural constructs, it is recommended that additional measures be developed and tested in the Latino population. Acculturation, familialism, and fatalism, for example, are complex cultural constructs that could be included in many areas of study that involve Latinos. Having access to adequate measures could allow researchers the ability to access richer data more efficiently.

### Conclusion

Findings from this study provide preliminary support for the idea that social and cultural factors related to Latino ethnicity may impact the development of PTSD and PTSD symptom severity. Although the connection between symptoms and culture may often be overlooked in the health care profession (Balls Organista et al., 2003), this study lends support to the importance of considering an individual's distress within that person's social and cultural context (Kirmayer, 1996), in accordance with their life history (Brody, 1994). The present study also provides a preliminary foundation for the cultural traumatic stress model recommended by Osterman and de Jong (2007) to explore the role and implications of culture in the traumatization process.

A key strength of the proposed study is its contribution to the literature on trauma, ethnicity, and coping. As nearly 20% of those returning from the Iraq and Afghanistan wars have been exposed to catastrophic events (Hoge et al., 2004; Hoge et al., 2007), it is necessary to develop successful treatments for Latino veterans with PTSD that are culturally appropriate and sensitive to the unique needs of Latinos. This timely study

potentially forms the basis for future research that will examine culturally appropriate treatment methods and develop evidence-based practices that recognize the link between cultural factors and mental health outcomes. As the percentage of Latinos increases in the U.S. population and in the military, the outcomes of the present and future studies will become even more relevant to those who serve veterans. In addition, the current study upholds the mission of the Office of Veterans Affairs by contributing meaningful research committed to the highest standards of professionalism with the purpose of serving and honoring America's veterans.

Appendix A

March 1, 2010

Dear Veteran:

You have been selected to participate in an important research project being conducted at the VA Palo Alto Health Care System. A few days from now you will receive in the mail a questionnaire that concerns the relationships between social and cultural factors and military experiences and outcomes. Your participation in this study is voluntary.

The number of Latinos serving in the U.S. military is increasing, and this study is important because it will help researchers and clinicians better understand how Latinos experience military situations. Following their time in the service, all veterans deserve treatment that is culturally relevant, and the results of this study will assist in the development of interventions specifically for Latino veterans.

Thank you for your time and consideration. It's only with the generous help of people like you that this research can be successful. If you have any questions or concerns, please contact me at 650.493.5000 ext. 25000.

Sincerely,

Ann L. LeFevre, MSW, LCSW  
VA Palo Alto Health Care System  
Menlo Park Division

P.S. The forthcoming questionnaire will take approximately 30 minutes to complete. I will be enclosing a small monetary token of appreciation with the questionnaire as a way of saying thank you.

Appendix B

**ETHNICITY AND MILITARY EXPERIENCES SURVEY**

Thank you for your participation in this study examining the relationships between ethnicity and military experiences. This survey asks questions about your background, cultural beliefs, experiences in the armed forces, and post-military experiences. Your responses will remain completely confidential. This survey takes approximately 30 minutes to complete. Please respond within one week. Thank you!!

**Section A**

*Please circle your answers.*

	Only Spanish	More Spanish than English	Both equally	More English than Spanish	Only English
A1. In general, what language(s) do you read and speak?	1	2	3	4	5
A2. What was the language(s) you used as a child?	1	2	3	4	5
A3. What language(s) do you usually speak at home?	1	2	3	4	5
A4. In which language(s) do you usually think?	1	2	3	4	5
A5. What language(s) do you usually speak with your friends?	1	2	3	4	5
A6. In what language(s) are the T.V. programs you usually watch?	1	2	3	4	5
A7. In what language(s) are the radio programs you usually listen to?	1	2	3	4	5
A8. In general, what language(s) are the movies, T.V. and radio programs you prefer to watch and listen to?	1	2	3	4	5
	All Latinos/Hispanics	More Latinos than Americans	About half and half	More Americans than Latinos	All Americans
A9. Your close friends are...	1	2	3	4	5
A10. You prefer going to social gatherings/parties at which people are...	1	2	3	4	5
A11. The persons you visit or who visit you are...	1	2	3	4	5
A12. If you could choose your children's friends you would want them to be...	1	2	3	4	5

## Section B

Please write your answer on the line.

