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Warriors as Peacekeepers: Features of the Somalia Experience and PTSD

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There has been scant empirical study of the psychological consequences of contemporary peacekeeping missions. This study examined relationships among 4 variables characterizing this type of operation (traditional combat events, negative aspects of peacekeeping, pressure to uphold restraint, and positive aspects of peacekeeping) and symptoms of posttraumatic stress disorder (PTSD). Participants were 3,310 male and female soldiers who served in the 1992–1994 Somalia mission. Structural equation modeling procedures were applied to data from subsamples of non-African Americans and African Americans. For both groups, traditional combat and negative aspects of peacekeeping were associated with PTSD, frustration with restraint, and positive aspects of peacekeeping; however, restraint was not related to PTSD. Discrepancies between the groups involved relationships among the restraint, positive aspects, and PTSD variables. Recommendations are offered to foster inquiry into this new research.

Since the end of the Cold War, the U.S. military has undergone a partial transformation. On the one hand, the U.S. military must continue to maintain its combat readiness; on the other hand, it has assumed a different role, that of international peacekeeper. Although U.S. forces were involved in peacekeeping efforts in the past (e.g., Lebanon and Sinai), their contribution was circumscribed by geopolitical concerns and national policy (Henshaw, 1993). More recently, however, the United States has been seen as possessing the resources, military strength, and international mandate to attempt to manufacture peace and ensure the provision of humanitarian aid in regions where civil disorganization, conflict, and outright war are ongoing (Birenbaum, 1994; Moskos & Burke, 1994).

In such contemporary peacekeeping contexts, very large numbers of combat-trained military personnel are confronted with a new and diverse set of responsibilities. They are asked to provide a constabulary presence to monitor the activities of belligerent parties, maintain the safety of noncombatants, ensure the orderly delivery of humanitarian aid, and assist in the building of infrastructures. Peacekeepers must also be prepared to respond to direct life-threatening events or circumstances. They may find themselves in the midst of a serious conflict between warring factions, called on to disarm individuals, or targeted by snipers or subjected to terrorist action while patrolling dangerous areas. Thus, U.S. military personnel need to be prepared to respond to ongoing life threat, to themselves or to noncombatants, and in some instances to use deadly military power to enforce peace (i.e., peace enforcement), even though the general expectation is that they will maintain restraint and neutrality (Henshaw, 1993).

The majority of the extant psychological research on peacekeeping has been conducted with United Nations personnel exposed to more traditional peacekeeping contexts in which there were firmly established peace accords between former enemies. These studies revealed that for a small minority of military personnel, peacekeeping duties led to boredom, resentment, pent-up anger, and demoralization but rarely lasting stress reactions (e.g., Lundin & Otto, 1989; Weisaeth, 1982). In addition, for combat soldiers, traditional peacekeeping was associated with some degree of discord between self-expectations related to their combat training and the demands placed on them as peacekeepers. For the most part, however, professional soldiers deployed to clear, well-structured peacekeeping missions in the past reported feeling good about their contribution to such efforts (Harris, Rothberg, Segal, & Segal, 1993; Segal & Segal, 1993).

The unique stressors and psychological outcomes associated with peacekeeping and peace enforcement for U.S. military per-

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sonnel have been understudied. In the only published work to date, Litz, Orsillo, Friedman, Ehlich, and Batres (1997) examined the stressors and stress reactions of military personnel who participated in Operation Restore Hope/Operation Continue Hope, a U.S.-led peacekeeping mission to Somalia in 1992–1994. Although intended chiefly as a humanitarian endeavor, Operation Restore Hope and especially Operation Continue Hope were at times quite dangerous. On the basis of news media descriptions of the Somalia environment and interviews with returning veterans, Litz et al. constructed a comprehensive survey to catalogue various rewarding, frustrating, and potentially traumatic experiences associated with this mission. In their study, specific dimensions of interest were positive aspects of military service (e.g., visiting a new country), positive aspects of the humanitarian mission (e.g., bringing food to starving people), low-magnitude stressors (e.g., being separated from loved ones), negative aspects of peacekeeping (e.g., not being appreciated by the Somalis), and exposure to war-zone stressors (e.g., going on patrols). All five dimensions were intended to highlight characteristics unique to the Somalia experience, with the latter variable reflecting life-threatening or very dangerous circumstances akin to a combat situation. When male and female soldiers were compared on these various dimensions, differences were negligible. When comparisons were made among Caucasian, Hispanic, and African American soldiers, a salient effect was that African Americans were more gratified by the humanitarian aspects of the mission than were both Caucasians and Hispanics.

Litz et al. (1997) also documented that a sizable number (8%) of Somalia veterans met criteria for posttraumatic stress disorder (PTSD), a recognized consequence of exposure to extremely stressful life events (American Psychiatric Association, 1994). Furthermore, an exploratory multiple regression analysis provided some insight into contributions of their peacekeeping dimensions to PTSD. Consistent with a wealth of research (e.g., Egendorf, Kadushin, Laufer, Rothbart, & Sloan, 1981; Fairbank, Schlenger, Caddell, & Woods, 1994; Kulka et al., 1990), exposure to war-zone stressors was significantly associated with PTSD symptom severity. Negative aspects of peacekeeping was also a unique contributor to PTSD severity; soldiers who were distressed by the unique role demands of peacekeeping and peace enforcement were more at risk for PTSD. Moreover, the rewards associated with the positive aspects of general military service in Somalia were negatively associated with PTSD, suggesting that such mitigating factors as cohesion and pride in service might reduce risk.

