

Why Are Hispanics at Greater Risk for PTSD?

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Several studies have found that Hispanic Americans have higher rates of posttraumatic stress disorder (PTSD) than non-Hispanic Caucasian and Black Americans. The authors identified predictors of PTSD symptom severity that distinguished Hispanic police officers (n = 189) from their non-Hispanic Caucasian (n = 317) and Black (n = 162) counterparts and modeled them to explain the elevated Hispanic risk for PTSD. The authors found that greater peritraumatic dissociation, greater wishful thinking and self-blame coping, lower social support, and greater perceived racism were important variables in explaining the elevated PTSD symptoms among Hispanics. Results are discussed in the context of Hispanic culture and may be important for prevention of mental illness in the fastest growing ethnic group in the United States.

Keywords: Hispanic, posttraumatic stress disorder, police, coping, peritraumatic dissociation, reporting bias

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This article describes a secondary analysis of data previously published in Pole et al. (2001). This project was supported by a grant from the National Institute of Mental Health (R01-MH56350-01A1) to Charles R. Marmar. We thank Jennifer Chapman for her assistance with gathering background literature; José Soto, Anna Ruef, and Lilian Odera for their helpful comments on this article; and Delores Carter Pole for her special contributions. Finally, we would like to express our appreciation to all of the police officers who participated in this research.

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Evidence is mounting that Hispanic Americans may be particularly vulnerable to post-traumatic stress disorder (PTSD). The National Vietnam Veterans Readjustment Study (NVVRS; Kulka et al., 1990) reported that in a nationally representative sample of male combat veterans the unadjusted rate for current PTSD was 27.9% for Hispanics as compared with 20.6% for non-Hispanic Blacks and 13.7% for non-Hispanic Caucasians. Even after adjusting for level of combat exposure and other predictors, Hispanic veterans still had the highest rate of PTSD. Several other researchers have now echoed this general finding. For example, Rosenheck and Fontana (1996) examined a sample of 5,475 treatment-seeking veterans and found that Puerto Rican veterans had more severe PTSD symptoms than Caucasian or Black veterans. Pole et al. (2001) surveyed 655 Hispanic, non-Hispanic Black, and non-Hispanic Caucasian police officers and found that Hispanic officers reported more severe duty-related PTSD symptoms than their non-Hispanic counterparts. In addition, Perilla, Norris, and Lavizzo (2002) reported that a Hispanic subgroup of 404 victims of Hurricane Andrew had the highest rate of PTSD among all ethnic groups studied. Finally, Galea et al. (2002) interviewed 988 residents of New York City following the September 11th terrorist attacks and discovered that approximately 14% of Hispanics met criteria for current PTSD as compared with 9.3% of non-Hispanic Black respondents and 6.5% of non-Hispanic Caucasian respondents.

Given that Hispanic Americans are now the largest and fastest growing minority group in the United States (U.S. Bureau of the Census, 2003), at a time in history when the threat of domestic terrorism places ordinary citizens at unprecedented risk for encountering traumatic events, it is important to understand the mechanisms by which demographic status (i.e., Hispanic ethnicity) translates into elevated risk for developing a trauma-related psychiatric disorder (i.e., PTSD). In the present article, we develop a statistical model to explain elevated PTSD

symptom severity among Hispanics by systematically considering (a) reporting bias, (b) differential exposure to trauma, (c) peritraumatic dissociation, (d) posttrauma coping, (e) posttrauma social context, and (f) comorbid psychiatric syndromes.

Reporting Bias

Before considering explanations for the apparent Hispanic risk for PTSD, it is important to rule out the possibility that this putative risk factor is simply an artifact of overreporting bias. Several investigators have sought to explain the apparent elevated rate of PTSD among Hispanic individuals by proposing a culture-based tendency to overreport distress. Because PTSD has been typically assessed through participant report, either via questionnaires or diagnostic interviews, it is possible that Hispanic individuals do not actually experience more severe PTSD symptoms but merely report that they do. Ortega and Rosenheck (2000) suspected overreporting after finding that Hispanic veterans reported more PTSD symptoms but were not more functionally impaired than non-Hispanic Caucasian veterans. However, caution is necessitated in accepting their conclusion given that Mexican Americans, who composed almost two thirds of their Hispanic sample, were in fact significantly more impaired on two out of the six functional status measures (i.e., educational attainment and subjective well being) and had marginally worse marital problems (i.e., $p = .08$) than their non-Hispanic Caucasian counterparts.

Furthermore, the view of Hispanics as exaggerators of distress is not consistent with ethnographic literature in which Hispanics are depicted as reluctant to admit personal distress (Hough, Canino, Abueg, & Gusman, 1996; Ruef, Litz, & Schlenger, 2000). As a collectivistic culture, Hispanics may also be concerned with adhering to social norms and reporting in a socially desirable direction. For example, one study

found that Hispanics were more likely to overstate their compliance with seat belt laws (Parada, Cohn, Gonzalez, Byrd, & Cortes, 2001). Taken together, the available evidence suggests that if a reporting bias exists for Hispanic Americans, it is likely to be in the direction of underreporting distress.

Exposure to Trauma

Elevated rates of PTSD among Hispanics could be explained by more frequent or more severe exposure to trauma. Greater exposure to trauma has generally been associated with more severe PTSD symptoms (Brewin, Andrews, & Valentine, 2000). Both Kulka et al. (1990) and Perilla et al. (2002) found that their Hispanic participants were among the most heavily exposed to traumatic stress. However, controlling for differential exposure did not fully explain the Hispanic ethnicity effect in either study. In other studies, Hispanics and non-Hispanics were found to have similar exposure to trauma (e.g., Rosenheck & Fontana, 1996) but very different rates of PTSD. Nonetheless, differential exposure to trauma should be considered as a potential contributor to the Hispanic risk for PTSD.

Peritraumatic Dissociation

Ethnocultural differences in the magnitude of "peritraumatic" responses, that is, the responses that occur during or immediately after the traumatic event, may also influence the risk for PTSD. Peritraumatic dissociation, or the tendency to experience altered states of consciousness at the time of trauma, is one of the most robust predictors of PTSD in the literature (Ozer, Best, Lipse, & Weiss, 2003), and dissociative symptoms have been widely reported in "culture-bound" syndromes identified in Latin America (Escobar, 1995). These results have led

some to predict that Hispanic individuals might manifest higher levels of peritraumatic dissociation than other ethnic groups, which could contribute to their higher rates of PTSD (Hough et al., 1996; Marshall & Orlando, 2002).