B1. Where were you born?	_____					
B2. Where was your mother born?	_____					
<i>Please circle your answers.</i>						
B3. Growing up, was your family...	High income	Middle income	Low income			
B4. Currently, would you consider yourself...	High income	Middle income	Low income			
B5. What is your highest education level?	Did not complete high school	High school graduate or GED	Some college or higher			
B6. Prior to deployment, were you...	Active Duty	National Guard/Reserve	Not applicable (Never deployed)			
B7. In what conflict did you serve?	OEF/OIF	Vietnam	Korea	WWII	Peace-time	Other
<i>Please circle the response that best represents your experiences when you were growing up.</i>						
B8. I did <u>not</u> come from a close family.	True	False				
B9. I used to get shouted at a lot at home.	True	False				
B10. I often used to play truant from school.	True	False				
B11. I did <u>not</u> feel valued by family.	True	False				
B12. I regularly used to see fighting between my parents.	True	False				
B13. There was no one in my family I could talk to.	True	False				
B14. I was regularly hit or hurt by a parent or caregiver.	True	False				
B15. My parents had problems with alcohol or drugs.	True	False				
B16. My family did <u>not</u> used to do things together.	True	False				
B17. I did <u>not</u> have a special teacher/youth worker/family friend who looked out for me.	True	False				
B18. I was often in fights at school.	True	False				
B19. I had <u>no</u> activity which made me feel special/proud.	True	False				
B20. I was suspended or expelled from school.	True	False				
B21. I had problems with reading and writing at school.	True	False				
B22. I had problems and trouble with the police.	True	False				

*(Continued) Please circle the response that best represents your experiences when you were growing up.*

B23. I spent time in foster or residential care.	True	False
B24. I was adopted.	True	False
B25. I received mental health counseling (e.g., outpatient counseling or inpatient hospitalization for depression).	True	False
B26. One or both of my parents did not have a job for a long time when they wanted to work.	True	False
B27. One or both of my parents died.	True	False
B28. I had a major illness or accident that required me to spend a week or more in the hospital.	True	False
B29. I was involved in a life-threatening accident.	True	False
B30. I witnessed someone being badly injured or killed.	True	False
B31. I had a household member who may have been depressed or mentally ill.	True	False
B32. I was a victim of a fire, flood, or natural disaster.	True	False

### Section C

This questionnaire will deal with how you think and feel about the stressful events that you encounter. So, for the purpose of this questionnaire, please tell us how you generally think and feel when you encounter stressful events. With this in mind, read each statement below and then circle the appropriate answer on the scale provided for you.

	Not at all	A little bit	About half the time	The majority of the time	A great amount
C1. I have the ability to overcome stress.	0	1	2	3	4
C2. I perceive stress as threatening.	0	1	2	3	4
C3. I feel totally helpless.	0	1	2	3	4
C4. There is someone I can turn to for help.	0	1	2	3	4
C5. I can positively attack stressors.	0	1	2	3	4
C6. I have what it takes to beat stress.	0	1	2	3	4
C7. I feel anxious.	0	1	2	3	4
C8. Stressful events impact me greatly.	0	1	2	3	4
C9. It is beyond my control.	0	1	2	3	4
C10. There is help available to me.	0	1	2	3	4
C11. I am eager to tackle problems.	0	1	2	3	4

	Not at all	A little bit	About half the time	The majority of the time	A great amount
C12. The outcome of stressful events is negative.	0	1	2	3	4
C13. The event has serious implications for my life.	0	1	2	3	4
C14. No one has the power to overcome stress.	0	1	2	3	4
C15. I feel I can become stronger after experiencing stress.	0	1	2	3	4
C16. I have the skills necessary to overcome stress.	0	1	2	3	4
C17. Stress has a negative impact on me.	0	1	2	3	4
C18. There are long-term consequences as a result of stress.	0	1	2	3	4
C19. I am excited about the potential outcome.	0	1	2	3	4

### Section D

*Please circle your answer.*

D1. Were you injured during combat?	Yes	No
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### Section E

*Please circle the response that best describes your experiences.*

	1	2	3	4	5
E1. Did you ever go on combat patrols or have other dangerous duty?	No	1-3 times	4-12 times	13-50 times	51+ times
E2. Were you ever under enemy fire?	Never	<1month	1-3 months	4-6 months	7 months or more
E3. Were you ever surrounded by the enemy?	No	1-2 times	3-12 times	13-25 times	26+ times
E4. What percentage of the soldiers in your unit were killed (KIA), wounded or missing in action (MIA)?	None	1-25%	26-50%	51-75%	76% or more
E5. How often did you fire rounds at the enemy?	Never	1-2 times	3-12 times	13-50 times	51 or more
E6. How often did you see someone hit by incoming or outgoing rounds?	Never	1-2 times	3-12 times	13-50 times	51 or more
E7. How often were you in danger of being injured or killed (i.e., being pinned down, overrun, ambushed, near miss, etc.)?	Never	1-2 times	3-12 times	13-50 times	51 or more

## Section F

Below is a list of problems and complaints that veterans sometimes have in response to stressful military experiences. Please read each one carefully, then circle the number that indicates how much you have been bothered by that problem in the last month.

