Do ethnicity and occupational status interact to influence anxiety?  
An investigation of anxiety among Hispanic emergency responders

Olga Chapa\textsuperscript{a,} and María del Carmen Triana\textsuperscript{b}

\textsuperscript{a}School of Business Administration, University of Houston-Victoria, Sugar Land, TX, USA; \textsuperscript{b}Department of Management and Human Resources, University of Wisconsin-Madison, Madison, WI, USA

Although anxiety is a universal emotion, some of the most severe job-related levels of anxiety are among emergency responder occupations, jeopardizing their well being and positive job performance. The literature suggests that certain ethnic groups report higher levels of anxiety than other ethnic groups. Using Lazarus and Folkman’s transactional model of stress, this study examines whether ethnicity predicts differing anxiety levels across occupations. We sampled emergency and non-emergency responders in the state of Texas in the USA. The strongest positive relationship between occupational status and anxiety was observed for Hispanics compared with non-Hispanics. However, the findings reveal no significant effect between Hispanic ethnicity and anxiety. Our findings show that ethnicity may explain the differences in experienced anxiety across occupations. Implications for theory and practice are discussed.

Keywords: anxiety; emergency responders; Hispanic

Introduction

Growing evidence suggests that job-related factors play an important role in the development of anxiety and related physical and psychological consequences. This costs organizations as much as $300 billion annually in turnover, absenteeism, decreased productivity, medical costs and job dissatisfaction (American Psychological Association [APA], 2010; Hall, Dollard, Tuckey, Winefield, & Thompson, 2010; Maslach, Schaufeli, & Leiter, 2001; Wallace, Edwards, Arnold, Frazier, & Finch, 2009). Anxiety is related to illnesses and disorders affecting millions of adults (18% of the US population) and by extension, millions of workers (APA, 2010). Anxiety occurs as a result of stress and manifests in physiological, cognitive and behavioral components (Lazarus & Folkman, 1984; Lewis, 1970). Moreover, work-related anxiety is the most difficult to treat clinically (Muchalla & Linden, 2005). As a result, an impressive number, 96%, of Fortune 500 companies have assistance programs for employees who may be adversely affected by stressful events at work. Such interventions, in particular individual interventions, promote and maintain mental health and well being to reduce turnover and job burnout, and to improve organizational effectiveness (Bhagat, Stevenson, & Segovis, 2007; Bhui, Dinos, Stansfeld, & White, 2012; Michie & Williams, 2003).

The purpose of this study is twofold. First, we investigate the relationship between occupation and anxiety. Second, we examine the role ethnicity plays in terms of affecting the cognitive mechanisms that are implicated in creating anxiety in individuals. This study answers the calls for studies of anxiety, a result of job stress associated with emergency responder occupations (Bacharach & Bamberger, 2007; Parker & DeCotiis, 1983). Indeed,
while anxiety plays a significant role in occupational stress, researchers rarely focus on anxiety dimensions of job stress among emergency responders (Lourel, Abdellaoui, Chevaleyre, Paltrier, & Gana, 2008). Since the literature suggests that emergency responders experience some of the highest reported occupational anxiety, there is much to learn from this occupational group. We explore anxiety among emergency responders (i.e. police officers, firefighters and paramedics) in order to improve the knowledge of occupational anxiety.

Within a job context, job demands affect everyone, but anxiety is particularly evident among emergency responders (Hall et al., 2010; ten Brummelhuis, ter Hoeven, Bakker, & Peper, 2011). As necessary as emergency responders are to society, research shows they have the propensity to experience high anxiety levels leading to cardiovascular damage, and in some cases death (Regehr, LeBlanc, Jelley, Barath, & Daciuk, 2007). For example, the National Fire Protection Association reports that as of 2011, 51% of on-duty firefighter deaths had been classified as anxiety-related heart attacks or sudden cardiac events (Fahy, LeBlanc, & Molis, 2012; Lourel et al., 2008). Recent studies also show that anxiety is considered to be one of the factors contributing to cardiovascular problems among paramedics (Hegg-Deloye et al., 2014). Moreover, emergency responders reportedly experience high anxiety levels and focused thinking when responding to an emergency (Lourel et al., 2008), jeopardizing their well being and positive job performance (Bacharach & Bamberger, 2007; Parker & DeCotiis, 1983).

Numerous organizational psychological studies imply that differences in individual experiences of psychological strain can be further explained by one’s traits (Kammeyer-Mueller, Judge, & Scott, 2009). The occupational stress literature further suggests that proneness to anxiety in certain occupations may differ within ethnic groups. Note that throughout this article, we refer to ethnicity as a social category based on one’s cultural background (Gilroy, 1998). For example, post-war studies report that Hispanics appear to be more prone to posttraumatic stress disorders than African-Americans and non-Hispanic Whites (Ruef, Brett, & Schlenger, 2000). Specific Hispanic groups have been studied. For example, Puerto Rican veterans reported more severe anxiety-related symptoms and disorders than African-American or Caucasian veterans (Pole, Metzler, Thomas, & Charles, 2005). In a non-occupational context, after 11 September, posttraumatic stress studies in New York showed that 14% of Hispanics compared with fewer than 10% and 7% of African-Americans and Caucasians, respectively, met severe stress disorder criteria (Pole et al., 2005). Other studies found that Hispanics and Native Americans were more likely to suffer from posttraumatic stress disorders after natural disasters (i.e. devastating hurricanes) than other ethnic groups (Perilla, Norris, & Lavizzo, 2002; Pole et al., 2005). If there is a difference among war veterans and civilians, then it is reasonable to hypothesize that these differences may be present within occupations.

