

Resilience in Trauma-Exposed Refugees: The Moderating Effect of Coping Style on Resilience Variables

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Research with survivors of torture has generated considerable variability in prevalence rates of posttraumatic stress disorder (PTSD). Multiple risk and resilience factors may affect this variability, increasing or decreasing the likelihood of experiencing psychological distress. This study sought to investigate the effect of several such resilience factors, coping style, social support, cognitive appraisals, and social comparisons on PTSD symptom severity. Furthermore, this study examined whether coping style moderated the relationship between resilience variables and PTSD symptoms. Seventy-five torture survivors completed an intake interview and several self-report measures upon entry into a treatment program for survivors of torture. Results indicated that emotion-focused coping styles significantly moderated the relationship between cognitive appraisal and social comparison variables and PTSD, and usually increased the likelihood of developing severe symptoms. These results indicate that the salience of resilience variables may differ depending on the individual's coping style, which present implications for clinical practice with torture survivors.

In recent decades, numerous human rights organizations and researchers have focused their attention on the physical and psychological ramifications of torture. Government sanctioned torture is estimated to occur in approximately two thirds of the countries in the world (Engstrom & Okomura, 2004). Research with torture survivors has generated prevalence rates of developing posttraumatic stress disorder (PTSD) ranging from 14% to 38% (Hinton, Ba, Peou, & Um, 2000; Holtz, 1998; Shrestha et al., 1998; Tang & Fox, 2001). The variability in these rates is thought to be due in part to risk and resilience factors that buffer some individuals from experiencing severe psychological sequelae, while increasing the symptoms experienced by other individuals (Bonanno, 2004).

Risk factors are defined as those variables that increase the likelihood of experiencing psychological distress. For example, researchers have identified lack of education, psychiatric history, and prior trauma occurrences among trauma survivors as variables that increase the likelihood of developing PTSD symptoms in response to a severe stressor (Brewin, Andrews, & Valentine, 2000). Resilience, on the other hand, refers to the “dynamic

process encompassing positive adaptation within the context of significant adversity” (Luthar, Cicchetti, & Becker, 2000). Resilience factors are variables that reduce the likelihood of experiencing psychological distress, and resilience is generally a broad term that is used to convey several factors. The resilience literature has identified a number of characteristics that may reduce the likelihood of distress, such as coping style, self-enhancement, and cognitive appraisals of the situation (Bonanno, 2004). Basoglu et al. (1997) demonstrated the importance of resilience variables in their study of Turkish political activists. Using a scale they developed to measure “preparedness for trauma” (e.g., commitment to a political cause, willingness to assume responsibility for the cause, mental stoicism, perceived likelihood of arrest, or torture), these authors found that survivors of torture who were more psychologically prepared were less likely to experience PTSD, depression, and anxiety symptoms than those who were less prepared.

Of the many potential resilience variables that have been described (e.g., Bonanno, 2004), coping is probably the most extensively researched, although there is disagreement as to the specific characteristics of “coping.” Aldwin and Yancura (2004) described some theories of coping that are situational (e.g., approaching or avoiding certain situations), while others are stable across situations, such as expressing emotions or using religious resources. Some sophisticated measures have attempted

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to integrate many elements of coping (e.g., Tobin, Holroyd, Reynolds, & Wigal, 1989). Tobin et al.'s (1989) measure provides a comprehensive coping assessment by integrating several older trait theories of coping (e.g., engagement vs. disengagement and problem- vs. emotion-focused coping) with individual strategies used to cope in a situation. In this model, engagement is conceptualized as higher order factors, whereas individual coping strategies are lower order. Despite integrative theories and measures of coping, little research has focused on torture survivors. One study of 103 Palestinian adults living in refugee camps found that severity of psychological symptoms differed depending on coping style, with emotion-focused coping (e.g., expressing sadness, anger, fear to others) being associated with lower levels of distress shortly after the trauma, but problem-focused coping (trying to alter the situation) associated with lower distress after several months (Kanninen, Punamaki, & Qouta, 2002).