	Not at all	A little bit	Moderately	Quite a bit	Extremely
F1. Repeated, disturbing <i>memories, thoughts, or images</i> of a stressful military experience?	1	2	3	4	5
F2. Repeated, disturbing <i>dreams</i> of a stressful military experience?	1	2	3	4	5
F3. Suddenly <i>acting or feeling</i> as if a stressful military experience were <i>happening again</i> (as if you were reliving it)?	1	2	3	4	5
F4. Feeling very <i>upset</i> when <i>something reminded you</i> of a stressful military experience?	1	2	3	4	5
F5. Having <i>physical reactions</i> (e.g. heart pounding, trouble breathing, or sweating) when <i>something reminded you</i> of a stressful military experience?	1	2	3	4	5
F6. Avoid <i>thinking about or talking about</i> a stressful military experience from the past or avoid <i>having feelings</i> related to it?	1	2	3	4	5
F7. Avoid <i>activities or situations</i> because <i>they remind you</i> of a stressful military experience?	1	2	3	4	5
F8. Trouble <i>remembering important parts</i> of a stressful military experience?	1	2	3	4	5
F9. Loss of <i>interest in things that you used to enjoy</i> ?	1	2	3	4	5
F10. Feeling <i>distant or cut off</i> from other people?	1	2	3	4	5
F11. Feeling <i>emotionally numb</i> or being unable to have loving feelings for those close to you?	1	2	3	4	5
F12. Feeling as if your <i>future will somehow be cut short</i> ?	1	2	3	4	5
F13. Trouble <i>falling asleep or staying asleep</i> ?	1	2	3	4	5
F14. Feeling <i>irritable</i> or having <i>angry outbursts</i> ?	1	2	3	4	5
F15. Having <i>difficulty concentrating</i> ?	1	2	3	4	5
F16. Being " <i>super alert</i> " or watchful on guard?	1	2	3	4	5
F17. Feeling <i>jumpy</i> or easily startled?	1	2	3	4	5

## Section G

Now I would like you to try to remember how you felt and what you experienced at the time of your most disturbing military-related incident and immediately afterward. Following are some statements that may describe how you felt during that period, and I'd like you to tell me how true each statement was for you.

	Not at all true	Slightly true	Somewhat true	Very true	Extremely true
G1. I "blanked out" or "spaced out" or in some way felt that I was not part of what was going on.	1	2	3	4	5
G2. Things seemed to be happening in slow motion (very slowly).	1	2	3	4	5
G3. What was happening didn't seem real, like I was in a dream or watching a movie.	1	2	3	4	5
G4. I felt like I was watching what was happening to me, like I was floating above the scene or watching it as an outsider (from the outside in).	1	2	3	4	5
G5. I felt separate or disconnected from my body or like my body was unusually large or small (not normal size - too large or too small).	1	2	3	4	5
G6. Things happened that I didn't notice, even though I normally would have noticed them.	1	2	3	4	5
G7. I felt confused or couldn't make sense of what was happening.	1	2	3	4	5
G8. There were moments when I wasn't sure about where I was or what time it was.	1	2	3	4	5

## Section H

Please circle the response that best describes your beliefs.

H1. It is more important to enjoy life now than to plan for the future.	True	False
H2. People die when it is their time and there is not much that can be done about it.	True	False
H3. We must live for the present, who knows what the future may bring.	True	False
H4. If my doctor said I was disabled, I would believe it even if I disagreed.	True	False
H5. It is not always wise to plan too far ahead because many things turn out to be a matter of good and bad fortune anyway.	True	False
H6. It doesn't do any good to try to change the future because the future is in the hands of God.	True	False
H7. When I make plans, I am almost certain I can make them work.	True	False
H8. I sometimes feel that someone controls me.	True	False

## Section I

Please circle the response that best describes how you feel.

	Definitely true	Somewhat true	Somewhat false	Definitely false
I1. When I feel lonely, there are several people I can talk to.	0	1	2	3
I2. I often meet or talk with family or friends.	0	1	2	3
I3. If I were sick, I could easily find someone to help me with my daily chores.	0	1	2	3
I4. When I need suggestions on how to deal with a personal problem, I know someone I can turn to.	0	1	2	3
I5. If I had to go out of town for a few weeks, it would be difficult to find someone who would look after my house or apartment.	0	1	2	3
I6. There is at least one person I know whose advice I really trust.	0	1	2	3

## Section J

Please think about your ethnicity/race. How often have any of the things listed below happened to you, because of your ethnicity?