The purpose of this study was to extend the work of Litz et al. (1997) in several ways. First and foremost, we sought to better understand the subtleties and complexities of the psychological challenges of peacekeeping by testing patterns of associations among exposure and appraisal variables as well as their direct and indirect effects on PTSD. To accomplish this goal, we relied on structural equation modeling, an approach that has several distinct advantages. Because latent variables within a structural model are perfectly reliable, path coefficients expressing relationships among the variables are unbiased. In addition, the full information procedures used in structural equation modeling yield efficient estimates, with standard errors as small as they can be (Joreskog & Sorbom, 1993a). Thus, one has more confidence in the validity of the resulting associations among variables.

Second, we endeavored to refine key exposure and appraisal variables with a sequence of first-stage classical test theory-based and confirmatory factor analytic procedures. We began by more clearly specifying a definition of what would constitute a traumatic experience in Somalia, using the current *Diagnostic and Statistical Manual of Mental Disorders* (4th ed., *DSM–IV*; American Psychiatric Association, 1994) criteria, and labeled this construct *exposure to traditional combat events or circumstances*. Also, because we believed there was some degree of conceptual overlap between Litz et al.'s (1997) positive aspects of military service and positive aspects of the humanitarian mission dimensions and between their low magnitude stressors and negative peacekeeping dimensions, we specified and defined two more parsimonious and meaningful constructs. These were labeled *positive aspects of the peacekeeping experience* and *negative aspects of the peacekeeping experience*.

Another improvement in construct identification and operationalization was the creation of a separate variable intended to capture one of the defining role demands of peacekeeping: the requirement for combat soldiers to suppress their inclination to respond aggressively to life threat. In a review of the psychological demands of peacekeeping for military personnel, Litz (1996) noted that the exercise of restraint in the face of danger is likely to be quite troubling for combat-trained soldiers, contributing to feelings of helplessness and increased anxiety, especially when there is any uncertainty or ambiguity about the rules of engagement. Furthermore, manifesting restraint is a crucial and necessary component of effective peacekeeping (Allard, 1995; Moskos, 1975). Hence, its potential as a unique stressor accounting for PTSD symptom severity or as a mediator of the relationship between other stressors and PTSD seemed worthy of study. Whereas Litz et al. (1997) incorporated the concept of restraint as part of a general negative aspects of peacekeeping category, we sought to operationalize this integral component of peacekeeping as a variable in its own right. This variable was termed *pressure to uphold restraint*. Specific definitions and details about operationalizations for all four of our exposure and appraisal constructs are presented in the Method section.

Finally, in this study, we addressed the issue of soldiers' race, in that our model of associations among these variables and PTSD symptomatology was tested separately for groups of soldiers of non-African American and African American descent. Our interest in examining separate models based on this racial categorization derived, in part, from a growing literature on minority status, trauma, and PTSD (see Marsella, Friedman, Gerrity, & Scurfield, 1996). The first large-scale examination of Vietnam veterans revealed disproportionately high combat exposure rates for minority veterans (Egendorf et al., 1981). Furthermore, early clinical observations (e.g., Allen, 1986; Parson, 1985) and anecdotal evidence (e.g., Terry, 1984) suggested that minority soldiers in Vietnam identified to some degree with the Vietnamese as fellow people of color and spurned their role as instruments of a racist society. Thus, the deleterious effects of war-zone exposure may be compounded by race-related stress (e.g., Marsella, Chemtob, & Hamada, 1990). Indeed, higher rates of PTSD among minority groups as compared with Caucasians have been documented (e.g., Kulka et al., 1990).

Also important to our decision to test models for separate groups of non-African Americans and African Americans was the issue of how Asian American veterans fared during the Vietnam War. Matsuoka and Hamada (1991) and Loo (1994), among others, described the potentially troubling experience of Asian American soldiers finding themselves in a conflict situation where Americans were fighting Asians and South Vietnamese Asians were fighting Asians aligned with North Vietnamese. Although not widespread, some news media accounts of the Somalia mission (e.g., Kraft, 1993) reported interviews with African American soldiers who experienced conflict regarding their role as American peacekeepers in Africa. Thus, in our study of the Somalia experience, where many African Americans found themselves amidst an African conflict among Black people, it seemed reasonable to obtain preliminary information that might highlight differences in relationships among the variables under scrutiny between non-African American and African American soldiers.

Method

Participants and Procedure

Data for this study were taken from Litz et al.'s (1997) Somalia veteran survey. Participants were 3,310 active-duty U.S. military personnel (93% male and 7% female) who were assigned to the Somalia theater of operations sometime between December 1992 and April 1994. They were drawn from five sites that had deployed troops for the mission: Fort Drum, New York (73% of the sample); Fort Carson, Colorado (16%); Camp Pendleton, California (4%); Fort Lewis, Washington (4%); and Fort Stewart, Georgia (3%). Their activities in Somalia were quite diverse and encompassed both tactical and support duties. In general, the sample reflected the demographic profile of the full population of U.S. military personnel who served in Somalia (United States Total Army Personnel Command, Public Affairs Office, 1994). Table 1 provides descriptive information on key demographic variables for the entire sample.