Posttrauma Coping

An important consideration in understanding an ethnocultural difference in posttraumatic stress symptoms is an examination of possible ethnocultural differences in posttrauma coping. Many studies have suggested that coping style can predict the psychological consequences of traumatic stress, with the general finding being that active or problem-solving coping leads to better outcomes than passive or avoidance coping (Marmar, Weiss, Metzler, & Delucchi, 1996). Though there has been limited research examining Hispanic ethnicity and coping style in relation to PTSD, Perilla et al. (2002) found that Hispanics who maintained close ties to their cultures of origin were most likely to endorse *fatalistic* beliefs, including a tendency to see events as inevitable and unalterable. If these fatalistic beliefs influence posttrauma coping, then we would predict that less-aculturated Hispanics may be more likely to use passive coping, which would elevate their risk for PTSD.

Posttrauma Social Context

Social Support

In addition to considering ethnocultural differences in intrapsychic variables such as peritraumatic and coping responses, it is also important to consider ethnocultural variation in PTSD-relevant interpersonal variables. For example, numerous studies have shown that social support can buffer the effects of stress, including traumatic stress (e.g., Solomon, Smith, Robins, & Fis-

chbach, 1987). Social support may be particularly important to Hispanic individuals because of their cultural emphasis on collectivistic values (Cervantes & Castro, 1985). Hispanic individuals may, for example, have greater need for social support than other ethnic groups. Escobar et al. (1983) found that among Hispanic patients, those with poor familial and social relationships had the most intense PTSD symptoms. Ruef et al. (2000) found that Hispanic veterans in the NVVRS reported less camaraderie and support from their fellow soldiers than both Caucasian and Black veterans. Thus, lower social support may be related to higher levels of PTSD in Hispanics.

Perceived Racism

Another social context factor that may play a role in elevated levels of PTSD among Hispanics is racism. Ethnic minorities who endure ongoing race-related discrimination may be under chronic stress and thus be more susceptible to the effects of traumatic events. In the NVVRS, veterans who perceived greater racial discrimination had higher rates of PTSD than those who did not (Ruef et al., 2000). At first glance, perceived racism may seem an unlikely explanation for Hispanic PTSD rates because African Americans, who as a group have also been the target of racism, have not consistently shown the same elevated levels of PTSD (e.g., Pole et al., 2001). However, perceived racism may be more detrimental to Hispanics than African Americans. Data from the NVVRS suggest that although African American Vietnam veterans perceived more racism in the military than Hispanic veterans, the Hispanics who perceived racism had higher rates of PTSD than their African American counterparts (Ruef et al., 2000). Though the reasons for such a finding are unclear, there is some indication in the literature that, unlike African Americans, Hispanic Americans may receive little parental preparation for coping with racial discrimination (Phinney & Chavira, 1995).

Comorbid Psychiatric Syndromes

Somatization

Finally, it is worthwhile to consider comorbid psychiatric syndromes that may be more prevalent among Hispanics and therefore augment PTSD symptoms. One such syndrome is somatization, or the tendency to express psychiatric distress in physical terms. In contradistinction to the dualism advocated by mainstream American society, Hispanic culture tends to favor a view of a seamless connection between mind and body (Bates, Rankin-Hill, & Sanche-Ayendez, 1997) and to promote the use of somatic complaints as "idioms of distress" (Stoker, Zurcher, & Fox, 1969). This may, in part, account for reports of higher psychosomatic distress in Hispanic cultures all over the world (Bates et al., 1997). As a striking example, The World Health Organization studied 25,916 patients in 14 countries and found that somatization disorder was over 10 times more prevalent in South America than in comparable non-Hispanic regions (Gureje, Simon, Ustun, & Goldberg, 1997). These findings are relevant to PTSD because PTSD symptoms are typically found to be highly comorbid with somatic symptoms (van der Kolk et al., 1996). In fact, patients with somatization disorders are three times more likely to have PTSD as those without (Rogers et al., 1996). It is possible then that exaggerated somatic symptoms among Hispanics may intensify, exacerbate, or prolong PTSD symptoms.

General Psychiatric Distress

For similar reasons, it is of interest to examine ethnic differences in general psychiatric distress. Such an analysis would have the added advantage of indicating whether the effects of Hispanic ethnicity are specific to PTSD symptoms or are related to higher levels of general emotional distress. A finding of more severe PTSD symptoms among Hispanics without a similar finding in gen-

eral psychiatric distress would argue against a general overreporting bias.

The Present Study

In the present article, we reanalyzed data from Pole et al.'s (2001) study of ethnicity and posttraumatic stress among urban police officers to address the following three questions: (a) Which variables distinguish Hispanics from their non-Hispanic Black and non-Hispanic Caucasian counterparts? (b) Of these variables, which are associated with more severe PTSD symptoms? (c) Of these remaining variables, which explain the relationship between Hispanic ethnicity and PTSD symptom severity?

Method

Participants and Procedure

Police officers were identified through personnel records from three urban police departments and were recruited using procedures described in detail elsewhere (e.g., Pole et al., 2001). Ethnic minorities were recruited in excess of their proportions in the departments to provide sufficient statistical power to examine ethnic differences. Thirteen participants were included in the present study whose data were not available at the time of the Pole et al. (2001) study. The final convenience sample of 668 officers gave informed consent and completed self-report instruments (described below) for which they were each compensated \$100. This sample size was sufficient to detect small to medium effect sizes with 80% power.

Measures

ETHNOCULTURAL STATUS. Participants indicated their ethnicity by selecting all that applied among five choices: Black, Caucasian,

Hispanic, Asian, and/or Native American. Although there is considerable controversy about how to properly describe ethnocultural groups, we use these labels throughout our article because these were the labels that our participants used to self-identify their ethnicity. Asian and Native American officers were excluded from the present study because there were too few in each category to make meaningful comparisons. To simplify the interpretation of our results, we also excluded participants who selected more than one ethnicity. Thus, the final sample consisted of Hispanic, non-Hispanic Caucasian, and non-Hispanic Black officers. Those who were excluded from the study did not differ significantly from those who were included on other key demographic variables or psychological distress measures.