How often...	Never		Sometimes		Very Often
J1. Have you been treated unfairly by teachers, principals, or other staff at school?	1	2	3	4	5
J2. Have others thought you couldn't do things or handle a job?	1	2	3	4	5
J3. Have others threatened to hurt you (ex: said they would hit you)?	1	2	3	4	5
J4. Have others actually hurt you or tried to hurt you (ex: kicked or hit you)?	1	2	3	4	5
J5. Have policemen or security officers been unfair to you?	1	2	3	4	5
J6. Have others threatened to damage your property?	1	2	3	4	5
J7. Have others actually damaged your property?	1	2	3	4	5
J8. Have others made you feel like an outsider who doesn't fit in because of your dress, speech, or other characteristics related to your ethnicity?	1	2	3	4	5
J9. Have you been treated unfairly by co-workers or classmates?	1	2	3	4	5
J10. Have others hinted that you are dishonest or can't be trusted?	1	2	3	4	5
J11. Have people been nice to you to your face, but said bad things about you behind your back?	1	2	3	4	5
J12. Have people who speak a different language made you feel like an outsider?	1	2	3	4	5
J13. Have others ignored you or not paid attention to you?	1	2	3	4	5

	Never	Sometimes			Very Often
J14. Has your boss or supervisor been unfair to you?	1	2	3	4	5
J15. Have others hinted that you must not be clean?	1	2	3	4	5
J16. Have people not trusted you?	1	2	3	4	5
J17. Has it been hinted that you must be lazy?	1	2	3	4	5

### Section K

*These items deal with ways you've been coping with the stress in your life since your time in the military. There are many ways to try to deal with problems. These items ask what you've been doing to cope since your most recent tour of duty. Obviously, different people deal with things in different ways, but I'm interested in how you've tried to deal with problems since returning. Each item says something about a particular way of coping. I want to know to what extent you've been doing what the item says. How much or how frequently. Don't answer on the basis of whether it seems to be working or not – just whether or not you're doing it. Try to rate each item separately in your mind from the others. Make your answers as true FOR YOU as you can. Please circle your response choices.*

	I haven't been doing this at all	I've been doing this a little bit	I've been doing this a medium amount	I've been doing this a lot
K1. I've been turning to work or other activities to take my mind off things.	1	2	3	4
K2. I've been concentrating my efforts on doing something about the situation I'm in.	1	2	3	4
K3. I've been saying to myself "this isn't real."	1	2	3	4
K4. I've been using alcohol or other drugs to make myself feel better.	1	2	3	4
K5. I've been getting emotional support from others.	1	2	3	4
K6. I've been giving up trying to deal with it.	1	2	3	4
K7. I've been taking action to try to make the situation better.	1	2	3	4
K8. I've been refusing to believe that it has happened.	1	2	3	4
K9. I've been saying things to let my unpleasant feelings escape.	1	2	3	4
K10. I've been getting help and advice from other people.	1	2	3	4
K11. I've been using alcohol or other drugs to help me get through it.	1	2	3	4
K12. I've been trying to see it in a different light, to make it seem more positive.	1	2	3	4
K13. I've been criticizing myself.	1	2	3	4
K14. I've been trying to come up with a strategy about what to do.	1	2	3	4
K15. I've been getting comfort and understanding from someone.	1	2	3	4
K16. I've been giving up the attempt to cope.	1	2	3	4

	I haven't been doing this at all	I've been doing this a little bit	I've been doing this a medium amount	I've been doing this a lot
K17. I've been looking for something good in what is happening.	1	2	3	4
K18. I've been making jokes about it.	1	2	3	4
K19. I've been doing something to think about it less, such as going to movies, watching TV, reading, daydreaming, sleeping, or shopping.	1	2	3	4
K20. I've been accepting the reality of the fact that it has happened.	1	2	3	4
K21. I've been expressing my negative feelings.	1	2	3	4
K22. I've been trying to find comfort in my religion or spiritual beliefs.	1	2	3	4
K23. I've been trying to get advice or help from other people about what to do.	1	2	3	4
K24. I've been learning to live with it.	1	2	3	4
K25. I've been thinking hard about what steps to take.	1	2	3	4
K26. I've been blaming myself for things that happened.	1	2	3	4
K27. I've been praying or meditating.	1	2	3	4
K28. I've been making fun of the situation.	1	2	3	4

## Section L

Please circle the number that best describes how much you agree with each statement.