Participants were administered a questionnaire assessing aspects of their Somalia experience and current psychological status. Questionnaires were administered to large groups under standardized conditions an average of 15 weeks after their return to the United States. At each data collection session, a research coordinator was present to provide instructions and obtain informed consent. The questionnaire took approximately 45 min to complete.

The full set of participants was divided into three stratified random samples, each was used in a different phase of analysis: (a) an approximate 10% sample for preliminary classical test theory operationalization of variables (n = 297, after accounting for missing data), (b) a 30% sample for establishing an adequate measurement model (n = 872), and (c) the remaining 60% for specifying and evaluating a structural model (n = 1,650). The stratification variables were gender, branch of service (Marine or Army), and time of departure from Somalia (pre-June 15, 1993 or post-June 15, 1993). The time of departure classification recognized the shift in emphasis of the Somalia operation as a function of combatlike engagements that coincided with Operation Continue Hope, which started June 15, 1993.

Instrumentation

Exposure and appraisal measures. A rational approach to scale construction (Jackson, 1971; Nunnally, 1978) was used to create new measures of the four exposure and appraisal variables that were the focus of this study. First, formal definitions of the variables were set forth.

Table 1
Demographic Characteristics of the Sample

Characteristic	Sample percentage	*M*	*SD*
Age (in years)		26.02	5.85
Education (in years)		12.71	1.37
Race			
Caucasian	62		
African American	21		
Latino	8		
Other	8		
Marital status			
Married or engaged	54		
Single	39		
Divorced or separated	6		
Rank			
Private (E-1 to E-3)	26		
Specialist or NCO	66		
Officer (all types)	7		
Months in the military		67.36	61.47
Weeks in Somalia		14.76	7.13
Somalia duty station			
Mogadishu	66		
Kismayu	11		
Baledogle	7		
Merca	4		
Other (or a combination of locations)	15		

Note. Not all percentages add up to 100 because of missing data. NCO = noncommisioned officer.

Then, candidate items from the Litz et al. (1997) questionnaire were submitted to a sorting task in which six research assistants independently placed items into the appropriate content categories. Then, all questionnaire items for which there was disagreement in categorization were eliminated. Using data from our first 10% stratified random sample (n = 297), we computed item-total correlations for the remaining item sets. With careful consideration of both content representation and content breadth (Messick, 1980), items with the lowest item-total correlations were deleted, and those with the highest item-total correlations were retained. All remaining items within each content category had item-total correlations exceeding .41. Variable definitions and their operationalizations were as follows:

Exposure to traditional combat events and circumstances was defined in terms of the official *DSM–IV* characterization of a Criterion A event for PTSD: the presence of events, circumstances, or contexts that were experienced directly or observed that might entail actual or threatened death or serious injury or a threat to the physical integrity of others or self and that would produce fear, helplessness, or horror in military personnel while they were in Somalia. This variable was measured by six items adapted, in part, from Keane et al.'s (1989) Combat Exposure Scale. Each item was accompanied by 5-point Likert response options. Sample items were as follows: "About how many times was your unit fired upon?," "About how many times did you go on patrols or have other very dangerous duties?," and "About how many times did you see Somalis dying?" Internal consistency reliability for this six-item measure was .75. It is useful to note that the rates of exposure to these extreme stressors were not inconsequential. For example, 76% of the sample reported having their unit fired on 15 times or more (at or above the midpoint of the response scale), 78% reported going on patrols or having other very dangerous duties at least 15 times, and 31% reported seeing Somalis dying at least 15 times.

Negative aspects of the Somalia peacekeeping experience was defined as events, circumstances, or contexts that might have created a sense of

personal discomfort, aggravation, or distress or that might have led to a sense of being disheartened but did not pose an eminent threat to life for military personnel while they were in Somalia. This construct is similar to what D.W. King, King, Gudanowski, and Vreven (1995) characterized as the malevolent environment that permeates a war zone or conflict-ridden region; they found it to be a significant contributor to PTSD. For our study, this variable represented an effort to consolidate and select from among the best indicators of low-magnitude stressful events used by Litz et al. (1997). In the end, 13 items were retained as indicators of this variable, each of which was accompanied by a 5-point Likert response scale reflecting the degree of frustration or difficulty posed by the situation. Sample items were "lack of privacy or personal space," "the looting of food supplies," and "having to endure the climate." Internal consistency reliability was .84.

Pressure to uphold restraint was intended to reflect frustration associated with the requirement to refrain from the use of force. It was measured by two items, each with a 5-point Likert response scale: "having to exercise restraint while patrolling dangerous areas" and "dealing with changing rules as to the discretionary use of force." Internal consistency reliability for this two-item set was .80.