The second focus of this study is to ascertain whether ethnicity is associated with higher levels of anxiety in general, or whether anxiety levels depend upon both ethnicity and occupational role. We examine the role of ethnicity as a characteristic that may modify the cognitive appraisal mechanisms associated with creating anxiety by examining the differences in reported anxiety levels among Hispanics in emergency responder and non-emergency responder occupations. We chose to study Hispanics since previous studies specifically cite differences in anxiety-related symptoms and disorders for this group in certain occupations. Moreover, Hispanics represent the fastest growing and largest minority group in the USA and are projected to be over 24% of the US population by 2050 (Blancero & Del Campo, 2012; Cisneros, 2009). Increasing numbers of Hispanics select emergency responder occupations (National Fire Protection Association [NFPA], 2013).
Although research on Hispanics is growing slowly, research focusing on Hispanic (emergency responders) and their well being at work is severely limited (Blume, Resor, Villanueva, & Braddy, 2009; Perilla et al., 2002; Rodriguez-Calcagno & Brewer, 2005).

This article is organized as follows. We review Lazarus and Folkman’s transactional model of stress (1984), which serves as our theoretical framework. We then review research and present hypotheses on the relationship between emergency responder status and anxiety and on the role of ethnic background as a moderator of this relationship. We present our method and the results of our field study, followed by a discussion of theoretical and practical implications.

Theory and hypotheses

Lazarus and Folkman’s transactional model

For half a century, studies have noted the importance of understanding occupational stress and anxiety and their association with negative job-related outcomes and job dysfunctions (Kahn, Wolfe, Quinn, Snoek, & Rosenthal, 1964; ten Brummelhuis et al., 2011). Researchers have noted that as stress increases to moderate levels, efficiency and performance increase (Benson & Allen, 1980). However, as stress-induced anxiety increases in frequency, intensity and duration, it causes serious limitations in the individual and tends to become pathological (Endler & Kocovski, 2001). To understand how anxiety can affect emergency responders, we rely on Lazarus and Folkman’s (1984) transactional model of stress, which suggests three major constructs: stress (stressor), cognitive appraisal and coping.

Stress is a physiological and psychological response (mental process) to situations (stressors) in the environment (Lazarus & Folkman, 1984). Cognitive appraisal is divided into two stages, primary and secondary, and mediates the relationship between the environment (stressor) and the individual (Lazarus & Folkman, 1984). The primary appraisal of stress occurs after encountering the stressor. It represents an evaluation of what is at stake and whether the stressor is irrelevant or stressful. Stressful situations are evaluated as potentially harmful-loss, threatening or challenging. Threatening stressors are those stressors that most provoke emotions of anxiety. Secondary appraisal is defined as an evaluation of ‘what can be done about it’ (p. 33). Whether an event is stressful depends on the cognitive appraisal process shaping the individual’s reaction and appraised meanings specifically related to emotional responses (i.e. anxiety).

The role of emotions was not even considered at one point in stress theory guided studies (Lazarus, 1993). Since the 1970s, however, North American psychological views became more receptive to a cognitive mediational approach with regard to stress and emotions. The theoretical consolidation of psychological stress and emotions such as anxiety are considered in the literature in the form of emotion theory. The knowledge of which encounters may make an individual perceive an event as stressful – harmful, threatening or challenging – is not enough to study without also understanding the emotions associated with the event. For example, the core relational theme for the emotion anxiety is facing uncertainty or existential threat. Beyond the core relation, however, are variables such as personalities, motives and beliefs that can influence the experience of emotions (anxiety). In the appraisal stage, the significance of the event is influenced by what is valuable to the person experiencing the stressor. Thus, the first stage of stress is present, exposure to an event or environment that may cause the appraisal of uncertainty, challenge or direct threat. The inclusion of emotions such as anxiety in stress studies made sense. Essentially, the role of the cognitive mediational principle in psychological stress
theory stipulates that the stressor in itself is not what causes a stress reaction, but rather, it is in combination with the individual’s appraised significance of the stressor. Furthermore, through the inclusion of studying emotions within the scope of stress, researchers have gained valuable sources of information regarding individual adaptation and coping (Lazarus, 1993).

Lazarus and Folkman’s transactional model incorporates factors influencing cognitive appraisals, which we find relevant in emergency responder occupations. The cognitive appraisal is a mirror of the individual’s personal factors, unique interpretation of the event and reactions which largely depend on his/her personal characteristics, perceptions, commitments, beliefs (individual and cultural), thoughts and situational factors. The negative connotations, for example, stem from the degree of commitment; the greater the commitment, the greater the potential of threat and psychological harm. Situational factors will only be stressful if they are associated with harm, danger or lack of mastery and influence the event (Lazarus & Folkman, 1984). The literature suggests that emergency responders are extremely committed, risking their lives and limbs facing dangerous environments (i.e. fire, theft, car accident).