	Strongly disagree	Somewhat disagree	Somewhat agree	Strongly agree
L1. I often turn to my family for social and emotional support.	1	2	3	4
L2. Learning about the traditions, customs, values, and beliefs of my family is important to me.	1	2	3	4
L3. My family is central to who I am.	1	2	3	4
L4. I know I can always count on my family to help me.	1	2	3	4
L5. It is important to me to respect decisions made by my family.	1	2	3	4
L6. Family is more important to me than almost anything else.	1	2	3	4
L7. Whenever my family needs something, I try to help.	1	2	3	4

Please remember that your participation in this survey is voluntary. By returning this completed survey, you are giving your permission to allow the researcher to use the information provided for research purposes. Thank you for your participation. Please return the survey in the enclosed envelope. The completed survey should be mailed to:

Ann LeFevre, MSW, LCSW  
VA Menlo Park  
Mail Code 122  
795 Willow Road  
Menlo Park, CA 94025

If you have any questions or concerns, please call Ann LeFevre at 650.493.5000 ext. 25000.

Appendix C  
March 4, 2010

Dear Veteran:

A few days ago you received a letter in the mail notifying you that you were selected to participate in a study being conducted at the VA Palo Alto Health Care System. I am writing now to ask for your help in this study concerning the experiences and outcomes of Latinos in the military.

It's my understanding that you are of Latino ethnicity and that you served in the U.S. military. I am contacting a random sample of Latino veterans that are enrolled at the VA Palo Alto Health Care System to ask questions relating to culture and military experiences.

Results from the survey may be used in the development of culturally relevant treatments and interventions for Latino veterans. By understanding how culture influences the experience of potentially stressful military situations for Latino veterans, researchers and clinicians can do a better job of developing treatments and providing high-quality services.

Your answers are completely confidential and will be released only as summaries in which no individual's answers can be identified. When you return your completed questionnaire, your name will be deleted from the mailing list and never connected to your answers in any way. This survey is voluntary and you can choose to end your participation at any time. Some participants may find some of the questions to be sensitive or personal in nature, however, your honest answers will be very helpful in fulfilling the goals of the study. If at any time during your participation you feel like your personal safety is in danger, please call 911 or the National Suicide Lifeline at 1-800-273-TALK (8255).

If you have any questions or comments about this study, I would be happy to talk with you. My contact number is 650.493.5000 ext. 25000. You can also email me at [Ann.LeFevre@va.gov](mailto:Ann.LeFevre@va.gov) or write to me at the address on the letterhead.

Thank you very much for helping with this important study. A small monetary token of appreciation is enclosed as a way of saying thank you for your help.

Sincerely,

Ann L. LeFevre, MSW, LCSW  
VA Palo Alto Health Care System  
Menlo Park Division

P.S. If by chance I made a mistake and you are not a Latino veteran, please answer only the first question in the questionnaire and return the rest of it blank. Many thanks.

Appendix D

March 18, 2010

Dear Veteran:

Last week a questionnaire seeking your views of culture and military experiences was mailed to you. Your name was selected randomly from a list of all Latino veterans enrolled at the VA Palo Alto Health Care System.

If you have already completed and returned the questionnaire, please accept my sincere thanks. If not, please do so today. I am especially grateful for your help because your assistance in this study may lead to the development of culturally relevant treatment and interventions for Latino veterans in the future.

If you did not receive a questionnaire, or if it was misplaced, please call 650.493.5000 ext. 25000 and I will mail you another questionnaire today.

Sincerely,

Ann L. LeFevre, MSW, LCSW  
VA Palo Alto Health Care System  
Menlo Park Division

Appendix E

**Table 4.1** Hierarchical Logistic Regression Analysis Predicting PTSD, Odds of Developing PTSD as a Function of Social and Cultural Variables ( $N = 110$ ), Initial Model

<b>Variable</b>	<b>Step <math>p</math></b>	<b><math>B</math></b>	<b><math>SE</math></b>	<b>OR</b>	<b>(95% CI)</b>
Step 1: Pre-trauma social variables	.005*				
Birthplace					
U.S. (reference)				1.00	
Non-U.S.		.26	.57	1.30	(.43-3.97)
Mother's birthplace					
U.S. (reference)				1.00	
Non-U.S.		-.03	.48	.97	(.38-2.50)
Child income					
Middle/high income (reference)				1.00	
Low income		-.03	.44	.97	(.41-2.31)
Current income					
Middle/high income (reference)				1.00	
Low income		-.82	.44	.44	(.19-1.05)
Education					
High school or less (reference)				1.00	
Some college or higher		1.90	.63	6.65*	(1.93-22.95)
Original military status					
Active duty (reference group)				1.00	
National Guard/Reserve		.33	.51	1.39	(.52-3.76)
Never deployed		1.23	.80	3.42	(.71-16.37)
Childhood adversity		-3.32	1.37	.04*	(.002-.53)