Positive aspects of the peacekeeping experience referred to events, circumstances, or contexts that might have been experienced as fulfilling, gratifying, pleasing, or uplifting for military personnel while they were in Somalia. This variable was seen as important in recognizing that many soldiers may have found gratification in their humanitarian role as well as pride in service to their country, which, in turn, could ameliorate stress responses (Belenky, Noy, & Solomon, 1987). Like the negative aspects variable described above, its definition and operationalization for our study was a purposeful effort to treat Litz et al.'s (1997) dual concepts of *humanitarianism* and *pride* as a single, more parsimonious and meaningful construct. Each of the seven items was accompanied by a 5-point Likert scale indexing the extent to which the activity or situation was rewarding or positive. Sample items included "bringing food to people who were starving and dying," "feeling like you were in Somalia for a good cause," and "feeling that your mission was successful." Internal consistency reliability was .81.

PTSD measures. Two measures of PTSD were included in the questionnaire and were used in our study. The first was an adaptation of the 35-item Mississippi Scale for Combat-Related Posttraumatic Stress Disorder (Keane, Caddell, & Taylor, 1988), a widely used self-report measure of war-related PTSD. The instrument uses 5-point Likert response options and assesses the hallmark PTSD symptom categories along with several associated features. Keane et al. reported an internal consistency reliability coefficient of .94; for our 10% sample, the estimate was .88. The psychometric qualities of the Mississippi scale are well documented (e.g., D.W. King, King, Fairbank, Schlenger, & Surface, 1993; McFall, Smith, MacKay, & Tarver, 1990).

The second PTSD measure was a modified version of Weathers, Litz, Herman, Huska, and Keane's (1993) PTSD Checklist (PCL). This instrument uses a 5-point Likert scale to evaluate the severity of each of the 17 *DSM–IV* PTSD symptoms. Where appropriate, items made specific reference to the Somalia experience. Weathers et al. computed the PCL's internal consistency reliability as .97; using diagnoses derived from the Structured Clinical Interview for *DSM–III–R* (3rd ed., rev.; American Psychiatric Association, 1987; Spitzer, Williams, & Gibbon, 1987) as the criterion, they also documented sensitivity and specificity as .82 and .83, respectively. Blanchard, Jones-Alexander, Buckley, and Forneris (1996), using the Clinician Administered PTSD Scale (Blake et al., 1990) diagnoses as the criterion, demonstrated an overall hit rate of .90. The estimate of internal consistency derived from our 10% scale development sample was .93.

In addition, two items were taken from the Brief Symptom Inventory (Derogatis, 1993) to assess the PTSD associated feature of suicidal tendencies. These items were "thoughts of death and dying" and "thoughts of ending your life." As detailed below, these items were incorporated into a content-based item composite to serve as one of five PTSD indicators for the modeling phase of analysis.

Overview of Modeling Analyses

Following the recommendations of Anderson and Gerbing (1988), the measurement model was specified on one subset of the data (our 30% stratified random sample, $n = 872$), and the structural model was tested on a separate subset of the data (the 60% sample, $n = 1{,}650$). Moreover, the structural model was specified and evaluated for separate subsamples of non-African American ($n = 1{,}303$) and African American ($n = 347$) soldiers. For all analyses, generalized least squares estimation procedures were used, and matrices of variances and covariances among observed scores were analyzed. Where appropriate, chi-square difference tests were used for comparing hierarchically nested models. Data were screened with PRELIS 2 (Joreskog & Sorbom, 1993b) and then entered into the LISREL 8 computer software program (Joreskog & Sorbom, 1993a).

The hypothesized measurement model contained five factors or latent variables, the four exposure and appraisal constructs and PTSD. For each of the exposure and appraisal constructs, individual items were specified to load on a single factor, residual variances were freely estimated, and covariances among residuals of the manifest or observed indicators were constrained to zero. For PTSD, manifest indicators were "miniscales" (Bernstein & Teng, 1989, p. 475) or item "parcels" (MacCallum, Roznowski, & Necowitz, 1992, p. 494) computed as average scores for content-based sets of items drawn from the Mississippi scale and the PCL plus the two Brief Symptom Inventory items. The formation of item sets was based on the formal *DSM–IV* criterion categories for PTSD symptoms as well as previous work by L.A. King and King (1994), Litz (1992), and Litz et al. (in press). The content sets were re-experiencing (5 Mississippi scale items and 5 PCL items), active avoidance (2 Mississippi scale items and 2 PCL items), emotional numbing (8 Mississippi scale items and 3 PCL items), hyperarousal (7 Mississippi scale items and 5 PCL items), and suicidality (3 Mississippi scale items and the 2 items from the Brief Symptom Inventory). By using such item parcels to model the factor structure of the PTSD construct, we intended to create more stable indicators of the key symptom categories. Another advantage was a more favorable participants-to-variables or participants-to-parameters ratio than would be obtained if each of the 54 items were treated as separate indicators of PTSD (see D.W. King et al., 1995).