SOCIAL DESIRABILITY SCALE. The Social Desirability Scale (SDS) measures social desirability, the tendency to endorse self-report items in ways that avoid controversy and elicit the approval of others (Reynolds, 1982). The SDS consists of 13 items that were answered in a true/false format with an internal consistency of $\alpha = .72$. Possible scores range from 0 to 13, with higher scores reflecting greater social desirability reporting bias. The SDS has been shown to have adequate reliability and validity in Hispanic and other ethnic samples (Vernon, Roberts, & Lee, 1982).

CRITICAL INCIDENT HISTORY QUESTIONNAIRE. The Critical Incident History Questionnaire (Weiss et al., 2004) assesses the frequency (number of exposures) and severity (how distressing the event would be to an average officer) of 34 police-related critical incidents (e.g., being shot at, making a mistake that led to injury of a bystander) over the course of the officer's entire career. Respondents were asked to rate severity with respect to the "average officer" rather than themselves to reduce underreporting biases commonly found among police. Frequency

and severity were weighted into a single exposure score by calculating the square root of the sum across items of the product of the frequency and severity scores, with larger scores indicating more trauma exposure.

PERITRAUMATIC DISSOCIATIVE EXPERIENCES QUESTIONNAIRE. The Peritraumatic Dissociative Experiences Questionnaire (PDEQ; Marmar, Weiss, & Metzler, 1997) is a 10-item self-report measure of dissociative symptoms (e.g., distorted time perception, things seeming unreal, feeling as though one is a spectator watching one's self-being traumatized) during a traumatic event. Officers were asked to rate each item with respect to symptoms *during* their most disturbing duty-related critical incident, which we refer to as their *index trauma*, on a 5-point scale from 1 (*not at all true*) to 5 (*extremely true*). Higher mean scores across the 10 items indicate greater peritraumatic dissociation. The internal consistency of the PDEQ was $\alpha = .83$.

WAYS OF COPING QUESTIONNAIRE. We used a 44-item modification of the original Ways of Coping Checklist (Folkman & Lazarus, 1985) that asked respondents to describe strategies that they used to cope *after* their index trauma. Each coping strategy was rated on a scale from 0 (*not used*) to 3 (*used a great deal*). The overall measure was reduced to a number of subscales including the following, with internal consistency noted in parentheses: problem-focused coping, for example, "I made a plan of action and followed it" ($\alpha = .82$); wishful thinking coping, for example, "I hoped a miracle would happen" ($\alpha = .85$); social support coping, for example, "I talked to someone about how I was feeling" ($\alpha = .72$); and self-blame coping, "I criticized or lectured myself" ($\alpha = .72$). Higher subscale scores indicate greater use of a particular post-trauma coping strategy.

WORK ENVIRONMENT INVENTORY PERCEIVED RACISM SUBSCALE. The Work Environment Inventory (WEI) is a 68-item instrument that measures current "routine" (i.e., nontraumatic), police-related, occupational stressors (e.g., poor management, defective equipment, low pay; Liberman et al., 2002). Three items were identified as comprising the WEI Perceived Racism subscale: "Distasteful racial and ethnic jokes are common where I work," "The work of some racial/ethnic groups is unfairly scrutinized by supervisors," and "Where I work, employees treat each other the same, regardless of their racial/ethnic group." Respondents rated each item using a 5-point scale ($-2 = strongly disagree$ to $2 = strongly agree$) with respect to their *current* (i.e., posttrauma) place of employment. Prior to aggregating these items, the third item was reverse scored. Larger values of the resulting subscale, which had an internal consistency of $\alpha = .65$, indicated more current perceived workplace racism.

SOURCES OF SUPPORT SCALE. The Sources of Support Scale is a 10-item social support questionnaire containing items such as "There is someone you can turn to in times of need," which were rated on a 5-point scale ($1 = not at all true$ to $5 = extremely true$) with respect to the officers' *current* (i.e., posttrauma) social support (Kulka et al., 1990). The 10 items were averaged to produce an overall measure of social support, which had an internal consistency of $\alpha = .63$, and was scaled so that higher scores indicate more current social support.

SYMPTOM CHECKLIST 90—REVISED. The Symptom Checklist 90—Revised (SCL-90-R; Derogatis & Spitznagel, 2000) is a commonly used measure of psychiatric distress. Respondents rated how much they had been distressed by each of 90 psychiatric symptoms within the past 7 days (i.e., posttrauma) on a 5-point scale ranging from 0 (*not at all*) to 4 (*extremely*). In the present

article, we focused on the Somatization subscale and the Global Severity Index (GSI). The Somatization subscale, which had an internal consistency of $\alpha = .83$, is a summary of ratings given to physical complaints that may be caused by emotional distress, physical disease processes, or both. The GSI, which had an internal consistency of $\alpha = .97$, is a summary of the mean rating given to all items on the SCL-90-R and is considered a measure of general psychiatric distress.

MISSISSIPPI SCALE—CIVILIAN VERSION. The Mississippi Scale—Civilian Version (MS-CV) is a self-report measure of cumulative PTSD-related symptoms adapted from the Mississippi Scale for Combat-Related Posttraumatic Stress Disorder (Keane, Caddell, & Taylor, 1988). Items were reworded slightly so that references to military service were replaced with references to the respondent's index trauma. For example, the original item "Before I entered the military, I had more close friends than I have now" was reworded "Before I experienced the event, I had more close friends than I have now." Each item was rated on a 5-point scale from 1 (*not at all true*) to 5 (*extremely true*). The conventional 35-item version of the MS-CV has a few limitations with respect to the assessment of PTSD symptoms: (a) It excludes some symptoms that are part of the American Psychiatric Association's (1994) *Diagnostic and Statistical Manual of Mental Disorders* (4th ed.; *DSM-IV*) criteria (e.g., physiological reactivity upon reminders of the trauma); (b) it includes associated features that are not part of the *DSM-IV* criteria (e.g., suicidality, difficulty keeping a job); and (c) unlike other measures of PTSD, it is usually not scored with respect to the three subcategories of symptoms that compose PTSD, that is, reexperiencing (e.g., flashbacks), avoidance/numbing (e.g., avoiding reminders of the trauma), and hyperarousal (e.g., exaggerated startle) symptoms. We administered a 40-item version of the MS-CV that included the original 35 items plus pre-

viously missing *DSM-IV* PTSD symptoms. We scored the MS-CV in several ways: (a) the conventional 35-item sum (indexing the severity of some *DSM-IV* PTSD symptoms plus associated features; $\alpha = .84$), (b) the 40-item sum (indexing the severity of all *DSM-IV* PTSD symptoms plus associated features; $\alpha = .86$); (c) a 30-item sum (indexing only the severity of *DSM-IV* PTSD symptoms; $\alpha = .87$); and (d) three mean scores summarizing responses to items pertaining to the severity of reexperiencing ($\alpha = .87$), avoidance/numbing ($\alpha = .75$), and hyperarousal ($\alpha = .64$) symptoms. Means rather than sums were used for scoring the subcategories to facilitate comparison between them.