Social support has also been associated with response to torture, as several studies have found that survivors of torture with large social support networks report lower rates of PTSD, depression, and anxiety compared to those with smaller support networks (Basoglu, Paker, Ozmen, Tasdemir, & Sahin, 1994; Hinton, Tiet, Tran, & Chesney, 1997). Research on the function of social support (Wills & Fegan, 2001) has differentiated the effects of quantity versus quality of social support. Wills and Fegan (2001) suggested that this literature has typically found that a large social support network (i.e., large quantity) is equally effective in high-stress and low-stress situations, but high perceived quality of support is more effective than quantity in high stress situations. However, most research on social support focuses on the size of one's social support network, with no research to date investigating how perceived quality of support might affect psychological well-being following torture.

Another potentially important resilience variable is social comparisons. Social comparison theory (e.g., Todd & Worell, 2000; Wood, 1989) suggests that the way in which an individual compares himself or herself to others impacts his or her psychological adjustment to trauma. Individuals may compare themselves to those whom they see as better off in some way (i.e., upward comparison) or worse off (i.e., downward comparison). Although neither is necessarily preferable, individuals who engage in downward comparisons may feel less distressed because they compare themselves to others who seem worse off (Todd & Worell, 2000; Wood, 1989).

Despite a small but growing literature addressing these various resilience factors, most research examines a single resilience factor without considering the potential overlap and/or interactions among these variables. For example, social support may be more salient for those trauma survivors who rely on coping strategies characterized by interpersonal engagement, whereas it may be less salient for less engaged individuals. This study sought to examine multiple possible resilience factors in a diverse sample of torture survivors. We hypothesized that perceived quality of social support, downward social comparisons, cognitive appraisal of the events, and engagement coping style would foster resiliency and thus be associated with lower severity of PTSD. These resilience variables were chosen as they comply with Bonanno (2004) proposed pathways to resilience. Furthermore, we hypothesized that coping style would moderate

(strengthen or weaken) the association between the other resilience variables and PTSD symptoms. Specifically, we posited that an engagement coping style would strengthen the above associations, while a disengagement coping style would weaken them (Figure 1). This hypothesis was based on research suggesting that approaching a problem and attempting to solve it will better serve an individual in coping with traumatic events, as opposed to isolating oneself and avoiding the situation (Frazier & Burnett, 1994; Jeavons, Horne, & Greenwood, 2000; Mellman, David, Bustamante, Fins, & Esposito, 2001; Punamaki, Muhammed, & Abdulrahman, 2004). Thus, coping style was used as both a predictor variable as well as a moderator in this study.

Method

Participants

Participants were recruited from the Bellevue Hospital/New York University School of Medicine Program for Survivors of Torture (PSOT) in New York City. This multidisciplinary treatment program offers aid to immigrants, refugees, and asylum seekers that have experienced torture and/or war-related trauma in their native country. The program receives referrals from social service agencies, community organizations, hospitals and clinics, and human rights organizations. Inclusion criteria included being 18 years of age or older, having endured some form of torture under the United Nations or World Medical Association (WMA) definitions of torture (Gerrity, Keane, & Tuma, 2001; United Nations, 1989), and the absence of a psychotic disorder that would impede accurate responding. Individuals that met these criteria were offered participation in this study following their intake interview (described below) and an explanation of the risks and benefits of study participation. This study was approved by the Institutional Review Boards of New York University School of Medicine and Fordham University.

Seventy-seven people consented to participate in the study, but two participants were subsequently excluded because language difficulties (despite the presence of an interpreter) appeared to impede their understanding of the study questions and measures. The sample size for our study generated a power of .95 for individual correlations and .85 for interaction effects,

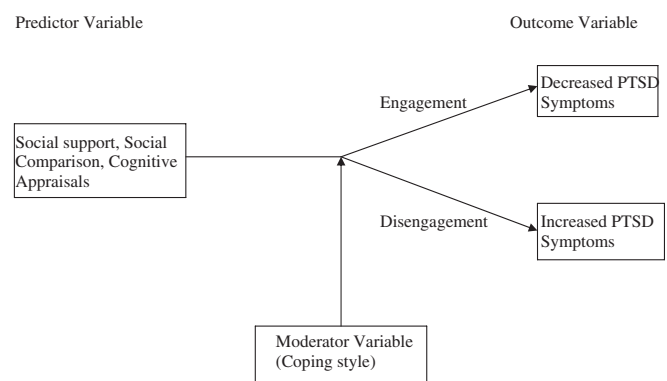


Figure 1. Conceptual model of coping as a moderator of posttraumatic stress disorder (PTSD) symptoms.