After establishing the viability of this measurement model with the second subset of data, we used the third subset of data to test the equivalence of measurement models across non-African American and African American soldiers. Then, we moved to the analysis of the structural relationships among the five latent variables. The beginning model (Figure 1) was fully saturated, in that the maximum number of possible relationships among the latent variables was specified. As explained by Newcomb (1994), initial overfitting of a model enables the evaluation of plausible relationships, whether they are specifically hypothesized or not. There were 10 structural coefficients of interest: A recognition that all exposure and appraisal variables might be associated with stress reactions was reflected in direct paths from each of the four variables to PTSD. Next, an expectation that stress-producing experiences or situations might certainly predict the degree to which one looks favorably on a life experience was incorporated in terms of direct paths from traditional combat, negative aspects of peacekeeping, and pressure to uphold restraint to positive aspects of peacekeeping. Also, because traditional combat and negative aspects of peacekeeping could be expected to increase frustration with pressure to uphold restraint, such paths were included. Finally, the beginning model contained a correlation between the exogenous variables of traditional combat and negative aspects of peacekeeping.

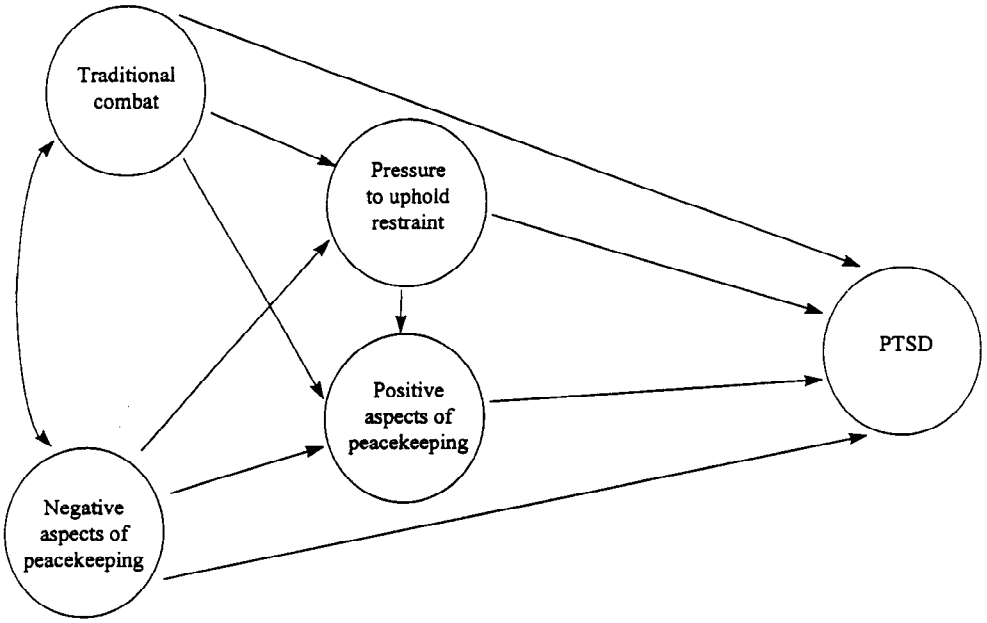

Figure 1. Initial, most saturated model of relationships among exposure and appraisal variables and posttraumatic stress disorder (PTSD).

Results

The hypothesized five-factor measurement model provided acceptable fit to the data from the second subsample. The discrepancy index was $\chi^2(485, N = 872) = 1{,}618.69, p < .001$. However, in our judgment of this model, as in the judgment of any model, the probability value references the central chi-square distribution rather than the more appropriate noncentral chi-square distribution (Steiger, Shapiro, & Browne, 1985). Hence, exact probabilities are unknown in applied contexts with real data, and other fit indices are deemed more informative (Bentler, 1990; Steiger, 1990). In this case, these other fit indices revealed consistent support for the model. The LISREL goodness-of-fit index (GFI; Joreskog & Sorbom, 1993a) was .89, the nonnormed fit index (NNFI; Bentler & Bonett, 1980) was .94, the comparative fit index (CFI; Bentler, 1990) was .95, the parsimony normed fit index (PNFI; James, Mulaik, & Brett, 1982) was .85, and the root mean square error of approximation (RMSEA; Steiger, 1990) was .05. Moreover, the loadings of items or item parcels on the five factors were substantial, all having t statistics greater than 7.00.

When this measurement model was applied simultaneously to data from non-African American and African American soldiers from the third subsample, fit indices were as follows: $\chi^2(970, N = 1{,}650) = 2{,}864.14, p < .001$; GFI = .86, NNFI = .95, CFI = .96, PNFI = .86, and RMSEA = .03. Next, loadings were constrained to be equivalent for the five factors across the two groups, and an unacceptable damage to model-data fit occurred. The difference in chi-square statistics between the former more saturated and latter more constrained models was significant, $\chi^2(28, N = 1{,}650) = 50.60, p < .01$. Thus, while the factor structure was comparable for non-African American and African American soldiers, factor loadings differed and mandated separate structural models for each (Marsh, 1994).

Regarding the structural relationships among the latent variables, model trimming was guided primarily by substantive concerns and augmented by consideration of values of individual path coefficients. The upper part of Table 2 provides information on the model testing sequence for non-African American soldiers. Inspection of individual path coefficients for the initial model (Figure 1) indicated a weak link ($t < 1.40$) between pressure to uphold restraint and PTSD. Thus, a first strategy toward simplifying the model for non-African American soldiers was to delete this path, especially in the absence of prior empirical evidence or theory supporting an association between these two variables. The result was a nonsignificant chi-square difference, thereby endorsing the more parsimonious model with one less structural coefficient. The relatively weak path ($|t| < 1.60$) from pressure to uphold restraint to positive aspects of peacekeeping then was constrained to zero, and this even more parsimonious model was fit to the data. This path was removed to test whether pressure to uphold restraint exhibited an indirect association with PTSD. As shown in Table 2, the chi-square difference for this simpler model, relative to the former model, was nonsignificant.