Appraisals are strong predictors of the coping methods to be utilized to deal with the stressor, which is the final stage in the transactional model. The individual assesses the coping resources to be utilized: problem-focused, emotion-focused or avoidance strategies (Lazarus & Folkman, 1984). Problem-focused coping requires doing something about the stressor. Emotion-focused coping requires emotional regulation. Avoidance strategies are to simply ignore the stressors (Lazarus & Folkman, 1984).

Anxiety
Anxiety is a universal emotional reaction to the perception of threatening or dangerous stimuli/stressors and psychological work stressors (Bhui et al., 2012; Endler & Kocovski, 2001; Regehr et al., 2007). Anxiety, an apprehension cued off by threats to what an individual values and holds essential to existence, is conceptualized as a stimulus, trait or motive (Endler & Kocovski, 2001; Eysenck, 1985; Regehr et al., 2007). ‘It is an emotional state with the subjectively experienced quality of fear as a closely related emotion’ (Lewis, 1970, p. 77). In addition to emotional responses, anxiety is associated with unpleasant cognitive and physiological aspects such as the arousal of the nervous system (e.g. nervousness or tightness of the chest), provoked by situations and internal stimuli in the form of thoughts and ideas perceived as dangerous to an individual (Alexandros-Stamatios, Matilyn, & Cary, 2003). These types of thoughts may be disproportional to the threat, as they are subjective (Lewis, 1970). An array of symptoms and disorders are associated with anxiety, ranging from headaches and peptic ulcers, eating disorders, drug and alcohol consumption/abuse, disintegration of family and social relationships, a weakening of the immune system, severe depression and posttraumatic stress disorders (Endler & Kocovski, 2001).

The relationship between emergency responder roles and anxiety
Emergency responders will mentally process whether the stressor is negative and how threatening or challenging the stressor appears (Lazarus & Folkman, 1984). Stress studies show that emergency responders experience different degrees of anxiety levels correlated with the different stages of operation: pre-arrival (anticipatory), operational and post-operational (Anderson, Litzenberger, & Plecas, 2002; Lourel et al., 2008). The more
threatening the environments, the greater chance of provoked emotions (anxiety), and the event is more threatening given the commitment emergency responders exhibit (Endler & Kocovski, 2001; Regehr et al., 2007). Thus, the literature implies that during the cognitive processes, commitment (personal factor) and imminent danger (situational factor) continuously influence anxiety levels in emergency responder occupations, as stipulated by Lazarus and Folkman’s transactional model.

With respect to emergency responders, we acknowledge that reported differences of job anxiety levels may depend on occupational factors. For instance, even if emergency responders are exposed to the same type of occupational stress, not everyone may be affected equally (Harris, Balogluand, & Stacks, 2002; Shakespeare-Finch, Smith, & Obst, 2002). The preparedness to fulfill occupational job requirements, such as skills, training, experience, uniforms and so forth, creates a form of buffer against the impact of the stressors (Moran, 1998, 2001). During the cognitive appraisal, the environment will be stressful if associated with situational factors such as lack of mastery (Lazarus & Folkman, 1984). However, the evidence suggests that emergency responders still experience increased anxiety on the job, not only in the USA, but globally.

Studies related to emergency responder stress show that samples of international emergency responders have similar anxiety-related reactions. For instance, Anderson et al. (2002) studied Canadian police officers who reported higher than usual anticipatory anxiety stress. French firefighters experienced high levels of anticipatory anxiety and increased anxiety during the operational phase when responding to fires (Lourel et al., 2008). Police officers and firefighters in the Netherlands reported high levels of posttraumatic stress symptoms after their involvement in critical incidents (Slottje et al., 2008). It is generally understood that emergency responders have high stress jobs and experience anxiety (Anderson et al., 2002; Bacharach & Bamberger, 2007; Harris et al., 2002; Lourel et al., 2008). Lazarus and Folkman’s transactional model would predict that the more stressors there are in one’s job, the more anxiety will be experienced. Therefore, consistent with theory and prior research we expect to find the following:

**Hypothesis 1**: There will be a positive relationship between emergency responder status and job anxiety.

### The effects of cultural background on anxiety

‘Cultural forces, values and beliefs shared by a social system and passed from generation to generation’ have been shown to significantly impact emotional behavior (Gordon, 1981; Lazarus & Folkman, 1984, p. 228). Clinical psychologists understand the influence of social and cultural factors on the formation and manifestation of anxiety (Tseng, 2003). Although all individuals may react to stressors with emotional reactions, cultural factors will influence both the perception and interpretation of events and will contribute to the emotional reactions, including anxiety (Tseng, 2003). This demand, Tseng notes, may be so excessive as to cause culture-induced anxiety. Thus, it is posited that a possible explanation for Hispanics’ increased levels of reported anxiety and related disorders may be credited to the cognitive process. In addition to commitment and situational factors, cultural beliefs may be an additional factor to consider (Lazarus & Folkman, 1984). Therefore, we incorporate cultural beliefs about bravery into our study of cultural influences.