and was based on obtained effect sizes. Table 1 lists the demographic characteristics of the sample. The majority of participants were male ($n = 44$, 58.7%) and originally from West Africa ($n = 38$, 50.7%). The mean age was 33.0 years ($SD = 8.5$), with a range of 18–58 years. Over half of the sample was married ($n = 41$, 54.7%), and the average number of dependent children was 1.78 ($SD = 2.2$). Education varied, with approximately one third having less than a high school education ($n = 23$, 30.6%), one third with a high school diploma or some college ($n = 25$, 33.3%), and approximately one third having the equivalent of a bachelor's degree ($n = 27$, 36.1%). A wide range of potentially traumatic events were reported (with most participants reporting several such events), including separation from family members ($n = 72$, 93.3%), harassment by authorities ($n = 64$, 85.3%), witnessing the torture of others ($n = 64$, 85.3%), being beaten ($n = 58$, 77.3%), having had family member tortured ($n = 51$, 68.0%), and sexual assault ($n = 28$, 37.3%).

Procedures

Demographic information and trauma exposure history were obtained through a semistructured “intake interview” conducted at the time of the first appointment in the program. If the interviewer and the participant did not share a common language, an interpreter who had been trained in French/English or Tibetan/English interpretation was used. The

intake interview elicited demographic information such as age, place of birth, religion, marital status, asylum status, and level of education, and a narrative of the participant's history of persecution. Participants were subsequently administered a series of self-report measures to assess potential resilience variables (social support, cognitive appraisal, and social comparison), moderator variables (coping style), and PTSD symptoms. These measures were administered either immediately following the initial interview or within 2 weeks after being accepted into the program, before psychiatric treatment had begun. In some cases, a participant initially refused to complete the research interview immediately after the intake interview because of time constraints, but most of these individuals were interviewed at a later time within the next 2 weeks. Because of frequent illiteracy among study participants, all measures were read aloud to the patient by the interviewer, using an interpreter if the patient and interviewer did not speak a common language. Prior to initiating the study, all measures were translated and back-translated into the most common languages used in the clinic (French and Tibetan) using a professional translation service. This translation/back-translation has been used in prior research with this same population (Keller et al., 2006).

Resilience variables included the Multidimensional Scale of Perceived Social Support (MSPSS; Zimet, Dahlem, Zimet, & Farley, 1988), the Self-Evaluation Scale (SES; Wilson, Gil, & Raezer, 1997), and a cognitive appraisal measure (Frijda, Kuipers, & ter Schure, 1989). The MSPSS, a 12-item self-report scale, measures perceived social support on three dimensions—friends, family, and significant others—and has been used cross-culturally (Arkar, Sari, & Fidaner, 2004; Edwards, 2004; Heiman, 2004; Short & Johnston, 1997) and in trauma research (Yoshioka, Gilbert, & El-Bassel, 2003). The scale has high internal consistency ($\alpha = .88$) and test-retest reliability ($r = .85$). The SES, which has been frequently used with medically ill individuals, is the only social comparison measure that includes both upward and downward comparison subscales. The SES has also shown good internal consistency ($\alpha = .70$ for downward items, $\alpha = .80$ for upward items). Finally, a cognitive appraisal measure developed by Frijda et al. (1989; referred to here as the CAM) was used to evaluate three dimensions of appraisal (Control, Valence, and Certainty). The Control subscale measures how controllable an individual appraised a situation, Valence measured how negative or harmful the trauma was perceived, and Certainty measures how sure an individual was of what would occur during and after the trauma. Kanninen et al. (2002) found that these factors had high internal consistency in their sample ($\alpha = .86$ for Control, $.80$ for Valence, and $.79$ for Certainty).

Coping style was measured with the 32-item Coping Strategies Inventory–Short Form (CSI–SF; Tobin, 2000; average $\alpha = .90$ for two overall factors). The CSI–SF generates two overall coping factors, Engagement and Disengagement, and four secondary factors: Problem Engagement, Problem Disengagement, Emotion Engagement, and Emotion Disengagement. In a comprehensive review of over 100 coping measures, Skinner, Edge, Altman, and Sherwood (2003) recommended the CSI as one of the two best measures of coping for adults, based on its hierarchical structure and inclusiveness of multiple coping styles and strategies.