*Note.* Cox & Snell's  $R^2 = .18$ , Nagelkerke's  $R^2 = .24$ . Prediction success overall was 73% (73% for non-PTSD and 72% for PTSD). \* $p < .05$

**Table 4.2** Hierarchical Logistic Regression Analysis Predicting PTSD, Odds of Developing PTSD as a Function of Social and Cultural Variables ( $N = 110$ ), Second Model

Variable	Step	<i>B</i>	<i>SE</i>	OR	(95% CI)
	<i>p</i>				
Step 1: Pre-trauma social variables	.01*				
Birthplace					
U.S. (reference)				1.00	
Non-U.S.		.44	.65	1.56	(.43-5.61)
Mother's birthplace					
U.S. (reference)				1.00	
Non-U.S.		.02	.54	1.02	(.35-2.94)
Child income					
Middle/high income (reference)				1.00	
Low income		-.12	.47	.89	(.35-2.22)
Current income					
Middle/high income (reference)				1.00	
Low income		-.93	.50	.39*	(.15-1.05)
Education					
High school or less (reference)				1.00	
Some college or higher		1.86	.66	6.43	(1.77-23.48)
Original military status					
Active duty (reference group)				1.00	
National Guard/Reserve		.14	.55	1.15	(.39-3.35)
Never deployed		1.02	.86	2.78	(.52-14.86)
Childhood adversity		-1.85	1.56	.16	(.01-3.34)
Step 2: Pre-trauma cultural variables	.03*				
Acculturation		-.09	.49	.92	(.35-2.37)
Familialism		-.15	.34	.86	(.44-1.66)
Discrimination		.80	.31	2.23*	(1.23-4.06)

*Note.* Cox & Snell's  $R^2 = .25$ , Nagelkerke's  $R^2 = .33$ . Prediction success overall was 75% (79% for non-PTSD and 71% for PTSD). \* $p < .05$

**Table 4.3** Hierarchical Logistic Regression Analysis Predicting PTSD, Odds of Developing PTSD as a Function of Social and Cultural Variables ( $N = 110$ ), Third Model

<b>Variable</b>	<b>Step <i>p</i></b>	<b><i>B</i></b>	<b><i>SE</i></b>	<b>OR</b>	<b>(95% CI)</b>
Step 1: Pre-trauma social variables	.01*				
Birthplace					
U.S. (reference)				1.00	
Non-U.S.		.92	.88	2.53	(.45-14.14)
Mother's birthplace					
U.S. (reference)				1.00	
Non-U.S.		-.53	.69	.59	(.15-2.27)
Child income					
Middle/high income (reference)				1.00	
Low income		.50	.61	1.65	(.50-5.49)
Current income					
Middle/high income (reference)				1.00	
Low income		-.78	.67	.46	(.12-1.71)
Education					
High school or less (reference)				1.00	
Some college or higher		.62	.85	1.86	(.35-9.83)
Original military status					
Active duty (reference group)				1.00	
National Guard/Reserve		-.46	.71	.63	(.16-2.56)
Never deployed		.46	1.12	1.59	(.18-14.34)
Childhood adversity		-1.54	1.97	.21	(.01-10.18)
Step 2: Pre-trauma cultural variables	.03*				
Acculturation		-.20	.67	.82	(.22-3.02)
Familialism		-.02	.47	.98	(.39-2.45)
Discrimination		.52	.39	1.68	(.79-3.61)
Step 3: Peri-trauma variables	.00*				
Combat exposure		.82	.34	2.27*	(1.18-4.38)
Stress appraisal		-1.73	.48	.18*	(.07-.46)
Combat injury					
Not injured (reference group)				1.00	
Injured		1.32	.67	3.73*	(1.01-13.79)
Peri-trauma coping/dissociation		.02	.33	1.02	(.53-1.96)

*Note.* Cox & Snell's  $R^2 = .46$ , Nagelkerke's  $R^2 = .62$ . Prediction success overall was 80% (81% for non-PTSD and 79% for PTSD). \* $p < .05$

**Table 4.4** Hierarchical Logistic Regression Analysis Predicting PTSD, Odds of Developing PTSD as a Function of Social and Cultural Variables ( $N = 110$ ), Final Model