Bravery is not specific to one ethnic group, and thereby, its cultural values and beliefs. For example, in Japan during both World War I and World War II, civilians and soldiers...
alike were expected to perform brave acts (i.e. kamikaze; Peterson & Seligman, 2004). President Theodore Roosevelt (USA) emphasized that success is found in men ‘who do not shrink from danger’, that is, they show self-reliance, strength, resolute, honesty and courage (Filene, 1986, p. 71). With this type of rhetoric (especially in time of war), almost all young boys suffered from the anxiety of being considered sissies (Filene, 1986). While bravery extends to different cultures, there are also cultural differences regarding bravery that are apparent among ethnic groups.

One interesting facet of Hispanic culture is an emphasis on male-oriented bravery beliefs. Bravery is a form of duty and a norm that some cultures socialize (Peterson & Seligman, 2004). These norms become expected behaviors (Triandis, 1972, 1989). Compared with individualist cultures, which focus on individuals, collectivist cultures (i.e. subcultures: Cuban-American, Mexican-American and Puerto Rican) focus more on the collective good and will be more influenced by subjective norms (Stone, Isenhour, & Lukaszewski, 2008). Thus, a commitment to the cultural values of bravery may vary among cultural groups.

An important factor affecting Hispanic males is the machismo influence, a need to demonstrate courage and bravery as well as other associated gender role cultural expectations (Estrada, Rigali-Oiler, Arciniega, & Tracey, 2011; Falicov, 2001; Glick & Fiske, 1996; Olivas-Luján et al., 2009). Over 35 years of scholarly work in anthropology, sociology and psychology examines machismo as an ethnic–cultural experience. The term refers to Hispanic masculine gender roles related to characteristics such as being gallant, brave, prideful, chivalrous and courageous, having honor, concern for others, virtuous, protecting the family and the defenseless, and having great physical strength among others (Fragoso & Kashubeck, 2000; Mosher & Sirkin, 1984; Torres, Solberg, & Carlstrom, 2002). Furthermore, it is a Hispanic phenomenon, spreading from areas such as Mexico, via roots traced to Spain. We note that there are negative connotations, yet, contemporary machismo is the term used to describe the modern Latino man (Fragoso & Kashubeck, 2000). In Western cultures, the derogatory term macho and its associated characteristics are associated with the term and the true meaning of machismo, which centers on courageous and dangerous acts, is lost (Fragoso & Kashubeck, 2000; Mosher & Sirkin, 1984; Torres et al., 2002).

The translations throughout time have made it difficult to measure machismo as most are more familiar with the negative connotations (Fragoso & Kashubeck, 2000; Mosher & Sirkin, 1984; Torres et al., 2002). Moreover, although machismo characteristics stem from Spanish culture, police subculture research shows that characteristics of officer machismo include an attraction to adventure, high risk-taking behavior when investigating or chasing a suspect, and identification with a crime fighter image (White, Cooper, Saunders, & Raganella, 2010). The literature suggests that negative connotations associated with the term machismo may form response bias. In this study, we assume the positive characteristics of machismo (i.e. brave, protector of the defenseless, prideful) are part of the Hispanic cultures and will influence anxiety.

Furthermore, the literature points to two things regarding Hispanic males specifically. First, previous war-related studies, which also entail dangerous situations, show a difference between ethnic groups. Hispanics reported higher rates of anxiety-related symptoms and disorders than other groups (Pole et al., 2005; Ruef et al., 2000). Second, the cognitive appraisal depends on perceptions, commitments and individual-cultural beliefs. The deeper the commitment (which we associate with machismo) is, the greater the potential of anxiety. Situational factors will only be stressful (influence anxiety) if they are associated with harm and danger. Thus, both personal and situational factors are
associated with characteristics of machismo in the cognitive process. For Hispanic males, machismo means they must face challenges and display bravery at all times, or their masculinity is threatened (Triandis, 1984). This may be a personal factor that does not influence anxiety levels among non-Hispanics. Emergency responders, in general, are characterized as being brave and demonstrating abilities to perform their duties courageously, living up to characteristics associated with their role (Beaton & Murphy, 1995; Filene, 1986; Harris et al., 2002; Moran, 2001). However, among non-Hispanics, there are no cultural expectations of machismo which could further cause anxiety.

All of these suggest that cultural differences and beliefs regarding bravery machismo may further explain the relationship between anxiety and emergency and non-emergency responder occupation status among Hispanics but not among non-Hispanics. Thus, it may be possible that an additional personal factor (individual and cultural beliefs) may play a role in the experienced anxiety, and may lead Hispanics in emergency responder roles to report higher levels of anxiety compared with Hispanics in non-emergency responder occupations. The same may not be true for non-Hispanic emergency responders if they are not as heavily influenced by machismo cultural expectations of bravery. We predict the following:

Hypothesis 2: The positive relationship between emergency responder status and job anxiety will be stronger for Hispanics than for non-Hispanics.

Method
Sample and data collection
Field data were collected through a paper survey, and participant responses were anonymous. Students collected the data in exchange for extra credit. Students in two business courses with 60 students per course (120 student total) were asked to distribute five surveys each. A total of 600 paper surveys were distributed. Of these, 547 surveys were filled out by participants, for an initial response rate of 92%. Once the data were cleaned and missing data were accounted for, we had a total of 512 complete responses, for a final response rate of 85%.