DATA-ANALYTIC STRATEGY. Our basic strategy for explaining the relationship between Hispanic ethnicity and PTSD symptom severity was as follows. First, we determined which variables distinguished Hispanic from non-Hispanic Black and non-Hispanic Caucasian officers using omnibus analyses of variance followed by paired comparisons to decompose significant ethnicity effects. Second, we used Pearson correlations to determine which distinguishing variables were associated with PTSD symptom severity. Finally, we constructed regression models to determine the minimum number of explanatory variables that were necessary to explain PTSD symptom severity differences between Hispanic and other ethnic groups by entering variables in order of chronological occurrence with respect to trauma exposure.

Results

Sample Characteristics

Our sample was 28% Hispanic ($n = 189$), 24% non-Hispanic Black ($n = 162$), and 48% non-Hispanic Caucasian ($n = 317$). Participants were 21% female ($n = 140$) and 96% heterosexual ($n = 641$). The majority had some college education, were married, and had a total household income of be-

tween \$50,000 and \$90,000 per year. On average, the officers were 37.2 (*SD* = 6.8) years old and had 12.7 (*SD* = 6.5) years of police service. We conducted several analyses to determine whether our Hispanic group differed from the other two ethnic groups on any demographic variables. We found that the non-Hispanic Caucasian officers (*M* = 36.4 years, *SD* = 7.2) were significantly younger than both the non-Hispanic Black officers (*M* = 38.3 years, *SD* = 6.0), *t*(472) = 2.78, *p* < .01, and the Hispanic officers (*M* = 37.7 years, *SD* = 6.6), *t*(501) = 1.97, *p* < .05. We also found that fewer non-Hispanic Black officers (51%) were married than their Hispanic (67%), $\chi^2(1, N = 349) = 8.70, p < .01$, or non-Hispanic Caucasian counterparts (66%), $\chi^2(1, N = 477) = 6.39, p < .01$. There were no ethnic differences in years of police service, gender, sexual orientation, or total household income.

Ethnic Differences in PTSD Symptom Severity

Table 1 compares Hispanic officers with their non-Hispanic Caucasian and Black counterparts on our set of PTSD symptom severity measures. Because the purpose of

this study is to understand elevated levels of PTSD symptom severity among Hispanic individuals, we focus here on significant differences between Hispanic and other officers. The interested reader will find the results of the omnibus analyses of variance and the differences between the non-Hispanic Black and non-Hispanic Caucasian groups noted in the tables.

Using the traditional 35-item Mississippi scores (indexing some *DSM-IV* PTSD symptoms plus associated features), we found that Hispanic officers reported significantly more severe symptoms than their non-Hispanic Caucasian counterparts, *t*(504) = 3.39, *p* < .001, and a trend for more severe symptoms than their non-Hispanic Black counterparts, *t*(349) = 1.81, *p* = .07. Using the 40-item Mississippi scores (indexing all *DSM-IV* PTSD symptoms plus associated features), Hispanic officers also reported more severe symptoms than their non-Hispanic Caucasian counterparts, *t*(504) = 3.17, *p* < .001, and marginally more severe symptoms than their non-Hispanic Black counterparts, *t*(349) = 1.72, *p* = .08. When the groups were compared on the 30-item Mississippi sums (indexing only *DSM-IV* PTSD symptoms), we found that that Hispanic officers reported significantly more

TABLE 1 Ethnic Comparisons on Posttraumatic Stress Symptoms and Associated Features

<i>Symptom</i>	<i>Hispanic</i>	<i>Non-Hispanic Black</i>	<i>Non-Hispanic Caucasian</i>	<i>Omnibus ANOVA</i>
	(<i>n</i> = 189)	(<i>n</i> = 162)	(<i>n</i> = 317)	
	<i>M (SD)</i>	<i>M (SD)</i>	<i>M (SD)</i>	<i>F(2, 665)</i>
Some PTSD symptoms + associated features	67.8 (14.5) _b	65.1 (13.1)	63.4 (13.6) _c	5.91**
All PTSD symptoms + associated features	75.3 (16.5) _b	72.4 (14.9)	70.7 (15.5) _c	5.18**
PTSD symptoms only	55.7 (14.0) _{a,b}	52.9 (12.2) _c	52.1 (12.8) _c	4.80**
PTSD reexperiencing symptoms	1.44 (0.66)	1.32 (0.54)	1.44 (0.60)	2.51
Avoidance/numbing symptoms	1.86 (0.57) _b	1.77 (0.52)	1.71 (0.56) _c	4.31*
Hyperarousal symptoms	2.11 (0.46) _b	2.02 (0.39) _b	1.94 (0.41) _{a,c}	9.70***

Note. "PTSD symptoms" refers to posttraumatic stress disorder symptoms as defined in the *Diagnostic and Statistical Manual of Mental Disorders* (4th ed.; American Psychiatric Association, 1994) and as measured by items from the Mississippi Scale—Civilian Version (see text). Subscripts indicate a significant mean difference (*p* < .05) with value(s) in the same row (a = significant difference from the non-Hispanic Black group, b = significant difference from the non-Hispanic Caucasian group, and c = significant difference from the Hispanic group). ANOVA = analysis of variance.