Further modification in terms of the deletion of the path with the next lowest coefficient (from traditional combat to positive aspects of peacekeeping) yielded a significant chi-square difference, representing unacceptable damage to model-data fit. Hence, the final accepted model for non-African American soldiers is the one depicted in Figure 2, reflecting the removal of the two paths leading from the pressure to uphold restraint variable. In addition to the chi-square statistic listed in Table 2, fit indices for this model were GFI = .90, NNFI = .94, CFI =

Table 2
Sequential Chi-Square Differences Tests for Structural Model

Model	χ^2	*df*	Δ from previous model χ^2	*df*	*p*
Non-African Americans					
Initial structural model (10 coefficients)	2046.59	485			
Delete pressure to uphold restraint to PTSD	2048.39	486	1.80	1	*ns*
Delete pressure to uphold restraint to positive aspects of peacekeeping; final accepted model	2050.75	487	2.36	1	*ns*
Delete traditional combat to positive aspects of peacekeeping	2055.95	488	5.20	1	<.05
African Americans					
Initially structural model (10 coefficients)	817.55	485			
Delete pressure to uphold restraint to PTSD	817.75	486	0.20	1	*ns*
Delete positive aspects of peacekeeping to PTSD; final accepted model	818.60	487	0.85	1	*ns*
Delete pressure to uphold restraint to positive aspects of peacekeeping	823.21	488	4.61	1	<.05

Note. All *ps* = .00 in first chi-square results. PTSD = posttraumatic stress disorder.

.95, PNFI = .86, and RMSEA = .05. The squared multiple correlations for the endogenous variables were .23 for PTSD, .40 for pressure to uphold restraint, and .04 for positive aspects of peacekeeping.

The lower portion of Table 2 contains details on model specification and evaluation for the African American soldiers. As with the subsample of non-African Americans, the weakest relationship in the initial, most saturated model was that between pressure to uphold restraint and PTSD ($|t| < .50$). Deleting this coefficient produced a model that did not differ significantly from its predecessor. Next, the weakest path ($|t| < 1.00$; from positive aspects of peacekeeping to PTSD) was removed from this revised model to evaluate the viability of this unique characteristic of the Somalia experience as a mediator between the three other exposure and appraisal variables and PTSD. The resulting chi-square difference was nonsignificant, thus obviating the influence of positive aspects of peacekeeping on PTSD for African Americans. Then, to parallel model trimming for the non-African American soldiers, the path from the restraint variable to positive aspects of peacekeeping was deleted. Because the chi-square difference between this model and the prior model was significant, the prior model was retained as the best representation of relationships among the latent variables for African American soldiers (see Figure 3). For this model, GFI = .86, NNFI = .97, CFI = .97, PNFI = .86, and RMSEA = .04. The squared multiple correlations for the endogenous variables were .12 for PTSD, .65 for pressure to uphold restraint, and .18 for positive aspects of peacekeeping.

Table 3 summarizes the total, direct, and indirect effects of the four exposure and appraisal variables on PTSD for the two subsamples. In addition, we provide supplementary information on the total, direct, and indirect effects on the other two endogenous variables: pressure to uphold restraint and positive aspects of peacekeeping.

Discussion

In this study, we sought to gain a better understanding of the psychological consequences of participation in a peacekeeping mission fraught with danger for military personnel. We examined associations among several key features of the peacekeeping experience in Somalia and PTSD. A model incorporating four exposure and appraisal variables and PTSD was hypothesized and tested for separate groups of non-African American and African American peacekeepers. Findings indicated that exposure to traditional combat and negative aspects of peacekeeping appears to influence PTSD severity for both non-African American and African American subsamples. Likewise, direct links from each of these variables to pressure to uphold restraint and positive aspects of peacekeeping were supported for both groups. The patterns of associations involving pressure to uphold restraint, positive aspects of peacekeeping, and PTSD, however, were more complex and differed across the two groups.

The finding that both traditional combat and negative aspects of peacekeeping predicted PTSD recapitulates earlier findings with Vietnam veterans. Specifically, D.W. King et al. (1995) documented the salience of the harsh or malevolent Vietnam war-zone environment (analogous to this study's negative aspects of peacekeeping variable) as a predictor of PTSD over and above what was accounted for by other war-zone stressor representations, including combat exposure. As noted by those researchers, such results may indicate that "it is important to assess perceptions of lower magnitude events, which may be occurring simultaneously with the more potent and traditionally recognized stressors" (p. 193).