The students were instructed to recruit from emergency service personnel throughout South Texas from fire stations, police stations and emergency medical services. Instructions also stipulated that any non-emergency staff (administrative) were not to be recruited, only emergency responders. This satisfied the requirement to locate individuals in emergency responder occupations (Regehr et al., 2007). For the low-stress participants, non-emergency responders from various industries and occupations in South Texas were recruited, primarily from a local courthouse. The area where the sample was drawn has large numbers of city, county, state and federal agencies and large retail areas. The final sample consisted of 512 individuals in emergency responder (coded 1) and non-emergency responder roles (coded 0). Emergency responders comprised 49% of the sample. The sample was 91% Hispanic, which was expected, given the demographics of South Texas where the data were collected. US Census data show that this is in line with county demographics, which show Hispanic or Latino (90.9%) and white non-Hispanic (7.5%). One-third, 33%, of participants, were under the age of 26 years, 36% were between 26 and 35 years of age, 22% were between the ages of 36 and 45 years, 8% were between the ages of 46 and 55 years and 1% were older than 55 years. Over half, 62%, of the participants had at least a high school diploma, 29% reported a Bachelor’s or Master’s degree; 9% reported ‘Other.’ Regarding the sex of our participants, 77% were male and
23% were female. However, 100% of the emergency responders were male. Given the large Hispanic population where the sample was collected, gender role expectations may explain the reason females had not entered emergency responder occupations (Triandis, 1984).

**Measures**

**Anxiety**

Anxiety was measured using the five-item anxiety factor from Parker and DeCotiis’ (1983) Job Stress scale. Previous stress studies have used this anxiety scale to study anxiety in cross-cultural studies (Jamal, 1999; Jamal & Preena, 1998). A sample item is, ‘Sometimes this job drives me up the wall.’ Response options ranged from 1 (strongly disagree) to 7 (strongly agree). The Cronbach $\alpha$ reliability for the scale was $\alpha = 0.75$.

**Ethnicity**

To measure cultural background, participants were asked to list their ethnicity. Participants were asked whether they were Hispanic, Caucasian, Asian American, Native American, African American or other. Ethnicity was coded as Hispanic = 1 and 0 otherwise.

**Control variables**

Age was collected as an ordinal variable (1 = ages 18–25, 2 = 26–35, 3 = 36–45, 4 = 46–55, 5 = 55+). Age was used as a control in the analyses because the literature suggests that as people age, their stress levels tend to decrease which may be credited to life experiences and may have formed hardiness against the impact of stressors (Baltes & Baltes, 1990; Dienstbier, 1989). We controlled for gender (coded 0 = female, 1 = male), because women typically hold less dangerous jobs than men and this may influence anxiety. We also asked participants whether they had good relationships with their co-workers. Studies have shown that social support tends to influence the appraisal and impact of stressors (Anderson et al., 2002; Beaton & Murphy, 1995). One question was asked: ‘Do you have a good relationship with your co-workers?’ Participants answered yes = 1 or no = 2. These responses were dummy coded as 1 for good relationships and 0 otherwise. Participants were asked how many times per month they went to church (recorded as a continuous variable) because spiritual beliefs are a means of coping with and reducing anxiety (Seybold & Hill, 2001). Participants were also asked whether they had to meet a quota for their jobs (yes or no) because quotas may cause anxiety (Nayak, 2014). Nayak’s (2014) research and those papers cited within the article support the statement that quotas have been known to increase stress. Nayak specifically credits quotas to ‘severe anxiety’ among software and computer professionals, where quotas are not the norm. The quotas may include lines of code to write per day or software bugs to fix. For our analyses, the variable was coded as 1 = quota and 0 = no quota.

**Results**

In order to test our hypotheses, we used a hierarchical moderated regression analysis following the procedure described in Cohen, Cohen, West, and Aiken (2003). The control
variables were entered in the first step, followed by the independent variables in the second step. The two-way interaction term was added in the third step.

Table 1 presents descriptive statistics and correlations for all variables. The results show a statistically significant positive correlation between emergency responder status and anxiety ($r = 0.20, p < 0.01$). Results of the moderated regression analysis testing the hypotheses are shown in Table 2. Of the control variables entered in Model 1, good relationship with co-workers had a positive effect on anxiety ($\beta = 0.20, p < 0.01$). This is contrary to our expectations, and we discuss possible reasons for this in the discussion. As expected, if a quota is required on the job, this is positively associated with anxiety ($\beta = 0.11, p < 0.05$). Emergency responder status had a positive and statistically significant effect on anxiety ($\beta = 0.14, p < 0.05$) in Model 2, supporting Hypothesis 1. There was a statistically significant interaction effect between ethnic background and emergency responder status ($\beta = 0.13, p < 0.05$) in Model 3. The interaction term explained an additional 2% of the variance beyond the controls and main effects; this is common for interaction terms (McClelland & Judd, 1993).