* *p* < .05. ** *p* < .01. *** *p* < .001.

severe symptoms than both their non-Hispanic Caucasian counterparts, $t(504) = 3.00$, $p < .01$, and their non-Hispanic Black counterparts, $t(349) = 2.01$, $p < .05$. Because the 30-item Mississippi sum is most closely aligned with *DSM-IV* PTSD criteria and because it uniquely distinguished Hispanic officers from the other two ethnocultural groups, we used it as our index of PTSD symptom severity in all subsequent analyses.

Table 1 also compares the three ethnocultural groups on the severity of the three symptom subcategories that define *DSM-IV* PTSD. We found no ethnic differences in reexperiencing symptoms. However, Hispanic officers reported more severe avoidance/numbing symptoms, $t(504) = 2.88$, $p < .01$, and hyperarousal symptoms, $t(504) = 4.29$, $p < .001$, than their non-Hispanic Caucasian counterparts. Yet, when compared with non-Hispanic Black officers, Hispanic officers did not report more severe avoidance/numbing symptoms and only

marginally more severe hyperarousal symptoms, $t(349) = 1.90$, $p = .06$. In sum, it appears that the source of the difference in PTSD symptom severity between Hispanic and non-Hispanic Caucasian officers is that Hispanic officers experience significantly more severe avoidance/numbing and hyperarousal symptoms. The differences between Hispanic and non-Hispanic Black officers' PTSD symptoms do not reach significance until all PTSD symptoms are examined together.

Ethnic Differences in Predictors of PTSD Symptom Severity

Table 2 compares Hispanic officers with non-Hispanic Caucasian and Black officers on variables that might help to explain why Hispanic officers report the most severe PTSD symptoms of the three groups. Hispanic officers had significantly higher social

TABLE 2 Ethnic Comparisons on Potential PTSD Symptom Predictor Variables

Variable	Hispanic (<i>n</i> = 189)	Non- Hispanic Black (<i>n</i> = 162)	Non- Hispanic Caucasian (<i>n</i> = 317)	Omnibus ANOVA <i>F</i> (2, 665)
	<i>M</i> (<i>SD</i>)	<i>M</i> (<i>SD</i>)	<i>M</i> (<i>SD</i>)	
Social desirability	9.01 (2.58) _{a,b}	8.42 (2.92) _{b,c}	7.56 (2.95) _{a,c}	16.0***
Trauma exposure	18.27 (7.74)	16.91 (7.37) _b	18.81 (7.98) _a	3.24*
Peritraumatic dissociation	2.12 (0.84) _{a,b}	1.91 (0.81) _c	1.94 (0.76) _c	4.01*
Posttrauma coping				
Problem-focused coping	1.01 (0.54)	1.04 (0.55) _b	0.93 (0.53) _a	3.07*
Wishful thinking coping	0.81 (0.71) _b	0.72 (0.65)	0.64 (0.57) _c	4.30*
Social support coping	0.70 (0.62)	0.68 (0.61)	0.65 (0.59)	0.42
Self-blame coping	0.71 (0.91) _{a,b}	0.53 (0.76) _c	0.49 (0.76) _c	4.75***
Posttrauma social context				
Social support	3.66 (0.55) _b	3.66 (.54) _b	3.83 (0.43) _{a,c}	10.7***
Perceived racism	9.64 (5.40) _{a,b}	11.11 (4.93) _{b,c}	6.10 (3.94) _{a,c}	73.3***
Comorbid psychiatric syndromes				
Somatization	0.47 (0.51) _{a,b}	0.35 (0.38) _c	0.37 (0.39) _{a,c}	4.46*
General psychiatric distress	0.44 (0.46)	0.37 (0.37)	0.40 (0.35)	1.57

Note. Descriptions of measures associated with each variable are provided in the text. Subscripts indicate a significant mean difference ($p < .05$) with value(s) in the same row (a = significant difference from the non-Hispanic Black group, b = significant difference from the non-Hispanic Caucasian group, and c = significant difference from the Hispanic group). Posttraumatic stress disorder (PTSD) symptom severity was measured using the Mississippi Scale—Civilian Version. ANOVA = analysis of variance.

* $p < .05$. ** $p < .01$. *** $p < .001$.

desirability scores than non-Hispanic Caucasian officers, $t(504) = 5.56, p < .001$, and non-Hispanic Black officers, $t(349) = 2.01, p < .05$. Hispanic officers were exposed to statistically equivalent levels of duty-related trauma as compared with the other two ethnic groups. In response to their index trauma, Hispanic officers reported significantly more peritraumatic dissociation than both non-Hispanic Black officers, $t(349) = 2.42, p < .05$, and non-Hispanic Caucasian officers, $t(504) = 2.46, p < .01$. In terms of posttrauma coping, Hispanic officers were significantly more likely than non-Hispanic Caucasian officers to engage in wishful thinking coping, $t(504) = 2.94, p < .01$, and more likely than both non-Hispanic Black officers, $t(349) = 2.04, p < .05$, and non-Hispanic Caucasian officers, $t(504) = 2.97, p < .01$, to use self-blame coping. With regard to differences in posttrauma social context, Hispanic officers reported more workplace racism than non-Hispanic Caucasian officers, $t(504) = 8.47, p < .001$, but less workplace racism than non-Hispanic Black officers, $t(349) = 2.67, p < .01$. Hispanic officers also reported significantly less social support, $t(504) = 4.03, p < .001$, than non-Hispanic Caucasian officers, $t(504) = 2.16, p < .05$. Finally, in terms of concurrent psychiatric syndromes, Hispanic officers reported more current somatic symptoms than both non-Hispanic Caucasian officers, $t(504) = 2.45, p < .05$, and non-Hispanic Black officers, $t(349) = 2.53, p < .05$. There were no ethnic differences in general psychiatric distress.

Correlates of PTSD Symptom Severity

Of the variables that distinguished Hispanic officers from officers of other ethnic groups, greater PTSD symptom severity was correlated with lower social desirability scores, $r(666) = -.21, p < .001$; greater perceived racism in the workplace; $r(666) = .28, p < .001$; greater peritraumatic dissociation, $r(666) = .48, p < .001$; greater wishful thinking coping, $r(666) = .60, p < .001$; greater

self-blame coping, $r(666) = .41, p < .001$; less current social support, $r(666) = -.33, p < .001$; and greater current somatic complaints, $r(666) = .49, p < .001$. PTSD symptom severity was not significantly related to either age or marital status.

Why Do Hispanics Have More Severe PTSD Symptoms Than Other Ethnic Groups?