<b>Variable</b>	<b>Step <i>p</i></b>	<b><i>B</i></b>	<b><i>SE</i></b>	<b>OR</b>	<b>(95% CI)</b>
Step 1: Pre-trauma social variables	.01*				
Birthplace					
U.S. (reference)				1.00	
Non-U.S.		.48	.97	1.61	(.24-10.83)
Mother's birthplace					
U.S. (reference)				1.00	
Non-U.S.		-.25	.77	.78	(.17-3.50)
Child income					
Middle/high income (reference)				1.00	
Low income		.18	.67	1.20	(.33-4.42)
Current income					
Middle/high income (reference)				1.00	
Low income		-.68	.73	.51	(.12-2.14)
Education					
High school or less (reference)				1.00	
Some college or higher		.89	1.00	2.45	(.34-17.47)
Original military status					
Active duty (reference group)				1.00	
National Guard/Reserve		-.38	.78	.69	(.15-3.18)
Never deployed		.40	1.26	1.49	(.13-17.74)
Childhood adversity		.48	2.23	1.62	(.02-128.42)
Step 2: Pre-trauma cultural variables	.03*				
Acculturation		-.24	.76	.79	(.18-3.46)
Familialism		-.12	.61	.89	(.27-2.91)
Discrimination		.20	.45	1.22	(.51-2.93)
Step 3: Peri-trauma variables	.00*				
Combat exposure		.67	.37	1.96	(.96-4.02)
Stress appraisal		-1.63	.65	.20*	(.06-.70)
Combat injury					
Not injured (reference group)				1.00	
Injured		1.44	.73	4.20*	(1.01-17.41)
Peri-trauma coping/dissociation		.18	.36	1.12	(.56-2.27)
Step 4: Post-trauma variables	.21				
Coping					
Emotion-focused		-.09	.80	.92	(.19-4.41)
Problem-focused		.37	.58	1.45	(.46-4.56)
Dysfunctional		1.68	.81	5.38*	(1.09-26.49)

**Table 4.4** Hierarchical Logistic Regression Analysis Predicting PTSD, Odds of Developing PTSD as a Function of Social and Cultural Variables ( $N = 110$ ), Final Model (Continued)

Social support	-.31	.74	.73	(.17-3.11)
Fatalism	-.58	1.34	.56	(.04-7.78)

*Note.* Cox & Snell's  $R^2 = .50$ , Nagelkerke's  $R^2 = .67$ . Prediction success overall was 81% (81% for non-PTSD and 81% for PTSD). \* $p < .05$

Appendix F

**Table 5.1** Hierarchical Multiple Regression Analysis for Variables Predicting Severity of PTSD Symptoms ( $N = 110$ ), First Model

<b>Variable</b>	<b>Step <math>R^2</math></b>	<b>Step <math>F</math></b>	<b><math>B</math></b>	<b><math>SE B</math></b>	<b><math>\beta</math></b>	<b><math>t</math></b>
Step 1: Pre-trauma social variables	.23	4.35*				
Birthplace**						
Non-U.S.			.15	.27	.05	.55
Mother's birthplace**						
Non-U.S.			-.16	.22	-.07	-.74
Child income**						
Low income			.21	.21	.09	1.02
Current income**						
Low income			.27	.20	.11	1.34
Education**						
Some college or higher			-.93	.24	-.32	-3.96*
Original military status**						
National Guard/Reserve			-.38	.23	-.14	-1.64
Never deployed			-.87	.36	-.21	-2.40*
Childhood adversity			-1.61	.56	-.24	-2.86*

*Note.* \* $p < .01$  \*\*Reference category for birthplace and mother's birthplace is "U.S.". Reference category for child and current income is "high/middle income." Reference category for education is "high school or less." Reference category for original military status is "active duty."

**Table 5.2** Hierarchical Multiple Regression Analysis for Variables Predicting Severity of PTSD Symptoms ( $N = 110$ ), Second Model

<b>Variable</b>	<b>Step <math>R^2</math></b>	<b>Step <math>F</math></b>	<b><math>B</math></b>	<b><math>SE B</math></b>	<b><math>\beta</math></b>	<b><math>t</math></b>
Step 1: Pre-trauma social variables	.23	4.35*				
Birthplace**						
Non-U.S.			.07	.28	.03	.27
Mother's birthplace**						
Non-U.S.			-.15	.22	-.06	-.69
Child income**						
Low income			.25	.20	.10	1.22
Current income**						
Low income			.24	.20	.10	1.20
Education**						
Some college or higher			-.85	.23	-.30	-3.70*
Original military status**						
National Guard/Reserve			-.25	.23	-.09	-1.08
Never deployed			-.68	.35	-.16	-1.92*
Childhood adversity			-.66	.62	-.10	-1.06
Step 2: Pre-trauma cultural variables	.30	4.52*				
Acculturation			-.01	.20	-.004	-.04
Familialism			-.16	.14	-.10	-1.14
Discrimination			.39	.13	.27	3.09*

*Note.* \* $p < .05$  \*\*Reference category for birthplace and mother's birthplace is "U.S.". Reference category for child and current income is "high/middle income." Reference category for education is "high school or less." Reference category for original military status is "active duty."