We plotted the interaction as described in Aiken and West (1991). See Figure 1 for the plot. A post hoc test of the simple slopes shows that emergency responder status positively predicted anxiety for Hispanics ($\beta = 0.25, t = 3.17, p < 0.01$) but not for non-Hispanics ($\beta = 0.02, t = 0.24, p > 0.05$). This supports Hypothesis 2.

**Discussion**

Studies investigating organizational anxiety have few or no Hispanic samples. This is the first management study sampling Hispanics in emergency responder roles and their associated levels of anxiety. Our results show significantly higher levels of anxiety among emergency responders compared that non-emergency responders and that this difference was significantly greater for Hispanics compared with non-Hispanics. We argue that this difference in anxiety levels across occupation and ethnicity can be traced to differences in how Hispanic men cognitively appraise certain environmental stressors. Anxiety in occupations may be related to cultural and normative beliefs associated with one’s culture and not simply driven by the tasks of the job. Our findings support this idea through our interaction effect between emergency responder status and Hispanic ethnicity on anxiety levels. Higher levels of anxiety may be due to an ethnic factor called machismo, which emphasizes the underpinnings of chivalry (e.g. bravery), considered in this study as a Hispanic cultural phenomenon.

The transactional model predicts that factors including preexisting beliefs and commitments may leave the individual most vulnerable when the commitment is high (Lazarus & Folkman, 1984). Values and commitments established by the individual’s social system that shape emotions and behavior are passed down from one generation to the next (Lazarus & Folkman, 1984). These cultural forces have major impacts on an individual’s shaping of emotional reactions (e.g. anxiety) of stress and they hinge on the cultural significance given to them. Our findings provide some support for this idea, because the expectation of machismo and the need to be brave in the Hispanic culture (Estrada et al., 2011; Falicov, 2001; Glick & Fiske, 1996) may provide a cultural explanation for Hispanic emergency responders reporting higher levels of anxiety than Hispanic non-emergency responders. This may be influenced by both the necessary anxiety to perform their emergency responder job duties and additional anxiety from their cultural expectations to be brave. In a personal communication with the first author, a Hispanic male firefighter stated,
Table 1. Means, standard deviations and inter-correlations for all study variables.

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<th>Variables</th>
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<td>1. Age</td>
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<td>2. Gender (male)</td>
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<td>3. Good relationship with co-workers</td>
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<td>0.45</td>
<td>0.16**</td>
<td>0.40**</td>
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<td>4. Times attended church per month</td>
<td>1.36</td>
<td>0.67</td>
<td>0.22**</td>
<td>0.25**</td>
<td>0.48**</td>
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<td>5. Quota required</td>
<td>0.42</td>
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<td>-0.24**</td>
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<td>6. Emergency responder</td>
<td>0.49</td>
<td>0.50</td>
<td>0.35**</td>
<td>0.54**</td>
<td>0.56**</td>
<td>0.43**</td>
<td>-0.35**</td>
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<td>7. Hispanic ethnicity</td>
<td>0.91</td>
<td>0.29</td>
<td>-0.13**</td>
<td>-0.07</td>
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<td>-0.08</td>
<td>0.04</td>
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<td>8. Anxiety</td>
<td>3.36</td>
<td>1.35</td>
<td>0.09*</td>
<td>0.13**</td>
<td>0.18*</td>
<td>0.09*</td>
<td>-0.01</td>
<td>0.20**</td>
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</tbody>
</table>

Note: N = 512. Age (in years) was measured on an ordinal scale: 1 = 18–25, 2 = 26–35, 3 = 36–45, 4 = 46–55, 5 = 55+. Gender was measured as 0 = female and 1 = male. *p < 0.05, **p < 0.01.
Table 2. Regression analysis to test the moderating effect of ethnic background on the relationship between emergency responder status and anxiety.

<table>
<thead>
<tr>
<th>Variables</th>
<th>Step 1</th>
<th></th>
<th>Step 2</th>
<th></th>
<th>Step 3</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>β</td>
<td>t</td>
<td>β</td>
<td>t</td>
<td>β</td>
<td>t</td>
</tr>
<tr>
<td><strong>Controls</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Age</td>
<td>0.06</td>
<td>1.43</td>
<td>0.04</td>
<td>0.84</td>
<td>0.04</td>
<td>0.79</td>
</tr>
<tr>
<td>Gender (male)</td>
<td>0.06</td>
<td>1.32</td>
<td>0.02</td>
<td>0.33</td>
<td>0.02</td>
<td>0.37</td>
</tr>
<tr>
<td>Good relationship with co-workers</td>
<td>0.20**</td>
<td>3.54</td>
<td>0.16**</td>
<td>2.73</td>
<td>0.16**</td>
<td>2.74</td>
</tr>
<tr>
<td>Times attended church per month</td>
<td>0.01</td>
<td>0.04</td>
<td>-0.01</td>
<td>-0.36</td>
<td>-0.02</td>
<td>-0.34</td>
</tr>
<tr>
<td>Quota required</td>
<td>0.11*</td>
<td>2.28</td>
<td>0.12*</td>
<td>2.44</td>
<td>0.12*</td>
<td>2.44</td>
</tr>
<tr>
<td><strong>Independent and moderator</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Emergency responder</td>
<td></td>
<td></td>
<td>0.14*</td>
<td>2.3</td>
<td>0.13*</td>
<td>2.18</td>
</tr>
<tr>
<td>Hispanic ethnicity</td>
<td></td>
<td></td>
<td>0.03</td>
<td>0.79</td>
<td>-0.02</td>
<td>-0.47</td>
</tr>
<tr>
<td><strong>Two-way interaction</strong></td>
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<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Emergency responder × Hispanic ethnicity</td>
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<td></td>
<td></td>
<td></td>
<td>0.13**</td>
<td>2.81</td>
</tr>
<tr>
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<tr>
<td>ΔR²</td>
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<td></td>
<td>0.06</td>
<td></td>
<td>0.08**</td>
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<tr>
<td>F</td>
<td>5.31**</td>
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<td>4.62**</td>
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<td></td>
<td>2504</td>
<td></td>
<td>1503</td>
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</tr>
</tbody>
</table>