To explain the elevated PTSD symptoms among Hispanics, we constructed two regression models, one to explain the difference between Hispanics and non-Hispanic Blacks and the other to explain the difference between Hispanics and non-Hispanic Caucasians. In each model, we entered explanatory variables that both differentiated the two ethnocultural groups in question and were associated PTSD symptom severity. We entered social desirability first into each model to adjust for reporting biases and then entered the explanatory variables in chronological order, thereby giving peritrauma variables causal priority over posttrauma coping, posttrauma social context, and comorbid psychiatric symptoms. In both models, we sought the minimum number of explanatory variables needed to account for the relationship between Hispanic ethnicity and PTSD symptom severity.

Table 3 presents the regression model that explains why Hispanic officers reported more severe PTSD symptoms than non-Hispanic Black officers. Hispanic versus non-Hispanic Black ethnicity alone accounted for a statistically significant 1% of the variance in PTSD symptom severity. Adjustment for social desirability reporting bias increased the variance explained by Hispanic ethnicity to 2%. Because the demographic differences that distinguished Hispanic and non-Hispanic Black officers were not predictive of PTSD symptom severity and because these two groups were not different in exposure to duty-related critical incidents, magnitude of peritraumatic dissociation was the first eligible explanatory variable to be entered into the model. Peritraumatic dissoci-

TABLE 3 Regression Model Explaining Differences in PTSD Symptom Severity Between Hispanic and non-Hispanic Black Officers

<i>Step and explanatory variable</i>	<i>B</i>	<i>SE B</i>	β	ΔR^2	R^2
1. Hispanic vs. non-Hispanic Black ethnicity	2.85***	1.41	.11	.01*	.01
1. Social desirability	-1.30***	0.25	-.27	.07***	.07
2. Hispanic vs. non-Hispanic Black ethnicity	3.61**	1.37	.14	.02**	.09
1. Social desirability	-0.85***	0.23	-.18	.07***	.07
2. Peritraumatic dissociation	7.24***	0.75	.46	.21***	.28
3. Hispanic vs. non-Hispanic Black ethnicity	1.80	1.23	.07	.00	.28

Note. The variables listed above were measured using the following instruments: social desirability (Social Desirability Scale); peritraumatic dissociation (Peritraumatic Dissociative Experiences Questionnaire). Posttraumatic stress disorder (PTSD) symptom severity was measured using the Mississippi Scale—Civilian Version.

* $p < .05$. ** $p < .01$. *** $p < .001$.

ation predicted an additional 21% of the variance in PTSD symptom severity and fully accounted for the differences between Hispanic and non-Hispanic Black officers in PTSD symptom severity.

Table 4 shows a similar process for ex-

plaining why Hispanic officers reported more severe PTSD symptoms than non-Hispanic Caucasian officers. Adjusting for social desirability increased the explained PTSD symptom severity variance from 2% to 4%. Peritraumatic dissociation, the first ex-

TABLE 4 Regression Model Explaining Differences in PTSD Symptom Severity Between Hispanic and non-Hispanic Caucasian Officers

<i>Step and explanatory variable</i>	<i>B</i>	<i>SE B</i>	β	ΔR^2	R^2
1. Hispanic vs. non-Hispanic Caucasian ethnicity	3.66**	1.22	.13	.02**	.02
1. Social desirability	-1.27***	0.20	-.28	.05***	.05
2. Hispanic vs. non-Hispanic Caucasian ethnicity	5.48***	1.21	.20	.04***	.09
1. Social desirability	-1.01***	0.18	-.22	.05***	.05
2. Peritraumatic dissociation	7.18***	0.65	.43	.20***	.25
3. Hispanic vs. non-Hispanic Caucasian ethnicity	3.82***	1.01	.14	.02***	.27
1. Social desirability	-0.82***	0.17	-.18	.05***	.05
2. Peritraumatic dissociation	4.33***	0.67	.26	.20***	.25
3. Wishful thinking/self-blame coping	7.92***	0.83	.39	.12***	.37
4. Hispanic vs. non-Hispanic Caucasian ethnicity	2.49*	1.02	.09	.01*	.38
1. Social desirability	-0.57**	0.16	-.12	.05***	.05
2. Peritraumatic dissociation	3.71***	0.64	.22	.20***	.25
3. Wishful thinking/self-blame coping	7.67***	0.79	.37	.12***	.37
4. Social support	-5.35***	0.98	-.19	.05***	.42
5. Perceived racism	0.42***	0.10	.15	.02***	.45
6. Hispanic vs. non-Hispanic Caucasian ethnicity	0.12	1.05	.00	.00	.45

Note. The variables listed above were measured using the following instruments: social desirability (Social Desirability Scale); peritraumatic dissociation (Peritraumatic Dissociative Experiences Questionnaire); wishful thinking/self-blame coping (Ways of Coping Questionnaire); social support (Sources of Support Scale); perceived racism (Work Environment Inventory Perceived Racism Scale). Posttraumatic stress disorder (PTSD) symptom severity was measured using the Mississippi Scale—Civilian Version.

* $p < .05$. ** $p < .01$. *** $p < .001$.

planatory variable entered into the model, accounted for a significant 20% increase in explained PTSD symptom severity variance. Yet, even after entering peritraumatic dissociation in the model, Hispanic ethnicity versus non-Hispanic Caucasian ethnicity remained a significant predictor of PTSD symptom severity. Coping style was the next eligible explanatory variable because coping was assumed to begin after peritraumatic responses but before the impact of social context variables. Lacking any a priori reason to give one coping style precedence over the other and observing that the two styles were moderately correlated, $r(666) = .59$, $p < .001$, we created an aggregate “wishful thinking/self-blame coping style” index by averaging the two scores and entered it next into the model. Coping style explained 12% more variance in PTSD symptom severity, but Hispanic ethnicity versus non-Hispanic Caucasian ethnicity continued to significantly predict PTSD symptom severity, though now only accounting for 1% of the variance. We then entered current social context variables, that is, social support and perceived workplace racism. Each explained significant additional variance in PTSD symptom severity (5% and 2%, respectively) and together with the previously specified variables fully explained why Hispanic officers had more severe PTSD symptoms than non-Hispanic Caucasian officers.