Table 1. Demographic Characteristics of the Sample

Variables	<i>N</i>	%
Gender		
Male	44	58.7
Female	31	41.3
Region of birth		
Africa	53	70.7
Asia	15	20.0
Europe	6	8.0
South American	1	1.3
Marital status		
Married	41	54.7
Never married	27	36.0
Separated/divorced/widow	7	9.3
Widowed	2	2.7
Religion		
Muslim	32	42.7
Christian	18	23.9
Catholic	12	16.0
Buddhist	11	14.7
Jewish	2	2.7
Language interviewed		
French	38	50.7
English	29	38.6
Tibetan	8	10.7
Education level		
< H.S. grad	23	30.6
H.S. or equivalent	12	16.0
Some college	13	17.3
BA/BS	16	21.3
MA/MBA/doctorate	7	9.4
Monastery/Koranic	4	5.4

Severity of PTSD symptoms was measured using the Harvard Trauma Questionnaire (HTQ), a 16-item self-report measure (Mollica et al., 1992). This measure has been widely used in refugee mental health research and has high test-retest reliability ($r = .89$) and internal consistency ($\alpha = .90$; Mollica et al., 1992). The internal consistency reliability of the HTQ in this study was high ($\alpha = .88$), which is comparable to the scale reliability documented above.

Statistical Analysis

To test the moderator effect of coping style on social support, cognitive appraisals, and social comparisons, a series of hierarchical regression models was used as suggested by Frazier, Tix, and Barron (2004). These models initially estimated the variance in PTSD symptom scores accounted for by each resilience variable (social support, appraisals, and comparisons). Coping style and the interaction between coping style and resilience variables were then added to test whether these coping variables strengthened or weakened the association between resilience variables and PTSD symptoms. Specifically, three hierarchical regression models were estimated, one for each set of resilience variables (social support, cognitive appraisal, and social comparison), along with interaction effects between the resilience variables and the coping style variables that were significantly associated with dependent variable. Because of the possibility that meaningful associations may be obscured in univariate analyses, we analyzed each of the three resilience variables as possibly moderated by the coping style variables, including any coping variables that were significantly associated with the distress variable.

Results

The sample mean score on the HTQ was 2.32 ($SD = 0.62$), just below the 2.5 threshold recommended for identifying clinically significant PTSD symptoms. Thirty (40.0%) participants had scores above the 2.5 cutoff. To test the hypothesis that the three resilience variables (MSPSS, SES, and CAM) and coping subscales (CSI-SF) would be associated with PTSD, we examined the bivariate correlations between predictor variables and the outcome measure (see Table 2). The CSI-SF Emotion-Focused Disengagement subscale was significantly associated with PTSD, $r(73) = .39$, $p = .001$. There were no significant correlations between Problem-Focused Coping and PTSD symptoms. The SES Downward Comparison subscale was also significantly correlated with HTQ score, $r(71) = .29$, $p = .02$. Although bivariate correlations elicited the above results only, hierarchical regression analyses revealed a number of significant findings.

The moderating effect of coping style was tested with a series of three hierarchical linear regression models, one for each predictor variable (MSPSS, SES, and CAM). A hierarchical linear regression model, testing PTSD and both SES variables together, indicated that coping style significantly moderated the relationship between social comparison (SES) and PTSD symptom scores on the HTQ, $F(2, 64) = 8.37$, $R^2 = .39$, $p = .002$ (see Table 3). Emotion-Focused Disengagement Coping style was a significant predictor of PTSD, as was the SES Downward

Comparisons subscale. Furthermore, there was a significant interaction between these two variables, with Emotion-Focused Disengagement Coping style increasing the strength of the association between downward comparison and HTQ score. In other words, among those individuals whose coping style involved the avoidance or disavowal of emotions, the use of downward comparisons (seeing other survivors as *worse off*) was associated with greater PTSD symptoms, whereas no relationship existed between these variables for individuals who did not rely on emotional disengagement as a coping strategy.