Notes: $N = 512$. Standardized $\beta$s are reported. Age (in years) was measured on an ordinal scale: 1 = 18–25, 2 = 26–35, 3 = 36–45, 4 = 46–55, 5 = 55+. Gender was measured as 0 = female and 1 = male. Quota required was measured as 0 = no and 1 = yes. †p < 0.10, *p < 0.05, **p < 0.01. Two-tailed tests.

Figure 1. Interaction of emergency responder status and racial/ethnic status on anxiety.
I was thinking, Oh my God, I’m going to drop the hose and I’m going to run straight out because I panicked ... I got against the wall, leaned down a little bit, counted for about 16 seconds and I got my composure back. I got my breath back and I was thinking in my head, if I run out there, people are going to think I am a coward.

Courageous action is the response to fear and courage, interacting simultaneously (Goud, 2005). During the primary and secondary cognitive appraisal stages, threatening stressors provoke the highest levels of anxiety among Hispanic emergency responders (Lazarus & Folkman, 1984). The individual’s extreme emotional responses (i.e. anxiety) are what the literature cites as being dangerous to well being. It is important to investigate the dark side of courage and the job characteristics that predispose people to higher levels of anxiety at work. Contrary to what has been reported elsewhere in the stress literature, we do not find a main effect of Hispanic ethnicity on anxiety. It is noteworthy that the studies reporting higher levels of anxiety among Hispanics were conducted after war (Rosenheck & Fontana, 1996; Ruef et al., 2000), terrorist attacks (Pole et al., 2005) and natural disasters (Perilla et al., 2002; Pole et al., 2005). The higher levels of anxiety reported in those studies may have been related to other stressors experienced by Hispanics which may make it harder for them to recover from devastation (i.e. low socioeconomic status and discrimination; Flores et al., 2008). This may explain why in one study, which did not focus on ethnic differences in relation to stress within emergency responder occupations, found no cultural differences in the appraisal of stressors (Moran, 1998). It is interesting to note that war-related reported anxiety levels lend some credence to the probability that the increased levels could be related to the machismo influence, given the need to be brave during war; in particular, when comrades’ lives are in danger as well. As stated previously, this particular phenomenon has yet to be tested among emergency responders; thus, there are no relevant studies to support the notion. However, as restricted as this notion may be, there are also no studies contradicting it.

It is interesting to note that good relationships with co-workers had a small positive correlation with anxiety in this study. This is contrary to studies showing that good relationships with co-workers in emergency responder occupations are associated with lower stress levels (Beaton & Murphy, 1995; North et al., 2002). Work related to emergency responders credits social support as a means of coping with the traumatic scenes they are exposed to (Anderson et al., 2002; Beaton & Murphy, 1995). However, we also note that co-worker relationships among emergency responders are bonds of brotherhood and camaraderie. This is common in the occupation given the job characteristics (life/death) and the amount of time spent together during work shifts (Casey & Leger, 1996; Varvel et al., 2007). The bond is so tight that, the most reported anxiety-inducing stressors for emergency responders are associated with deaths of fellow emergency responders (Casey & Leger, 1996). It is possible that the fear of losing a member of one’s team in the line of duty is one of the most anxiety-inducing factors in an emergency responder’s job. It is also possible that this correlation is being driven by the non-emergency responders in the sample if those non-emergency responders who experience anxiety at work are more likely to have good relationships with their co-workers because they talk to them about work as a coping mechanism.

In order to tease apart the relationship between good relationships with co-workers and anxiety at work for both emergency responders and non-emergency responders, we conducted two additional post hoc analyses. We first conducted a moderated regression analysis testing the interaction effect of emergency responder status and relationships with co-workers as a predictor of anxiety. In this analysis, we controlled for age, sex, church attendance and quotas. We found that emergency responder status was positively and
significantly related to anxiety ($\beta = 0.14, p < 0.05$) and this main effect was negatively moderated by good relationships with co-workers ($\beta = -0.24, p < 0.01$). A test of the simple slopes showed that emergency responder status positively predicted anxiety when relationships with co-workers were poor ($\beta = 0.58, t = 3.96, p < 0.01$) but not when relationships were good ($\beta = -0.02, t = -0.20, p > 0.05$). This is consistent with prior findings in emergency responder samples showing that good relationships with co-workers are negatively related to stress (Beaton & Murphy, 1995; North et al., 2002). Emergency responders need to be able to trust their co-workers with their lives, if necessary, and having poor relationships with one’s co-workers must be anxiety-inducing for emergency responders.