Perhaps the most compelling result of our study relates to the feature of peacekeeping that is particularly difficult to reconcile for combat-trained military personnel: the need to restrain the use of force when faced with possibly life-threatening circumstances (Litz, 1996; Segal & Segal, 1993). The models for both subsamples demonstrated strong relationships between both traditional combat and negative aspects of peacekeeping and the pressure to uphold restraint variable. The multiple correlations predicting pressure to uphold restraint from traditional combat and negative aspects of peacekeeping were quite high, .63 for non-African Americans and .81 for African Americans. In addition, as shown in Table 3, the relationship between negative aspects of peacekeeping and pressure to uphold restraint, factors endemic to peacekeeping, was stronger for both groups than the relationship between traditional combat and pressure to uphold restraint for both groups. Thus, although one might surmise that the degree of life threat that a peacekeeper encounters would produce greater frustration when forced to restrain from action, it appears that the lower magnitude, daily discomforts of peacekeeping are more strongly implicated.

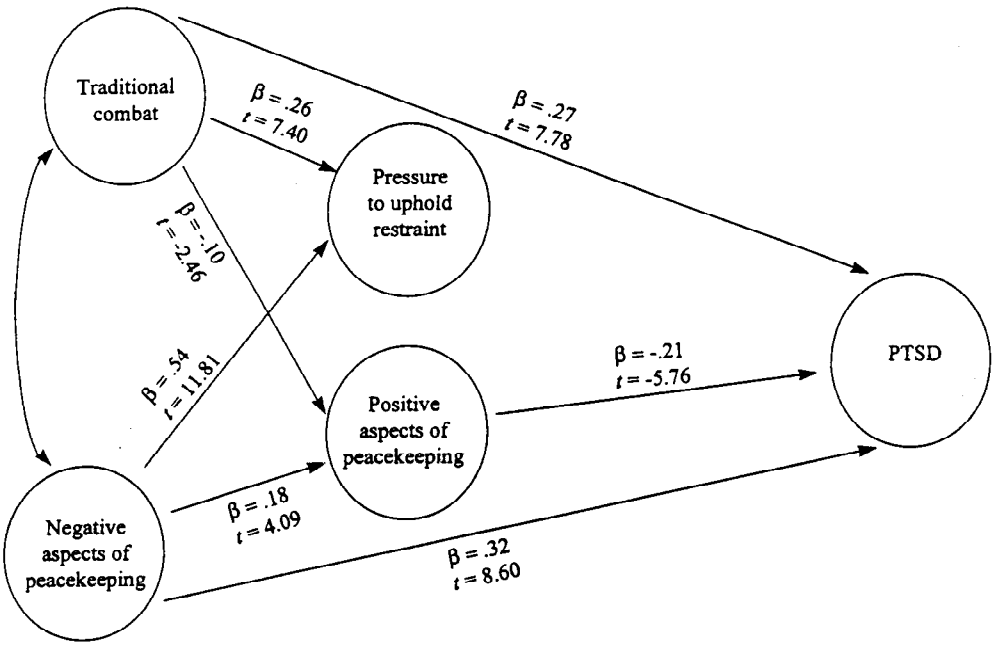

Figure 2. Final accepted model for non-African Americans, with standardized coefficients and associated *t* statistics. PTSD = posttraumatic stress disorder.

However, the restraint variable was not linked to PTSD, either directly or indirectly through other exposure and appraisal variables for either subsample. It appears, therefore, that frustration with the pressure to uphold restraint may not be implicated in the development of PTSD related to peacekeeping. This does not preclude the possibility that other maladaptive responses to peacekeeping stem from the inability to take defensive or retaliatory action under dangerous circumstances. For example, combat-trained peacekeepers who are required to repeatedly refrain from an aggressive mode of response may be at risk for

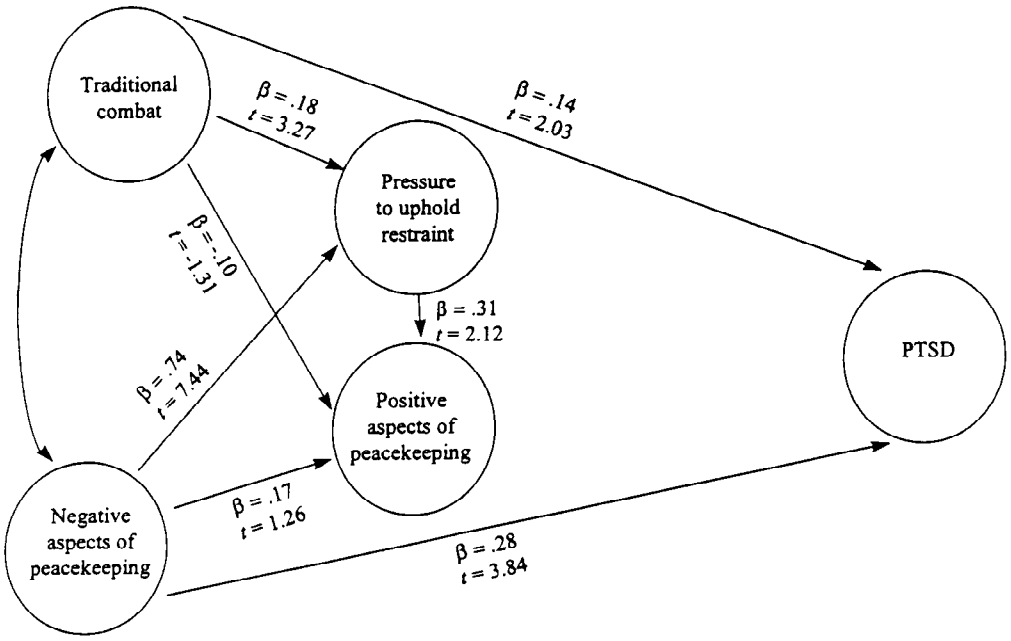

Figure 3. Final accepted model for African Americans, with standardized coefficients and associated *t* statistics. PTSD = posttraumatic stress disorder.