In addition, we analyzed the moderating effects of Emotion-Focused Coping on the three cognitive appraisal factors (Control, Valence, and Certainty). Significant interaction effects were observed between Emotion-Focused Disengagement Coping and the Valence and Control subscales of the CAM, $F(7, 61) = 4.78$, $R^2 = .38$, $p < .001$. Specifically, Emotion-Focused Disengagement Coping significantly moderated the relationship between both Valence and Control appraisals and PTSD, although in opposite directions, $\Delta R^2 = .15$, $p = .008$ (see Table 4). This result indicates that, among those individuals who rely on emotional disengagement, Valence was negatively

Table 2. Correlations Between Predictor Variables and PTSD Symptom Score

Measure	HTQ
MSPSS	
Family	.11
Non-family	-.03
SES	
Downward comparisons	.29*
Upward comparisons	.14
Cognitive appraisals	
Control	-.07
Valence	-.08
Certainty	-.24
CSI	
Problem-Focused Engagement	-.09
Emotion-Focused Engagement	-.02
Problem-Focused Disengagement	-.06
Emotion-Focused Disengagement	.39**

Note. PTSD = posttraumatic stress disorder; MSPSS = Multidimensional Scale of Perceived Social Support; SES = Self-Evaluation Scale; CSI = Coping Strategies Inventory; HTQ = Harvard Trauma Questionnaire.

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

Table 3. Moderator Model of Coping Style on Social Comparison

Variable	Beta	p value
Step 1		
Emotion-Focused Disengagement Coping	.34	.01
Downward comparison	.43	.004
Upward comparison	.10	.45
Step 2		
Coping \times Downward Comparison	-.38	.04
Coping \times Upward Comparison	.04	.62

Note. Model $R^2 = .39$, $p = .017$, $\Delta R^2 = .21$, $p = .002$.

Table 4. Moderator Model of Coping Style on Cognitive Appraisal

Variable	Beta	<i>p</i> value
Step 1		
Emotion-Focused Disengagement Coping	.41	< .01
Control	.03	.82
Valence	-.06	.64
Certainty	-.30	.01
Step 2		
Coping × Control	.36	< .01
Coping × Valence	-.30	.02
Coping × Certainty	-.13	.28

Model $R^2 = .30$, $p = .004$, $\Delta R^2 = .15$, $p = .01$.

associated with PTSD symptom scores but Control was positively associated with greater HTQ scores.

Additionally, we examined the main effects between the social support dimensions (family and friend support) and HTQ, as well as any potential interaction between social support and coping. However, there were no significant main effects or interactions observed between Emotion-Focused Disengagement Coping and the social support variables for HTQ scores.

Discussion

The goal of the study was to explore psychological resilience among survivors of torture and other forms of refugee-related trauma. Although a handful of studies have examined the “buffering” effects of social support, coping style, and other possible “resilience” variables, these studies have typically only examined main effects, not the possible moderating role that coping style might play. We sought to identify whether coping style either enhanced or inhibited the protective nature of three potential resilience variables (social support, cognitive appraisals, and social comparisons) on PTSD symptoms. These analyses demonstrated significant interaction effects with several variables, indicating that coping style can in fact play a moderating role in resilience.

Although we anticipated that several coping styles might moderate the effects of trauma, only an emotion-focused disengagement coping style (i.e., social withdrawal and self-criticism) significantly affected resilience and, in fact, implicated some styles of coping as a relative risk factor. There was no relationship between problem-focused coping and resilience. Yet an emotion-focused disengagement coping style appeared to moderate the relationships between some cognitive appraisal and social comparison variables on PTSD.

These analyses of coping as a moderator also revealed significant main effects for resilience variables on PTSD symptoms, although not always in the expected direction. For example, contrary to expectations that downward comparisons (e.g., seeing others as worse off than oneself) would buffer distress, greater reliance on downward comparisons corresponded to *increased* PTSD symptoms. One possible explanation for these findings is that comparing oneself to others who are worse off may serve as a reminder of traumatic events one has experienced. Additionally, survivor guilt may contribute to the

clinical picture of these individuals who view others’ traumas as worse than their own; in effect, introspection of why these survivors may have escaped with their lives could lead to increased distress. The significant interaction with emotion-focused disengagement coping style suggests that this effect may be heightened among those who are more inward focused and self-critical (i.e., those who have an emotion-focused disengagement coping style). Furthermore, it is possible that those who use emotion-focused disengagement coping and downward comparisons may also be more depressed, which could contribute to the lack of a buffering effect for PTSD.