As the second post hoc check, we examined the bivariate correlation between relationships with co-workers and anxiety for both the emergency responders and non-emergency responders. Findings show a positive relationship between good relationships with co-workers and anxiety among non-emergency responders ($r = 0.20, p < 0.01$) but a negative relationship ($r = -0.13, p < 0.05$) for emergency responders. Therefore, the small positive correlation between good relationships with co-workers and anxiety seems to be driven by the non-emergency responders, as there were more of them in the sample. Consistent with the literature, good relationships with co-workers is associated with lower stress for emergency responders. For the non-emergency responders, good relationships with co-workers may be positively associated with anxiety if establishing good relationships is a coping mechanism to deal with work-related anxiety. Because our study is cross-sectional, we cannot establish causality between these variables. Employee assistance programs for emergency responders should be aware of these findings, because emergency responder occupations are unique in that the fear of losing a life is quite real. Providing opportunities at work to maintain good relationships among emergency responders seems important for them to carry out their work and have less anxiety. Future research should delve further into when and why good relationships with others at work may increase worker anxiety among both emergency and non-emergency responders.

**Theoretical implications**

The findings show that culturally based normative values may influence how stressors are perceived. Future research should focus on the findings of this study showing that culturally based normative values and beliefs may influence how stressors are perceived and what accompanying emotions are induced to enrich the theoretical frameworks discussed in this study. Our results suggest that the Lazarus and Folkman transactional model of stress should be expanded to account for both the effects of occupation and the effects of culturally based values. Future research may be conducted on other under-studied ethnic groups to test how anxiety works for them.

**Practical implications**

Anxiety is necessary for emergency responders. However, acute anxiety can lead to severe stress-related disorders and symptoms. One method that may be effective if considered prior to the anxiety levels reaching an acute status is a form of cognitive behavior therapy which reinforces adaptive coping styles (Kar, 2011). The treatments are administered by trained therapists and mental health professionals. However, there are elements that can be introduced in a well-being program. For example, cognitive behavior therapy is intended to help the individual identify problematic beliefs and emotions through an exploration of
exposing what is negative about them and replacing that with either new beliefs or with a more logically based belief.

Limitations and future research

There are several limitations in this study. The low number of Caucasians is not representative of the US population where Caucasians are the majority. Among non-emergency responders, the small subset of Caucasians \( n = 13 \) reported higher anxiety \( (M = 3.80, SD = 1.31) \) than the Hispanics \( (M = 3.06, SD = 1.16) \) and this difference was statistically significant, \( t(261) = 2.22, p < 0.05 \). We suspect this is because these Caucasians (normally the majority group in the USA) are a small minority in the part of the country where the study took place. Although US Census reports show that our sample is representative of the demographics for the region where the study took place, we acknowledge that the Hispanics may experience more anxiety in circumstances where they are the minority group. This limitation can be addressed by collecting other samples of emergency responders and different ethnic groups in other areas of the country.

All of the emergency responders were male. This is not representative of the population of emergency responders. For example, the number of Hispanic females in emergency responder occupations has been slowly increasing. Although less than 4% of the female firefighters in the USA were Hispanic in 1984, this number was expected to increase to 10% in 2010 (NFPA, 2013). Future studies should try to collect more sex-diverse samples to test the generalizability of our findings. To account for differences in anxiety related to gender in non-emergency responder occupations, we did control for gender in the analyses.

The variables collected in this study were also self-reported and offer reported anxiety at a particular point in time. Employee self-reported anxiety seems appropriate because employees would know best about their own feelings of anxiety (Spector, 1994). However, longitudinal studies may expose other variables not addressed in this study or in the literature, which may be contributing to anxiety and are not directly related to the occupation itself. Future research may measure other variables that may influence anxiety levels.

The final limitation is that machismo is not measured. Until a valid and reliable instrument free of biases due to negative connotations is available, it will be difficult to measure machismo (Fragoso & Kashubeck, 2000; Mosher & Sirkin, 1984; Torres et al., 2002). Future research may find that non-Hispanics and other ethnic group members also experience high anxiety when they have high aggressive or machismo values and beliefs. Subsequently, the need to measure machismo may require substituting the behavior(s) through the use of other scales intended to measure bravery, moral courage or aggressiveness (Bem, 1981; Rate, Clarke, Lindsay, & Sternberg, 2007). Furthermore, it could be stated that even then, occupation could moderate emotions such as aggression among individuals from the same population, as was the case in this study: emergency versus non-emergency responders.

Conclusion

In summary, studies investigating organizational anxiety have few Hispanic samples. This is one of the first studies to sample emergency responder roles and measure their anxiety compared with other occupations. As expected, emergency responder status was positively related to anxiety at work. The positive relationship between occupational status and
anxiety was stronger for Hispanics in emergency responder roles than for Hispanics in non-emergency responder roles. We argue that this difference in anxiety across occupations across ethnicity may be due to the cultural influences that affect how individuals perceive anxiety-inducing stressors.

References