**Table 5.3** Summary of Hierarchical Multiple Regression Analysis for Variables Predicting Severity of PTSD Symptoms ( $N = 110$ ), Third Model

<b>Variable</b>	<b>Step <math>R^2</math></b>	<b>Step <math>F</math></b>	<b><math>B</math></b>	<b><math>SE B</math></b>	<b><math>\beta</math></b>	<b><math>t</math></b>
Step 1: Pre-trauma social variables	.23	4.35*				
Birthplace**						
Non-U.S.			-.10	.20	-.03	-.50
Mother's birthplace**						
Non-U.S.			.03	.16	.01	.16
Child income**						
Low income			.06	.15	.02	.38
Current income**						
Low income			.20	.15	.08	1.36
Education**						
Some college or higher			-.17	.18	-.06	-.98
Original military status**						
National Guard/Reserve			.07	.17	.03	.42
Never deployed			-.11	.26	-.03	-.41
Childhood adversity			-.49	.44	-.07	-1.12
Step 2: Pre-trauma cultural variables	.30	4.52*				
Acculturation			-.10	.14	-.05	-.71
Familialism			-.02	.11	-.01	-.17
Discrimination			.11	.10	.07	1.15
Step 3: Peri-trauma variables	.66	14.70*				
Combat exposure			.31	.07	.30	4.16*
Stress appraisal			-.54	.10	-.39	-5.66*
Combat injury						
Not injured			-.27	.16	-.11	-1.65
Peri-trauma coping/dissociation			.23	.07	.21	3.17*

*Note.* \* $p < .005$  \*\*Reference category for birthplace and mother's birthplace is "U.S.". Reference category for child and current income is "high/middle income." Reference category for education is "high school or less." Reference category for original military status is "active duty." Reference category for combat injury is "injured."

**Table 5.4** Summary of Hierarchical Multiple Regression Analysis for Variables Predicting Severity of PTSD Symptoms ( $N = 110$ ), Final Model

<b>Variable</b>	<b>Step <math>R^2</math></b>	<b>Step <math>F</math></b>	<b><math>B</math></b>	<b><math>SE B</math></b>	<b><math>\beta</math></b>	<b><math>t</math></b>
Step 1: Pre-trauma social variables	.23	4.35*				
Birthplace**						
Non-U.S.			.04	.20	.01	.19
Mother's birthplace**						
Non-U.S.			-.01	.15	-.004	-.06
Child income**						
Low income			.10	.14	.04	.69
Current income**						
Low income			.18	.14	.07	1.30
Education**						
Some college or higher			-.19	.17	-.06	-1.10
Original military status**						
National Guard/Reserve			.002	.16	.001	.01
Never deployed			-.05	.27	-.01	-.19
Childhood adversity			-.11	.43	-.02	-.24
Step 2: Pre-trauma cultural variables	.30	4.52*				
Acculturation			-.09	.14	-.04	-.63
Familialism			-.02	.12	-.01	-.19
Discrimination			.02	.10	.02	.24
Step 3: Peri-trauma variables	.66	14.70*				
Combat exposure			.28	.07	.27	3.93*
Stress appraisal			-.44	.12	-.31	-3.55*
Combat injury						
Not injured			-.27	.16	-.11	-1.72
Peri-trauma coping/dissociation			.19	.07	.17	2.68*
Step 4: Post-trauma variables	.72	13.56*				
Post-trauma Coping						
Emotion-focused			-.11	.16	-.06	-.72
Problem-focused			.18	.12	.11	1.45
Dysfunctional			.55	.15	.27	3.62*
Social support			-.01	.15	-.01	-.08
Fatalism			-.09	.30	-.02	-.29

*Note.* \* $p < .05$  \*\*Reference category for birthplace and mother's birthplace is "U.S.". Reference category for child and current income is "high/middle income." Reference category for education is "high school or less." Reference category for original military status is "active duty." Reference category for combat injury is "injured."

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