On the other hand, the interactions between coping style and cognitive appraisals indicated that for individuals who were more isolated and self-critical, greater negative valence appraisals (i.e., viewing the trauma as harmful and bad) corresponded to more severe PTSD symptoms; this relationship was weaker for individuals who were less prone to emotional disengagement. This finding was consistent with expectations, as those who are prone to be inward focused and self-critical may be more likely to blame themselves for the harmfulness of the trauma and therefore experience more psychological distress. Additionally, those emotionally disengaged individuals who viewed the trauma as controllable (as measured by the Control subscale of the CAM) were also more likely to experience PTSD symptoms. Perhaps appraising a situation as controllable, yet not taking actual control of the situation, increased guilt, self-blame, and PTSD symptoms. Conversely, for those survivors of torture who relied less on emotional disengagement, the association between valence and control appraisals and psychological distress was much weaker.

Interestingly, these data suggest that problem-focused coping styles do little to help buffer the effects of torture on psychological distress symptoms, as there was no main effect on PTSD symptoms or interaction effects with resilience variables. Considering that past research has found that avoidance coping styles (Punamaki et al., 2004) and emotion-focused strategies (Kanninen et al., 2002) typically lead to more psychological distress than approach and problem-focused strategies, it is not surprising that a coping style that combines both avoidance and emotion-focused strategies might diminish the benefits of some resilience variables. As such, the research indicates that emotion-focused disengagement coping can function as a risk factor in severity of PTSD symptoms as it appears to play a disadvantaged role.

The lack of association between social support and PTSD is also notable, as several prior studies have demonstrated the benefits of family and friend support in buffering various types of distress (Basoglu et al., 1994; Fawzy, Fawzy, & Hyun, 1993; Stephens & Long, 1999). This lack of findings might indicate that perceived social support following a severe trauma is not always sufficient as a resilience factor on its own, or may reflect idiosyncracies of the sample (e.g., having emigrated to the United States, leaving behind much of their social support network). It is quite possible that individuals in this sample also view their support networks as supportive, but that they do not want to burden their friends/family, or even that their friends/family will not understand the trauma.

Although this study generated a number of interesting results, there are several methodological limitations that warrant note.

For example, the cultural heterogeneity of the study sample precluded an analysis of whether cultural background influences the interaction between coping style, resilience, and distress. Furthermore, although the study measures had been extensively used and validated with samples from different countries, cultural differences in both the psychological constructs measured and understanding of self-report questionnaires more generally are certainly possible. Another difficulty in studying PTSD and coping is the overlap between PTSD symptoms and modes of coping, which could obscure some of the results. For example, social withdrawal, an aspect of Emotion Disengagement, is also a PTSD symptom. Finally, the modest sample size may have obscured some potentially important associations, particularly given the reduced power available for detecting interaction effects. Further research with larger samples is needed to more fully explore these important associations.

Conclusions

Despite the above limitations, the results of this study have a number of clinical implications for clinicians working with survivors of torture. For example, the finding that harm and negative valence appraisals were associated with greater severity in PTSD symptoms among those who rely on emotional engagement indicates areas of cognition that clinicians could target. For example, a clinician who identifies avoidant strategies in a survivor of torture may want to address the patient's negative and harmful appraisals regarding the trauma event in order to reduce the likelihood of further self-blame. Furthermore, the importance of social comparisons suggests that clinicians might want to facilitate the use of upward comparisons among those who rely on an emotional disengagement coping style, as downward comparisons were associated with greater distress. These clinical suggestions may provide guidelines for procedural suggestions in programs such as those in the National Consortium of Torture Treatment Programs. Systematically, given the finding that disengagement coping can serve as a risk factor for PTSD severity, clinic staff might consider identifying those patients entering the clinic who are socially isolated and appear avoidant, to expedite the treatment process to reduce this risk.

Although preliminary, these findings highlight the importance of understanding the interplay between coping strategies and risk/resilience factors. Risk and resilience factors are often conceptualized in a "one size fits all" manner with little analysis of the potential individual differences in these factors. These results indicate that a more nuanced understanding of risk and resilience is needed to elucidate the way in which resilience variables interact with one another. Future research may also help delineate character profiles that help identify which patterns of coping and resilience variables are most appropriate for different individuals, allowing a more nuanced approach to intervention as well. Such efforts are certainly needed to optimize treatment of this disadvantaged and highly distressed population.

Keywords: refugees; survivors of torture; New York City; resilience; coping style; trauma; war-related trauma; PTSD; social support; quality of support; cognitive appraisal; social comparison

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