Table 3
Standardized Total, Direct, and Indirect Effects

Variable	Effects on PTSD			Effects on positive aspects of peacekeeping			Effects on pressure to uphold restraint		
	Total	Direct	Indirect	Total	Direct	Indirect	Total	Direct	Indirect
				Non-African Americans					
Traditional combat	.29	.27	.02	−.10	−.10	—	.26	.26	—
Negative aspects of peacekeeping	.28	.32	−.04	.18	.18	—	.54	.54	—
Pressure to uphold restraint	—	—	—	—	—	—			
Positive aspects of peacekeeping	−.21	−.21	—						
				African Americans					
Traditional combat	.14	.14	—	−.05	−.10	.05	.18	.18	—
Negative aspects of peacekeeping	.28	.28	—	.40	.17	.23	.74	.74	—
Pressure to uphold restraint	—	—	—	.31	.31	—			
Positive aspects of peacekeeping	—	—	—						

Note. All associated t values exceed 2.00, with the exceptions of the three effects of traditional combat on positive aspects of peacekeeping for African Americans and the direct effect of negative aspects of peacekeeping on positive aspects of peacekeeping for the same group. Dashes indicate no values in this model. PTSD = posttraumatic stress disorder.

acting out their anger both during a mission (e.g., callousness and brutality) and on their return home (e.g., partner abuse; Litz, 1996). Indeed, Weisaeth (1982, 1990) and Lundin and Otto (1989) demonstrated a relationship between restraint and chronic hostility in United Nations peacekeepers.

Consistent with expectations, positive aspects of peacekeeping was strongly and negatively related to PTSD for non-African Americans. This finding suggests that, for these soldiers, rewarding humanitarian duties are likely to mitigate stress reactions from peacekeeping. More interesting, a parallel effect was not observed for African American soldiers, with the path from positive aspects of peacekeeping to PTSD removed in the sequence of model trimming. Although speculative, for some groups of soldiers, identifying strongly with the population served in a peacekeeping mission may obviate the ameliorative influence of rewarding elements on PTSD symptoms.

For both subsamples, negative aspects of peacekeeping was positively associated with positive aspects of peacekeeping; for African Americans, a positive relationship was also observed between pressure to uphold restraint and positive aspects of peacekeeping. It seems, then, that soldiers who experienced greater frustration due to daily discomforts and greater frustration with restraint tended to also benefit psychologically from their humanitarian role. This finding is consistent with research by Weisaeth, Mehlum, and Mortensen (1996), who observed that United Nations peacekeepers in Lebanon expressed fulfillment with their various roles, despite experiencing a number of low-magnitude stressor events (as examples, deprivations, and being taunted and harassed). In contrast, exposure to traditional combat was negatively related to positive aspects of peacekeeping, suggesting that intensive levels of stress or life threat may attenuate the potential rewards or gratification that would otherwise result from humanitarian duties associated with modern peacekeeping.

Overall, the results of this study point to several issues that encourage additional research on the peacekeeping experience and its sequelae. Because the exposure and appraisal variables examined here accounted for relatively modest amounts of variance in PTSD—despite data that indicate the prevalence of the condition as not inconsequential—other etiological factors deserve consideration (e.g., predeployment history and postdeployment recovery environment). Furthermore, future inquiry might focus on the impact of both the positive and negative aspects of peacekeeping on domains of psychological functioning other than PTSD (e.g., hostility). It will also be helpful for researchers to examine the adjustment of peacekeepers over time. This is particularly important because PTSD is known to exhibit considerable variability over time and, in some cases, delayed onset. Indeed an absence of a longitudinal component to the study detracts from its conclusiveness. For example, the time interval in which we administered surveys to Somalia veterans may have not allowed sufficient elapsed time for some soldiers to manifest PTSD symptoms.

The differences in the models for non-African Americans and African Americans underscore the need to pay special attention to cultural influences on individuals' experience and adjustment to peacekeeping. However, because our study used only race to distinguish the groups, a note of caution is required. As suggested by Marsella, Friedman, and Spain (1994), race is coincident with other sociodemographic and cultural influences, including social group membership and educational level, that may account for observed group differences. But if race per se is the critical variable, researchers might wish to concentrate on the unique phenomenology of ethnocultural minorities involved in international peacekeeping missions in regions populated by persons of similar racial background.

Finally, our choice to compare the pattern of relationships for non-African Americans with those for African Americans had a logic derived from anecdotal evidence, speculation in the media, and—most important—the formal psychological literature on minorities in combat. Although we believed this race-based comparison was the most compelling as a first step to understand

demographic differences, we would encourage future researchers to consider other salient grouping variables that might form the basis for multisample modeling. Different models for genders, education level, and prior war-zone experience are likely candidates.

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