Discussion

Several investigators have reported elevated PTSD among Hispanics, but few have offered a data-driven explanation for this ethnocultural difference. We studied a group of Hispanic police officers who reported more severe PTSD symptoms than their non-Hispanic Black and non-Hispanic Caucasian counterparts. We found that although the Hispanic officers were similar to the other officers in level of trauma exposure, they could be distinguished on a number of factors related to PTSD symptom severity, in-

cluding social desirability reporting bias, peritraumatic dissociation, posttrauma coping style, current social support, current perceived racism, and current somatic symptoms. Using these differentiating variables, we found that the difference in PTSD symptom severity between Hispanic and non-Hispanic Black officers was fully explained by the greater peritraumatic dissociation that Hispanic officers experienced in the aftermath of their index trauma. Explaining the PTSD symptom discrepancy between Hispanic and non-Hispanic Caucasian officers required the consideration of additional variables, namely greater wishful thinking and self-blame coping, less social support, and greater perceived racism in the Hispanic group. These findings warrant further discussion.

Ethnic Differences in the “Anatomy” of PTSD

Interpretation of our final explanatory models may be informed by reflection on the ways that our ethnic groups differed with respect to PTSD symptom presentation. We found that when compared with non-Hispanic Caucasian officers, the Hispanic officers had greater avoidance/numbing and hyperarousal but not greater reexperiencing symptoms. To our knowledge this is a novel finding. The literature is inconsistent on the question of ethnic differences in particular types of PTSD symptoms. Some investigators have reported lower avoidance/numbing symptoms (e.g., Jenkins, 1996), and others have reported higher reexperiencing symptoms (e.g., Perilla et al., 2002) among Hispanics. While our findings are at variance with these authors’ findings, they are consistent with Marsella, Friedman, and Spain’s (1996) theory that avoidance/numbing symptoms may be particularly susceptible to learned cultural influences. It is also consistent with the prediction that PTSD symptoms would be highest among cultures that promote avoidance as a general approach to managing distress (Marsella et al., 1996; McCall & Resick, 2003). Results from our study

and other sources suggest that Hispanic culture endorses such an approach, especially in comparison with their non-Hispanic Caucasian counterparts. If so, contemporary information-processing theories of PTSD would predict more severe PTSD symptoms among Hispanics because avoidance behaviors interfere with cognitive processing of trauma-related memories, provide inadequate opportunity for habituation of trauma-related emotional distress, and ultimately facilitate maintenance of PTSD symptoms (Foa, Steketee, & Rothbaum, 1989).

Reporting Bias

Previous studies have suggested that an over-reporting bias is the likely explanation for the apparent Hispanic ethnicity effect on PTSD (Ortega & Rosenheck, 2000; Ruef et al., 2000). Unlike previous investigators, we tested this theory directly and found evidence of a reporting bias in the *opposite direction* indicating that Hispanic officers *underreported* distress, which is consistent with ethnographic accounts of Hispanic stoicism (Hough et al., 1996; Ruef et al., 2000). One major implication of our finding is that the Hispanic vulnerability to PTSD may be even greater than what is suggested by the available data, which has been highly susceptible to social desirability bias. Further evidence against the notion that elevated PTSD among Hispanics is simply due to over-reporting distress comes from our finding that Hispanics did not report more general psychiatric distress. If more severe PTSD among Hispanics was due to a tendency to exaggerate emotional distress, then one would expect that they would have higher scores on measures of general psychiatric distress. Instead, the elevation seems specific to PTSD symptoms.

Peritraumatic Dissociation

Peritraumatic dissociation was one of few candidate explanatory variables that signifi-

cantly distinguished Hispanic officers from both their non-Hispanic Caucasian and non-Hispanic Black counterparts. Although this result is consistent with the literature documenting unusually high levels of dissociative symptoms in Hispanic cultures (e.g., Escobar, 1995), it seems not to agree with Zatzick, Marmar, Weiss, and Metzler's (1994) finding that among approximately 200 combat veterans, Hispanics did not evidence significantly greater peritraumatic dissociation than non-Hispanic Caucasians or Blacks. Because the magnitude of our effect size ($d = .22$) was similar in magnitude to Zatzick et al.'s effect size ($d = .15$), we believe the discrepancy in our conclusions is due to the lower statistical power in Zatzick et al.'s study.

In our study, peritraumatic dissociation emerged as arguably the most important variable accounting for the Hispanic risk for PTSD, a conclusion anticipated by Marshall and Orlando (2002) in their investigation of peritraumatic dissociation among young Hispanic adults. Peritraumatic dissociation was the only explanatory variable in our study that accounted for differences in PTSD symptom severity between Hispanics and both non-Hispanic Caucasians and non-Hispanic Blacks. Peritraumatic dissociation was also the first variable in the chronological chain between the onset of trauma and development of PTSD to register a significant Hispanic ethnicity difference, suggesting that the first indicator that Hispanic officers were on an accelerated trajectory toward PTSD occurred in the moments during and immediately after their trauma exposure. This should be a topic of further study.

Posttrauma Coping

Our results indicated that part of the reason that Hispanic officers had more severe PTSD symptoms than their non-Hispanic Caucasian counterparts is that Hispanic officers engaged in more wishful thinking and self-blame coping. Officers who endorsed elevated wishful thinking coping reported

that they dealt with their index trauma through belief in miracles, faith, or luck or by wishing, daydreaming, or fantasizing that things would be different. This coping style is problematic both because it is passive and because it implies an external locus of control. Both of these features have been implicated in increasing vulnerability to PTSD (Maercker & Herrle, 2003; Marmar et al., 1996). Furthermore, if wishful thinking coping was more prevalent among Hispanic officers prior to trauma exposure, then this may have predisposed peritraumatic dissociation, which would have the psychological effect of granting a "wish" to be somewhere other than experiencing the traumatic event. Self-blame coping, on the other hand, which includes the tendency to blame, criticize, or lecture oneself, could lead to rumination and pathological guilt, known associated features of PTSD.

We are unsure why these coping styles were more prevalent among our Hispanic participants, but we speculate that fatalism combined with culturally embraced religious beliefs (Pepitone & Triandis, 1987) may play an important role. For example, the Santeria and Catholic traditions, common among some Hispanic subgroups, encourage absolute faith and reliance in a higher power and teach the importance of atonement for perceived sins. From the perspective of those who hold such beliefs, bad things do not happen to those whose faith is strong and who live a righteous life. The occurrence of traumatic events may thus be seen as punishment for imperfect faith or prior sins, and chronically suffering with PTSD symptoms may be welcomed as penance. Though strong religious beliefs may confer many advantages to the faithful, recent evidence suggests a complex interaction between religiosity and adaptation to the effects of trauma. For example, Maercker and Herrle (2003) studied survivors of the World War II Dresden bombing and found that for the sample as a whole, high religiosity was weakly but not significantly associated with lower PTSD symptoms. However, when they focused on those who were

most highly exposed to trauma, high religiosity was strongly associated with increased PTSD avoidance symptoms. Thus, it could be that for individuals who are highly exposed to trauma, like our police sample, religiosity acts as a vulnerability factor particularly because of encouragement of avoidant coping and external locus of control. To the extent that these coping styles are culturally imbued, they appear to pose a conflict when matched against the demands of police-related trauma.

Posttrauma Social Context

The posttrauma social context also helped to explain PTSD symptom severity differences between Hispanic and non-Hispanic Caucasian officers. Although Hispanic and non-Hispanic Caucasians were similar in their propensity to seek social support following their index trauma, as evidenced by nonsignificant differences between these groups in social support coping (see Table 2), Hispanics reported achieving significantly less current social support, which in turn was related to their elevated PTSD symptoms. Hispanic officers may have had greater difficulty achieving social support because of reluctance to admit personal distress due to their elevated social desirability concerns or because of their emerging PTSD symptoms, which our data suggest were likely to be characterized by prominent avoidance/numbing (e.g., estrangement from others) and hyperarousal (e.g., increased irritability) features. In addition, their culturally valued collectivism may have left these officers particularly sensitive to social isolation, thus further exacerbating their symptoms. Understanding the barriers to achieving social support in this group could point to specific targets of preventive intervention.

The other important social context variable was workplace racism. As was true of the NVVRS, we found that Hispanic participants reported significantly less racism than their non-Hispanic Black counterparts but more

than their non-Hispanic Caucasian counterparts. Nonetheless, Hispanic exposure to racism seemed to play a role in their elevated PTSD symptoms. As noted earlier, one likely mechanism for this effect is through the chronic stress conferred by working in a racist environment. However, another possibility is that the greater perceived racism among Hispanics is a consequence rather than a cause of PTSD symptoms. It may be that Hispanic police officers who are suffering from significant hyperarousal symptoms are especially vigilant and hypersensitive to contextual variables that bear on their safety, including potential racial discrimination in the workplace.

Somatization

Although we found that Hispanic officers reported more concurrent somatic symptoms than both their non-Hispanic Caucasian and Black counterparts, this difference was not a necessary part of either of our explanatory models. Nonetheless, the finding is worth noting because it is consistent with a wealth of epidemiological data showing elevations in somatization among Hispanic groups and because somatization has been so closely associated with PTSD. It is also notable because when considered in the context of our other findings, an interesting interpretation emerges. Several of our results point to the fact that the Hispanic officers engaged in avoidance behaviors that would tend to compromise the processing of distressing emotions. There is evidence that restricted emotional processing is an important contributor to medically unexplained somatic symptoms (e.g., Brosschot, 2001). Thus, these cultural traditions may be driving exaggerated somatic complaints as well as elevated PTSD symptoms.

Limitations

There are several issues that restrict the conclusions that may be drawn from our study.

First, we relied on cross-sectional, retrospective, self-report data, which are known to be susceptible to bias, and a correlational design that is limited with respect to causal inference. Future directions of this work should use prospective longitudinal designs with independent confirmation of reported symptoms and trauma exposure. Second, we did not comprehensively measure all possible variables that could account for the effect of Hispanic ethnicity on PTSD, thus our conclusions are silent as to the possible effects of unmeasured variables. For example, we did not include measures of many pre-trauma variables such as childhood trauma exposure. Childhood trauma might have been different across ethnic groups and altered our results. Third, we used a convenience sample that may not be representative of all Hispanic officers or civilians in the general population. Fourth, we were unable to examine possible moderating effects of acculturation. Escobar et al.'s (1983) finding that low acculturation was associated with greater psychiatric symptoms among Hispanic veterans with PTSD, Perilla et al.'s (2002) finding that the greatest PTSD symptoms were found among Hispanics who prefer to speak Spanish, and Marshall and Orlando's (2002) finding that high acculturation was associated with lower peritraumatic dissociation among Hispanics all suggest that less-aculturated Hispanics may be at particularly high risk for PTSD. Finally, we were unable to study geographic subgroup differences among Hispanics. The literature hints that Caribbean Hispanics (e.g., Puerto Ricans) may be more vulnerable to PTSD than other Hispanic groups (e.g., Rosenheck & Fontana, 1994).

Strengths

A principal value of this research is that it adds to a sparse literature on what may be an important ethnocultural difference in the manifestation of psychopathology. Hough et al. (1996) noted that before the NVVRS, there were few comparative datasets using

standardized measures that could adequately address whether there is indeed a difference in PTSD symptoms between Hispanics and other ethnic groups. There have subsequently been several secondary analyses of NVVRS data to address this question (e.g., Ortega & Rosenheck, 2000; Ruef et al., 2000). Our study provides a detailed examination of the question in a relatively understudied population, urban police officers. In addition, we provide an empirical rather than rhetorical explanation for the Hispanic risk for PTSD rooted in a consideration of both Hispanic culture and the factors that are known to influence the course and severity of PTSD.

Conclusions

The relationship between Hispanic ethnicity and PTSD is a fascinating and mysterious one because, unlike many findings in minority mental health, it appears to have nothing to do with differences in exposure to stress and little to do with minority status. Instead, our results indicate that cultural and social factors may play a major role in driving this finding. Culturally sanctioned practices such as dissociation and faith-based, avoidant, and self-punitive coping combined with depleted social resources and workplace racial discrimination seem to leave Hispanic officers more deeply affected by exposure to trauma. Furthermore, detection of this problem may be hampered by another cultural practice, namely underreporting of distress. These are provocative but potentially important observations that could have implications not only for the training of police officers but also for the benefit and protection of one of the fastest growing ethnic-cultural groups in the United States.

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